LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 12

2024

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

VOLUME 12

2024

A. Title: Minutes – Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant, March 20, 2024
Author(s): Department of the Army
Recipient: All Parties
Date: May 9, 2024
Bate Stamp: 01232083–01232105

B. Title: Minutes – Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant, April 17, 2024
Author(s): Department of the Army
Recipient: All Parties
Date: May 9, 2024
Bate Stamp: 01232106–01232118

C. Title: Report – Draft Final Third Annual Remedial Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas, May 2024
Author(s): Department of the Army
Recipient: Environmental Protection Agency and Texas Commission on Environmental Quality
Date: May 9, 2024
Bate Stamp: 01232119–01232909

D. Title: Report (Cont'd) – Appendix C, File 1 to Draft Final Third Annual Remedial Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas, May 2024
Author(s): Department of the Army
Recipient: Environmental Protection Agency and Texas Commission on Environmental Quality
Date: May 9, 2024
Bate Stamp: 01232910–01234083

Subject:	**Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting:	**WebEx**
Date of Meeting:	**20 March 2024 – 10:00 AM Central Daylight Time (CDT)**

Attendees:

USEPA:	Joel Reyes (JR)
USGS:	Tim Bartos and Christopher Braun
USACE:	Aaron Williams (AW)
BRAC:	Kyle Russell (KR)
TCEQ:	April Palmie (AP) and Juan Martinez (JM)
PCI/Bhate JV:	Zachary Beck (ZB), Scott Beesinger (SB), Kim Nemmers (KN), Nick Alfino, and Erin Bradley
APTIM:	William Foss (WF)
HDR:	Gregory Kelly (GK)

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

There were no outstanding action items to discuss.

Groundwater Treatment Plant (GWTP) – ZB stated the GWTP returned to operational status after repairs were completed from the freeze event in January 2024; however, the oxidation reduction potential (ORP) and potential of hydrogen (pH) levels of the fluidized bed reactor (FBR) have not yet normalized. ZB stated the results of an effluent sample collected after the second ion exchange (IX) vessel indicated no detectable perchlorate. Therefore, ZB explained discharging then commenced following receipt of the effluent sample results. A storm event on 14-15 March 2024 caused a large tree to fall on powerlines between LHAAP-12 and LHAAP-16, resulting in no power to the GWTP and halting operation. SB said efforts to address the power outage were prevented by wet conditions. SB stated he is in the process of acquiring mats to make the area accessible and will also contact other high voltage companies that may be willing to make the repairs in current conditions. SB clarified the location of the downed tree stating that the area is situated in the right of way off the road; a location that has experienced previous issues.

SB stated the potable water lines are undergoing repairs, and there is currently no potable water at the GWTP. SB said a contractor was onsite to fix an underground leak the second week of March 2024, and the repair of several other leaks is underway.

SB stated there are five pumps that require replacement; however, electricity must be restored for replacement to be completed. SB stated the procurement of several flow meters, requiring replacement, is in progress. ZB said that the sludge will be pumped out of the sump and transported off site once electricity is available. ZB stated the ion exchange (IX) resin is also planned to be changed out in both IX vessels in April 2024. ZB concluded the main priority is returning electricity to the GWTP.

JR asked when the GWTP was constructed and if a constructive analysis was conducted to understand the service life of the GWTP. SB answered the GWTP was constructed in 1995, and AW added that the expected longevity of the GWTP was approximately 20 years. AW stated that, despite the GWTP operating past its intended lifespan, the plant is intended to remain operational until the final remedy for LHAAP-18/24 can be implemented. AP suggested the use of an on-site generator as a solution for basic functions to power outages. SB stated that reliable electricity is eventually

needed. AP said that due to increasing need for reliable power for the final remedy at LHAAP-18/24, it may be beneficial to begin implementing system upgrades now to additionally address current power issues. AW stated the upgrade could potentially be included in the contract for the final remedy. KN added that thermal companies will provide temporary power for remote areas. She also explained that an underground line can be installed for the GWTP and LHAAP-18/24, which would come from north of the plant.

Field Work – SB stated sampling was completed for LHAAP-04 and LHAAP-46 in February 2024 and LHAAP-17 sampling was completed 1 March 2024. WF stated the LHAAP-16 surface water gauges were installed, and the topographic survey was conducted. WF said groundwater and surface water elevation monitoring will take place over the next six months, and the associated data will be incorporated in the report for the Conceptual Site Model (CSM) update.

ZB asked everyone to refer to the Document and Issues (DI) Tracking Table for March 2024.

- **Tasks 1 -5** (Project Management) – ZB stated the Final February 2024 Monthly Managers' Meeting (MMM) minutes were submitted on 15 March 2024 and will be placed into the administrative record (AR). ZB said that the Draft Final November 2023 Restoration Advisory Board (RAB) minutes were submitted to RAB members 20 December 2023 and the next RAB is tentatively scheduled for 27 June 2024. ZB said that Judy Vandevanter had not confirmed the for the June RAB meeting date. AP stated the RAB meeting date needs to be moved on the webpage.
- **Task 6** (LHAAP-04) – ZB stated the Year 4 Annual RA-O Report is in progress. ZB said the Year 5 1st Semi-Annual Remedial Action Operation (RA-O) sampling event was completed in February 2024, and the validated data is included in the February package. ZB presented the February 2024 validated data, stating that the perchlorate concentration results ranged from non-detect to far below the PCL of 17 µg/L. ZB said that the Year 4 Report will recommend suspension of perchlorate sampling but continuation of oxidation reduction potential (ORP) and dissolved oxygen (DO) monitoring until pre-injection conditions return. One final perchlorate sampling event will then be completed prior to request for site closure.
- **Task 7** (LHAAP-12) – ZB said that the 2023 Annual RA-O Report is in the internal quality control (QC) process and will be submitted to the Army at the end of March or early April 2024. Therefore, the report will be submitted to the regulators in late April or early May 2024.
- **Task 8** (LHAAP-16) – WF presented the validated data from the Year 4 2nd semiannual RA-O sampling event. WF reported that the biobarrier locations continue to provide an adequate carbon source, with DO and ORP levels at suitable ranges, with the exception of the Bayou Biobarrier, where the carbon source are below the goal of 20 milligrams per liter. He then stated that the ORP measurements would ideally be lower. WF stated that dehalococcoide populations vary from moderate to robust across different locations within the barriers. WF said that overall conditions within the barrier are favorable; however, the diminishing carbon source within the Bayou Biobarrier suggests the need for consideration of re-injection at that location. WF explained that, in the eastern direction downgradient of the mid-plume area, there is an overall increasing trend in TCE concentrations. Detected TCE concentrations over time at several locations in the shallow and intermediate zones, such as 16WW48, 16WW51, 16WW57, and 16WW58, show an overall increasing trend despite the decrease in January 2024 from the highs detected in the January or July 2023 results at

most of the locations. WF said that the observed increasing trend downgradient of the mid-plume area will be evaluated in the CSM update. WF stated regulatory comments have been received for the Year 3 RA-O Report, and responses will be submitted in April 2024.

- **Task 9** (LHAAP-18/24/GWTP) – ZB stated the next semi-annual sampling event is scheduled for June 2024. ZB said it will be recommended to issue change pages for the appendix containing drilling information to address regulator comment for the 2nd Quarter GWTP Report. ZB stated the remaining comments will be addressed in the 3rd Quarter GWTP Report, which is currently in progress. AP agreed that change pages would adequately address the Texas Commission on Environmental Quality (TCEQ) comment. ZB stated the 4th Quarter GWTP Report is also in progress.
- **Task 10** (LHAAP-37) – WF stated that the 6 Annual RA-O Report received TCEQ and United States Environmental Protection Agency (USEPA) approval and will be placed into the AR. WF said comments are being addressed for the Year 7 Annual RA-O Report and will be submitted to regulators in April 2024.
- **Task 11** (LHAAP-46) – WF said responses to regulator comments are underway for the Year 9 Annual RA-O Report and will be submitted to regulators in March 2024. WF stated the Year 10 Annual RA-O sampling took place in February 2024, and the validated data will be presented at the April 2024 MMM.
- **Task 12** (LHAAP-50) **–** ZB said the Year 9 Annual RA-O Report Draft Final Report along with the response to comments was submitted on 13 March 2024 and received USEPA approval and is under TCEQ review. AP indicated that her review would be completed by the end of March 2024. ZB stated the Year 10 Semiannual Event #2 is scheduled for April 2024, and the validated data will be presented in May 2024.
- **Task 13** (LHAAP-58) – ZB stated the Year 9 RA-O Report Draft Final received USEPA and TCEQ approval and will be placed into the AR. ZB said the next Year 10 Annual RA-O annual sampling event is scheduled for June 2024; however, ZB inquired about the possibility of rescheduling the sampling event to May 2024 instead of June 2024, citing that SB would be undertaking a heavy workload in June 2024 due to concurrent sampling events. AP asked what other month sampling takes place at LHAAP-58, to which ZB explained typically sampling takes place in December and June; however, 2024 marks the first year that annual sampling is planned. KN asked for verbal concurrence for the sampling to be rescheduled to May 2024 or if the change stated in writing was desired. AP gave verbal concurrence, and JR requested an email.
- **Task 14** (LHAAP-67) – WF stated the Year 10 Annual RA-O Report is in preparation, and the draft will be submitted for regulatory review in April 2024. WF said the Year 9 Annual RA-O Report will be included in the 4th Quarter 2023 AR Update.
- **Task 15** (LHAAP-001-R-01 and LHAAP-003-R-01) – ZB stated the Annual Land Use Control (LUC) inspections have not yet been conducted due to wet conditions. ZB said it is necessary to mow and bush hog before inspections can be completed. ZB said this was intended for March 2024; however, rain events are forecasted. ZB stated the report will progress as soon as inspections are completed.
- **Task 16** (Surface Water) – ZB stated the Annual Surface Water Sampling Report- Year 5 was submitted on 6 February 2024 and does not require regulatory review. ZB stated the 1st Quarter 2024 surface water samples were collected in January 2024, and the 2nd Quarter sampling is scheduled for April 2024.

- **Task 17** (2023 LUC Management Plan) – ZB said the LUC Management Plan will be updated to include LHAAP-18/24 and LHAAP-29 and has a likely submittal date of April 2024.
- **Task 18** (AR) – WF stated printing of the July through September AR experienced a setback due to a large section being reissued. However, WF said printing has been initiated the second to last week of March 2024 and is intended to be completed by the end of March or early April 2024. WF said the October through December list is settled and documents have been acquired and printing will begin soon.

Update on other DERP Sites:

- **LHAAP 18/24 –** GK said the Remedial Design (RD) was submitted in March 2024 and is ready to be placed into the AR.
- **LHAAP-29** – GK said the RD was submitted in February 2024 and is ready to be placed into the AR.
- **LHAAP-47** – GK stated the Pre-Design Investigation (PDI) Report received approval and is ready to be placed into the AR. GK said the RD is in progress; however, there is outstanding field work for the PDI for the step drawdown test and optional wells that would be incorporated into the 30-percent RD. AP asked if the LHAAP-18/24 and LHAAP-29 RDs will proceed independently of the LHAAP-47 RD as they typically move forward together. AW explained that the LHAAP-47 RD is significantly behind, and it is preferable not to delay the progress of the others due to this.
- **LHAAP-17** – ZB stated the response to comments are anticipated to be submitted by the end of March 2024 for the Final Interim Remedial Action Construction Report (RACR). ZB said the Draft Final Year 1 RA-O Report was approved and will be placed into the AR. ZB stated the validated data for the sampling event completed in March 2024 will be presented at the April 2024 MMM, and the next quarterly sampling event is scheduled for June 2024. ZB said LUC notices are pending the outcome of the Interim RACR; therefore, the process has not been initiated. AP asked for clarification regarding the issue surrounding the Defense Technical Information Center. ZB stated TLI is awaiting publications surrounding the signal flares identified during remedy implementation.

Per- and polyfluoroalkyl substances (PFAS) Update: AW stated the Remedial Investigation (RI) contract is pending.

Five-Year Review: AW stated the Five-Year Review is intended to be submitted in April 2024, although the timeline is dependent upon the contractor's response to additional comments. AP expressed concern regarding achieving the completion date. After discussion, AW stated the completion date to be 30 September 2024.

Transfer Update: KW stated there is no update.

Schedule Next Managers' Meeting:

ZB said the next MMM will be held via WebEx on Wednesday 17 April 2024 at 10:00 AM CDT.

Meeting adjourned at approximately 10:57 AM CDT.

ACRONYM LIST

AP	April Palmie
AR	Administrative Record
AW	Aaron Williams
CDT	Central Daylight Time
CSM	Conceptual Site Model
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
FBR	Fluidized bed reactor
Ft	Feet
GIS	Geographic Information Systems
GK	Gregory Kelly
GWTP	Groundwater Treatment Plant
ICT	Interceptor Collection Trench
IX	Ion exchange
INF	Intermediate-Range Nuclear Forces Treaty
JR	Joel Reyes
KR	Kyle Russel
KN	Kim Nemmers
LHAAP	Longhorn Army Ammunition Plant
LUC	Land Use Control
MMM	Monthly Managers' Meeting
OM&M	Operation, Maintenance, and Monitoring
ORP	Oxidation Reduction Potential
PA/SI	Preliminary Assessment/Site Inspection
PBJV	Poarch Creek Indians, Governmental Services, LLC /Bhate Environmental Associates Joint Venture
pH	Potential of Hydrogen
RAB	Restoration Advisory Board
RACR	Remedial Action Construction Report
RA-O	Remedial Action – Operation
RTC	Response to comments
SB	Scott Beesinger
TCEQ	Texas Commission on Environmental Quality
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Command
USEPA	United States Environmental Protection Agency
WF	William Foss
ZB	Zachary Beck

LHAAP Validated Data
March 2024 MMM

GWTP Effluent	*Weekly Perchlorate Sampling –February 2024* Perchlorate (6850)
LHAAP-04	*Semiannual Sampling – February 2024* Perchlorate (6850)
LHAAP-16	*January 2024 Remedial Performance Monitoring (Year 4, Semiannual Event #2)* Volatile Organic Compounds (8260C) Perchlorate (EPA 6850) Dissolved Gases (RSK-175) Nitrate/Sulfate (SW9056A) Total Organic Carbon (SM5310B) Dechlorinating Bacteria (Census) Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, and pH)

GWTP Weekly/Effluent Perchlorate Sampling - February 2024

Location Identification: Sample Date:	Units	Daily Maximum Concentration	PCL	LH18/24-SP650_022924_Between 2/29/24	LH18/24-SP650_022924_After 2/29/24
Location Description					
				Weekly	Weekly
Perchlorate (6850)					
Perchlorate	µg/L	589	17	**0.0698 J**	< 0.0500 U

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

µg/L - micrograms per liter

Between - effluent sample collected between the two ion echange vessels

After - effluent sampled collected after both ion exchange vessels

J - estimated between the detection limit and limit of quantitation

U - non detect and reported to the limit of detection

Bold values - detected result

LHAAP-04

February 2024 Semiannual Event

Location ID: / Sample Date:	Units	PCL	04WW01_022924 2/29/24	04WW01_022924-a 2/29/24	04WW04_022924 2/29/24	04WW05_022924 2/29/24	04WW07_022924 2/29/24	04WW09_022924 2/29/24	04WW10_022924 2/29/24	04WW11_022924 2/29/24
Perchlorate (6850)										
Perchlorate	µg/L	17	< 0.500 U	< 0.500 U	**0.0510 J**	**0.0474 J**	< 0.0500 U	< 0.0500 U	**0.0558 J**	**0.148**

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

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

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

µg/L - micrograms per liter

Bold values - detected result

01232091

Site Layout and Features

Figure 2

Fourth Annual RA-O Report LHAAP-04
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 1/11/2024

SCALE: As Shown

PROJECT NO: JVPCIBH.0001.0002.01

PCIbhate

LHAAP-66
LHAAP-60A
LHAAP-60B
LHAAP-60C
LHAAP-04
Site LHAAP-04 Boundary
04WW01
04WW02
04WW04
04WW05
04WW06
04WW07
04WW08
04WW09
04WW10
04WW11
LHSMW01
LHSMW02
60TH ST.
6TH ST.
AVE "T"
Former Fire Station

Acronyms:
RA-O - Remedial Action Operations

Aerial Photography Source: Google Earth, 6/11/2022

0 30 60 120
Feet

Legend:

- RA-O Monitoring Well Location
- Shallow Monitoring Well Location
- Intermediate Monitoring Well Location
- Limits of Excavation at Surface (Source: LHAAP-04 Final Completion Report, Shaw, 2011)
- Land Use Control Boundary
- Installation Restoration Program (IRP) Area
- Stream
- Former and/or Existing Building Location

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

Injection Area:			**Landfill Biobarrier #1**										
Location Code			**16IW09**		**16RW01**		**16RW04**		**16RW05**		**16WW26**		**16WW42**	
Sample ID			**16IW09-240110**		**16RW01-240118**		**16RW04-240118**		**16RW05-240119**		**16WW26-240206**		**16WW42-240119**	
Sample Date			**1/10/2024**		**1/18/2024**		**1/18/2024**		**1/19/2024**		**2/6/2024**		**1/19/2024**	
Location Description:			**REG**		**REG**		**REG**		**REG**		**REG**		**REG**	
Location Description:			**Performance Data Within Landfill Biobarrier #1; Shallow Zone**		**Upgradient Well for Landfill Biobarrier #1; Shallow Zone**		**Downgradient Well for Landfill Biobarrier #1; Shallow Zone**		**Downgradient Well for Landfill Biobarrier #1; Shallow Zone**		**Downgradient Well for Landfill Biobarrier #1; Shallow Zone**		**Downgradient Well for Landfill Biobarrier #1; Shallow Zone**	
Analyte	**Units**	**MCL/PCL/UTL**	**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	4.6		NA		NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.46		0.58		0.42		0.09		0.49		4.38	
Oxidation Reduction Potential	mV	NV	-75		181		209		71		155		193	
pH	SU	NV	6.48		5.2		5.36		6.76		4.96		5.14	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	210,000		NA		NA		NA		NA		NA	
Ethane	µg/L	NV	< 0.5	UJ	NA		< 0.5	UJ	< 0.5	UJ	NA		NA	
Ethylene	µg/L	NV	< 0.5	UJ	NA		4.23	J	< 0.5	UJ	NA		NA	
Methane	µg/L	NV	7,990	J	NA		282		3,890	J	NA		NA	
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV	0.0413	J	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	9.55		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	112		NA		NA		NA		1.76		NA	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	0.152		0.0812	J	< 0.05	U	< 0.05	U	< 0.05	U	0.155	
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 5	U	< 1	U	< 10	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 5	U	< 5	U	< 1	U	< 10	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 1	U	< 5	U	< 5	U	< 1	UJ	< 10	U	< 1	UJ
cis-1,2-Dichloroethene	µg/L	70	1.4		**72**		**140**		1.3		66		34	
Methylene chloride	µg/L	5	< 1	U	< 5	U	< 5	U	< 1	U	< 10	U	< 1	U
Trichloroethene	µg/L	5	< 1	U	**2,200**		**3,200**		0.87	J	**910**		**19**	J
Vinyl chloride	µg/L	2	< 1	U	**2.6**	J	**5.8**		< 1	U	< 10	U	< 1	U

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

Injection Area:			**Landfill Biobarrier #2**											
Location Code			**16IW03**				**16PM02**		**16PM03**		**16PM06**		**16PM09**	
Sample ID			**16IW03-240110**		**16IW03-240110-FD**		**16PM02-240118**		**16PM03-240118**		**16PM06-240118**		**16PM09-240118**	
Sample Date			**1/10/2024**		**1/10/2024**		**1/18/2024**		**1/18/2024**		**1/18/2024**		**1/18/2024**	
Location Description:			**REG**		**FD**		**REG**		**REG**		**REG**		**REG**	
Location Description:			**Performance Data Within Landfill Biobarrier #2; Shallow Zone**				**Upgradient Well for Landfill Biobarrier #2; Shallow Zone**		**Upgradient Well for Landfill Biobarrier #2; Shallow Zone**		**Downgradient Well for Landfill Biobarrier #2; Shallow Zone**		**Downgradient Well for Landfill Biobarrier #2; Shallow Zone**	
Analyte	**Units**	**MCL/PCL/UTL**	**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	686,000		NA		NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.34		0.34		0.68		0.48		0.67		1.54	
Oxidation Reduction Potential	mV	NV	-37		-37		104		96		19		163	
pH	SU	NV	6.15		6.15		5.9		6.27		5.79		5.68	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	230,000		250,000		NA		NA		NA		NA	
Ethane	µg/L	NV	< 0.5	UJ	< 0.5	UJ	NA		NA		30	J	NA	
Ethylene	µg/L	NV	2490	J	1390	J	NA		NA		192	J	NA	
Methane	µg/L	NV	7,220	J	5,050	J	NA		NA		769		NA	
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV	< 0.05	U	< 0.05	U	NA		NA		NA		NA	
Sulfate	mg/L	NV	0.362	J	0.481	J	NA		NA		NA		NA	
Total organic carbon	mg/L	NV	555		650		NA		NA		NA		NA	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	0.0633	J	0.0393	J	0.0791	J	**324**		0.0558	J	0.0854	J
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 50	U	< 50	U	< 250	U	< 50	U	< 250	U	< 25	U
1,1-Dichloroethene	µg/L	7	< 50	U	< 50	U	< 250	U	< 50	U	< 250	U	**24**	J
1,2-Dichloroethane	µg/L	5	< 50	U	< 50	U	< 250	U	< 50	U	< 250	U	< 25	U
cis-1,2-Dichloroethene	µg/L	70	**1,500**	J	**3,200**	J	**4,900**		**7,500**		**25,000**		**320**	
Methylene chloride	µg/L	5	< 50	U	< 50	U	< 250	U	< 50	U	< 250	U	< 25	U
Trichloroethene	µg/L	5	**890**		**670**		**47,000**		**7,700**		**80,000**		**1,100**	
Vinyl chloride	µg/L	2	**390**	J	**530**	J	**150**	J	**200**		**670**		**13**	J

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

		Injection Area:	Landfill Biobarrier #2						Landfill Biobarrier #3					
		Location Code	16PM14		16WW36				16RW06		16RW07		16RW09	
		Sample ID	16PM14-240118		16WW36-240118		16WW36-240118-FD		16RW06-240111		16RW07-240111		16RW09-240206	
		Sample Date	1/18/2024		1/18/2024		1/18/2024		1/11/2024		1/11/2024		2/6/2024	
		Location Description:	REG		REG		FD		REG		REG		REG	
		Location Description:	Downgradient Well for Landfill Biobarrier #2; Shallow Zone		Downgradient Well for Landfill Biobarrier #2; Shallow Zone				Upgradient Well for Landfill Biobarrier #3; Shallow Zone		Upgradient Well for Landfill Biobarrier #3; Shallow Zone		Downgradient Well for Landfill Biobarrier #3; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL**	**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	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.31		0.46		0.46		0.49		0.49		0.39	
Oxidation Reduction Potential	mV	NV	112		139		139		29		50		106	
pH	SU	NV	6.52		6.09		6.09		6.72		6.64		6.44	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		NA		NA		NA		NA		NA	
Ethane	µg/L	NV	NA		NA		NA		NA		NA		9.27	J
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		35.1	J
Methane	µg/L	NV	NA		NA		NA		NA		NA		849	
General Chemistry (SM5310B/SW9056A)														
Nitrate	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		17.9		18		NA		NA		1.84	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	0.149		0.136		0.104		0.0367	J	0.366		0.0629	J
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 50	U	< 50	U	< 50	U	< 1	U	< 1	U	< 25	U
1,1-Dichloroethene	µg/L	7	< 50	U	**140**		**120**		1.6		**17**		< 25	U
1,2-Dichloroethane	µg/L	5	< 50	U	< 50	UJ	< 50	UJ	< 1	U	< 1	U	< 25	U
cis-1,2-Dichloroethene	µg/L	70	**5,100**		**8,700**		**8,600**		12		**140**		**260**	
Methylene chloride	µg/L	5	< 50	U	< 50	U	< 50	U	< 1	U	< 1	U	< 25	U
Trichloroethene	µg/L	5	**5,400**		**12,000**	J	**11,000**	J	**120**		**1,900**		**2,800**	
Vinyl chloride	µg/L	2	**190**		**150**		**140**		**6.7**		**99**		**140**	

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		Injection Area:	Landfill Biobarrier #3				Bayou Biobarrier							
		Location Code	16RW10		16IW10		16IW20		16RW12				16WW12	
		Sample ID	16RW10-240206		16IW10-240111		16IW20-240111		16RW12-240206		16RW12-240206-FD		16WW12-240206	
		Sample Date	2/6/2024		1/11/2024		1/11/2024		2/6/2024		2/6/2024		2/6/2024	
		Location Description:	REG		REG		REG		REG		FD		REG	
		Location Description:	Downgradient Well for Landfill Biobarrier #3; Shallow Zone		Performance Data Within Landfill Biobarrier #3; Shallow Zone		Performance Data Within the Bayou Biobarrier; Shallow Zone		Downgradient Well for Bayou Biobarrier; Shallow Zone				Upgradient Well for Bayou Biobarrier; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL**	**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		3,600		6,110		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.28		0.63		0.6		0.29		0.29		0.2	
Oxidation Reduction Potential	mV	NV	0		-81		5		20		20		103	
pH	SU	NV	6.49		6.59		5.81		6.31		6.31		6.24	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		210,000	J	240,000	J	NA		NA		NA	
Ethane	µg/L	NV	16	J	2.64	J	2.27		NA		NA		NA	
Ethylene	µg/L	NV	24.6	J	22.7	J	24.2	J	NA		NA		NA	
Methane	µg/L	NV	2,100		2,820		4,610		NA		NA		NA	
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV	NA		0.0425	J	< 0.05	U	NA		NA		NA	
Sulfate	mg/L	NV	NA		3.71		252		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		133		9.02		NA		NA		NA	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	7.57		0.0531	J	0.0445	J	0.0282	J	< 0.05	U	12.2	
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 20	U	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 20	U	< 1	U	< 1	U	1.3		1.4		< 5	U
1,2-Dichloroethane	µg/L	5	< 20	U	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	**780**		7.3		4.7		**110**		**120**		**190**	
Methylene chloride	µg/L	5	< 20	U	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U
Trichloroethene	µg/L	5	**1,800**		0.98	J	**5.4**		**57**		**57**		**470**	
Vinyl chloride	µg/L	2	**310**		< 1	U	**24**		**15**		**15**		**2.2**	J

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		Injection Area:	Bayou Biobarrier				Mid Plume and Bayou Biobarrier		Mid Plume Area					
		Location Code	16WW22		16WW40		16WW39		16EW01		16EW02		16EW03	
		Sample ID	16WW22-240111		16WW40-240206		16WW39-240111		16EW01-240205		16EW02-240111		16EW03-240205	
		Sample Date	1/11/2024		2/6/2024		1/11/2024		2/5/2024		1/11/2024		2/5/2024	
		Location Description:	REG		REG		REG		REG		REG		REG	
		Location Description:	Upgradient Well for Bayou Biobarrier; Shallow Zone		Downgradient Well for Bayou Biobarrier; Shallow Zone		Upgradient Well for Bayou Biobarrier and Downgradient Well for Mid-Plume; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone	
Analyte	Units	MCL/PCL/UTL	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		10,200		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.24		0.08		1.74		1.08		0.26		0.12	
Oxidation Reduction Potential	mV	NV	6		50		66		17		-31		-21	
pH	SU	NV	6.5		6.31		6.35		6.47		6.27		6.54	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		NA		NA		NA		230,000	J	170,000	
Ethane	µg/L	NV	NA		6.69	J	NA		NA		< 25	U	< 0.5	U
Ethylene	µg/L	NV	NA		4.17	J	NA		NA		1,090	J	301	J
Methane	µg/L	NV	NA		575		NA		NA		1,250		1,570	J
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV	NA		NA				NA		< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	NA		NA				NA		3,510		2,610	
Total organic carbon	mg/L	NV	NA		4.8				16.4		13.9		15.8	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	2.31		< 0.5	U	8.17		**44.2**		< 0.05	U	< 0.025	U
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 1	U	< 10	U	< 200	U	< 20	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 5	U	2.3		< 10	U	**260**		< 20	U
1,2-Dichloroethane	µg/L	5	< 1	U	< 5	U	< 1	U	< 10	U	< 200	UJ	< 20	U
cis-1,2-Dichloroethene	µg/L	70	8.6		**260**		56		**680**		**22,000**		**1,500**	
Methylene chloride	µg/L	5	< 1	U	< 5	U	< 1	U	< 10	U	< 200	U	< 20	U
Trichloroethene	µg/L	5	**35**		**430**		**600**	J	**380**		**31,000**		**820**	
Vinyl chloride	µg/L	2	1.7		< 5	U	**9.2**		**93**		**2,100**	J	**380**	

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Injection Area:			Mid Plume Area										
Location Code			16EW04		16EW08		16IW26		16WW29		16WW30		16WW48	
Sample ID			16EW04-240205		16EW08-240205		16IW26-240110		16WW29-240119		16WW30-240119		16WW48-240205	
Sample Date			2/5/2024		2/5/2024		1/10/2024		1/19/2024		1/19/2024		2/5/2024	
Location Description:			REG		REG		REG		REG		REG		REG	
Location Description:			Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone		Performance Data Within Mid-Plume ISB Injection Area; Inetermediate Zone		Downgradient Well for Mid-Plume; Intermediate Zone		Downgradient Well for Mid-Plume; Shallow Zone		Downgradient Well for Mid-Plume; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL**	**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		364,000		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.15		0.28		0.29		0.18		1.4		0.25	
Oxidation Reduction Potential	mV	NV	36		-143		-131		-30		39		144	
pH	SU	NV	5.81		6.46		6.93		6.02		5.76		6.23	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		NA		760,000		NA		NA		240,000	
Ethane	µg/L	NV	NA		NA		< 0.5	UJ	NA		NA		< 0.5	U
Ethylene	µg/L	NV	NA		NA		26.6	J	NA		NA		61.8	J
Methane	µg/L	NV	NA		NA		3,940	J	NA		NA		42.6	J
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV			NA		< 0.05	U	NA		NA		< 0.1	U
Sulfate	mg/L	NV	NA		NA		1.53		NA		NA		2,460	
Total organic carbon	mg/L	NV	NA		NA		80.5		NA		NA		NA	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.025	U	< 0.025	U	0.0968	J	< 0.05	U	0.0524	J	2.38	
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 200	U	< 1	U	< 1	U	< 1	U	< 1	U	< 250	U
1,1-Dichloroethene	µg/L	7	< 200	U	< 1	U	< 1	U	< 1	UJ	< 1	U	< 250	U
1,2-Dichloroethane	µg/L	5	< 200	U	< 1	U	< 1	U	< 1	UJ	< 1	UJ	< 250	U
cis-1,2-Dichloroethene	µg/L	70	**4,700**		1.2		< 1	U	< 1	U	6.2		**26,000**	
Methylene chloride	µg/L	5	< 200	U	< 1	U	< 1	U	< 1	UJ	< 1	U	< 250	U
Trichloroethene	µg/L	5	**12,000**		1.4		< 1	U	0.88	J	**35**	J	**16,000**	
Vinyl chloride	µg/L	2	**320**		< 1	U	< 1	U	< 1	UJ	< 1	U	**600**	

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		Injection Area:	Mid Plume Area				MNA and LTM Performance Wells from RAWP Table 4-9					
		Location Code	16WW49		16WW51		16WW13		16WW16			
		Sample ID	16WW49-240205		16WW51-240119		16WW13-240119		16WW16-240118		16WW16-240118-FD	
		Sample Date	2/5/2024		1/19/2024		1/19/2024		1/18/2024		1/18/2024	
		Location Description:	REG		REG		REG		REG		FD	
		Location Description:	Performance Data for Mid-Plume ISB Injection Area; Intermediate Zone		Performance Data for Mid-Plume ISB Injection Area; Intermediate Zone		MNA Evaluation; Downgradient of Landfill Biobarrier #1; Intermediate Zone		MNA Evaluation; Upgradient of Landfill Biobarrier #2; Shallow Zone			
Analyte	Units	MCL/PCL/UTL	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	
Field Measurements												
Dissolved oxygen	mg/L	NV	0.34		0.11		0.28		0.9		0.9	
Oxidation Reduction Potential	mV	NV	10		-74		120		162		162	
pH	SU	NV	6		6.16		5.42		6.55		6.55	
Dissolved Gases (RSK-175)												
Carbon Dioxide	µg/L	NV	NA		NA		NA		160,000		150,000	
Ethane	µg/L	NV	NA		NA		NA		7.7	J	9.95	J
Ethylene	µg/L	NV	NA		NA		NA		17.2	J	20.1	J
Methane	µg/L	NV	NA		NA		NA		1,300		1,610	
General Chemistry (SM5310B/SW9056A)												
Nitrate	mg/L	NV	NA		NA		NA		0.128		0.108	
Sulfate	mg/L	NV	NA		NA		NA		385		406	
Total organic carbon	mg/L	NV	NA		NA		NA		5.26		4.63	
Metals (6020)												
Arsenic	mg/L	NV	NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)												
Perchlorate	µg/L	17	< 0.025	U	< 0.05	U	0.0674	J	**731**		**752**	
Volatile Organic Compounds (8260)												
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 100	U	< 100	U
1,1-Dichloroethene	µg/L	7	< 1	U	**26**		0.6	J	< 100	U	< 100	U
1,2-Dichloroethane	µg/L	5	< 1	U	2.3	J	< 1	UJ	< 100	U	< 100	U
cis-1,2-Dichloroethene	µg/L	70	25		**2,400**		**240**		**20,000**		**22,000**	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 100	U	< 100	U
Trichloroethene	µg/L	5	**79**		**9,700**	J	**97**	J	**40,000**		**41,000**	
Vinyl chloride	µg/L	2	< 1	U	**58**		1.8		**380**		**350**	

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		Injection Area:	MNA and LTM Performance Wells from RAWP Table 4-9											
		Location Code	16WW23				16WW24				16WW25		16WW27	
		Sample ID	16WW23-240207		16WW23-240207-FD		16WW24-240207		16WW24-240207-FD		16WW25-240206		16WW27-240207	
		Sample Date	2/7/2024		2/7/2024		2/7/2024		2/7/2024		2/6/2024		2/7/2024	
		Location Description:	REG		FD		REG		FD		REG		REG	
		Location Description:	MNA Evaluation; Intermediate Zone				MNA Evaluation; Shallow Zone				MNA Evaluation; Intermediate Zone		MNA Evaluation; Downgradient of Landfill Biobarrier #2; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL**	**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	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.59		0.59		0.7		0.7		0.14		0.28	
Oxidation Reduction Potential	mV	NV	-7		-7		467		467		-56		-37	
pH	SU	NV	5.89		5.89		3.38		3.38		6.1		5.94	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		NA		NA		NA		NA		NA	
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA	
General Chemistry (SM5310B/SW9056A)														
Nitrate	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	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.5	U	< 0.5	U	< 0.05	UJ	< 0.05	U	< 0.5	U	< 0.5	U
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U

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		Injection Area:	MNA and LTM Performance Wells from RAWP Table 4-9										
		Location Code	16WW31		16WW32		16WW33		16WW34		16WW35		16WW37	
		Sample ID	16WW31-240110		16WW32-240110		16WW33-240206		16WW34-240206		16WW35-240118		16WW37-240119	
		Sample Date	1/10/2024		1/10/2024		2/6/2024		2/6/2024		1/18/2024		1/19/2024	
		Location Description:	REG		REG		REG		REG		REG		REG	
		Location Description:	MNA Evaluation; Intermediate Zone		MNA Evaluation; Upgradient of Bayou Biobarrier; Shallow Zone		MNA Evaluation; Intermediate Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Downgradient of Landfill Biobarrier #3; Intermediate Zone		MNA Evaluation; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL**	**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	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.46		0.58		0.14		0.46		2.54		0.51	
Oxidation Reduction Potential	mV	NV	72		13		89		91		135		40	
pH	SU	NV	6.26		6.42		6.42		6.05		6.63		6.28	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		NA		NA		NA		200,000		NA	
Ethane	µg/L	NV	NA		NA		NA		NA		< 0.5	UJ	NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		14.4	J	NA	
Methane	µg/L	NV	NA		NA		NA		NA		175		NA	
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV	NA		NA		NA		NA		< 0.5	U	NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		9,710		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		63.1		NA	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.025	U	0.0349	J	< 0.05	U	0.147		**511**		**75.4**	
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 100	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	**130**		2.3	
1,2-Dichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 100	U	< 1	UJ
cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 1	U	< 1	U	< 1	U	**1,300**		12	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 100	U	< 1	U
Trichloroethene	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	**10,000**		**220**	J
Vinyl chloride	µg/L	2	< 1	U	< 1	U	< 1	U	< 1	U	**110**		**6.2**	

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

		Injection Area:	MNA and LTM Performance Wells from RAWP Table 4-9										
		Location Code	16WW38				16WW41		16WW43		16WW44		16WW46	
		Sample ID	16WW38-240119		16WW38-240119-FD		16WW41-240205		16WW43-240207		16WW44-240119		16WW46-240110	
		Sample Date	1/19/2024		1/19/2024		2/5/2024		2/7/2024		1/19/2024		1/10/2024	
		Location Description:	REG		FD		REG		REG		REG		REG	
		Location Description:	MNA evaluation; Shallow Zone				MNA Evaluation; Upgradient of the Bayou Biobarrier; Intermediate Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL**	**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	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.41		0.41		3.14		2.63		0.25		0.29	
Oxidation Reduction Potential	mV	NV	-17		-17		97		49		-9		46	
pH	SU	NV	6.34		6.34		6.14		6.26		6.19		6.54	
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	NA		NA		830,000		NA		NA		NA	
Ethane	µg/L	NV	NA		NA		3.55		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		29.7	J	NA		NA		NA	
Methane	µg/L	NV	NA		NA		14.9	J	NA		NA		NA	
General Chemistry (SM5310B/SW9056A)														
Nitrate	mg/L	NV	NA		NA		< 0.25	U	NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		7,710		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		35.6		NA		NA		NA	
Metals (6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	**31.9**		0.102		< 0.05	U	< 0.025	U
Volatile Organic Compounds (8260)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 50	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	**24**		**24**		< 50	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 1	UJ	< 1	UJ	< 50	U	< 1	U	< 1	UJ	< 1	U
cis-1,2-Dichloroethene	µg/L	70	**350**		**330**		**2,500**		< 1	U	< 1	U	< 1	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 50	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	**3,600**	J	**3,600**	J	**4,300**		< 1	U	1.5	J	< 1	U
Vinyl chloride	µg/L	2	**100**		**100**		**420**		< 1	U	< 1	U	< 1	U

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

		Injection Area:	**MNA and LTM Performance Wells from RAWP Table 4-9**							
		Location Code	**16WW55**		**16WW56**		**16WW57**		**16WW58**	
		Sample ID	**16WW55-240205**		**16WW56-240111**		**16WW57-240110**		**16WW58-240110**	
		Sample Date	**2/5/2024**		**1/11/2024**		**1/10/2024**		**1/10/2024**	
		Location Description:	**REG**		**REG**		**REG**		**REG**	
		Location Description:	**MNA Evaluation; Shallow Zone**		**MNA Evaluation; Downgradient of the Bayou Biobarrier; Shallow Zone**		**MNA Evaluation; Intermediate Zone**		**MNA Evaluation; Intermediate Zone**	
Analyte	**Units**	**MCL/PCL/UTL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)										
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA	
Field Measurements										
Dissolved oxygen	mg/L	NV	4.32		0.24		0.37		0.83	
Oxidation Reduction Potential	mV	NV	131		56		-11		-57	
pH	SU	NV	6.21		6.54		6.11		5.91	
Dissolved Gases (RSK-175)										
Carbon Dioxide	µg/L	NV	220,000		NA		220,000		270,000	
Ethane	µg/L	NV	3.41		NA		0.52	J	0.787	J
Ethylene	µg/L	NV	19.3	J	NA		0.785	J	< 0.5	UJ
Methane	µg/L	NV	937	J	NA		4.31	J	5.95	J
General Chemistry (SM5310B/SW9056A)										
Nitrate	mg/L	NV	< 0.05	U	NA		< 0.1	U	< 0.05	U
Sulfate	mg/L	NV	575		NA		3,180		734	
Total organic carbon	mg/L	NV	4.2		NA		19.1		5.9	
Metals (6020)										
Arsenic	mg/L	NV	NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA	
Manganese	mg/L	1,100 [a]	NA		NA		NA		NA	
Nickel	mg/L	NV	NA		NA		NA		NA	
Thallium	mg/L	NV	NA		NA		NA		NA	
Perchlorate (EPA 6850)										
Perchlorate	µg/L	17	**45.8**		0.0476	J	0.0435	J	< 0.025	U
Volatile Organic Compounds (8260)										
1,1,2-Trichloroethane	µg/L	5	< 20	U	< 1	U	< 5	U	< 50	U
1,1-Dichloroethene	µg/L	7	< 20	U	1.8		< 5	U	< 50	U
1,2-Dichloroethane	µg/L	5	< 20	U	< 1	U	< 5	U	< 50	U
cis-1,2-Dichloroethene	µg/L	70	**610**		37		6.2		**250**	
Methylene chloride	µg/L	5	< 20	U	< 1	U	< 5	U	< 50	U
Trichloroethene	µg/L	5	**2,100**		**120**		**140**		**4,500**	
Vinyl chloride	µg/L	2	**99**		**3.3**		< 5	U	< 50	U

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

		Injection Area:	Harrison Bayou							
		Location Code	16SW01		16SW02				16SW03	
		Sample ID	16SW01-240119		16SW02-240119		16SW02-240119-FD		16SW03-240119	
		Sample Date	1/19/2024		1/19/2024		1/19/2024		1/19/2024	
		Location Description:	REG		REG		FD		REG	
		Location Description:	Surface Water		Surface Water				Surface Water	
Analyte	**Units**	**MCL/PCL/UTL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)										
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA	
Field Measurements										
Dissolved oxygen	mg/L	NV	NM		NM		NM		NM	
Oxidation Reduction Potential	mV	NV	NM		NM		NM		NM	
pH	SU	NV	NM		NM		NM		NM	
Dissolved Gases (RSK-175)										
Carbon Dioxide	µg/L	NV	NA		NA		NA		NA	
Ethane	µg/L	NV	NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA	
General Chemistry (SM5310B/SW9056A)										
Nitrate	mg/L	NV	NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA	
Metals (6020)										
Arsenic	mg/L	NV	0.000744	J	0.000671	J	0.000716	J	0.000695	J
Chromium	mg/L	NV	0.000642	J	0.000496	J	0.000588	J	0.000811	J
Manganese	mg/L	1,100 [a]	0.0387		0.0332		0.041		0.0381	J
Nickel	mg/L	NV	0.00254	J	0.0023	J	0.00251	J	0.0029	J
Thallium	mg/L	NV	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U
Perchlorate (EPA 6850)										
Perchlorate	µg/L	17	0.0691	J	0.0813	J	0.0628	J	0.0677	J
Volatile Organic Compounds (8260)										
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 1	UJ	< 1	UJ	< 1	UJ	< 1	UJ
cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 1	U	< 1	U	< 1	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 1	UJ	< 1	UJ	< 1	UJ	< 1	UJ
Vinyl chloride	µg/L	2	< 1	U	< 1	U	< 1	U	< 1	U

LHAAP-16 Remedial Performance Monitoring
Year 4 Semiannual Event #2
(January 2024)

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)

Blue highlighting indicates the concentration (bolded) or detection limit (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.

R - The data for this analyte in this sample were rejected due to quality control parameter exceedences.

UB - Undetected. The concentration shown is considered to be a non-detect due to contamination detected in the blank sample.

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

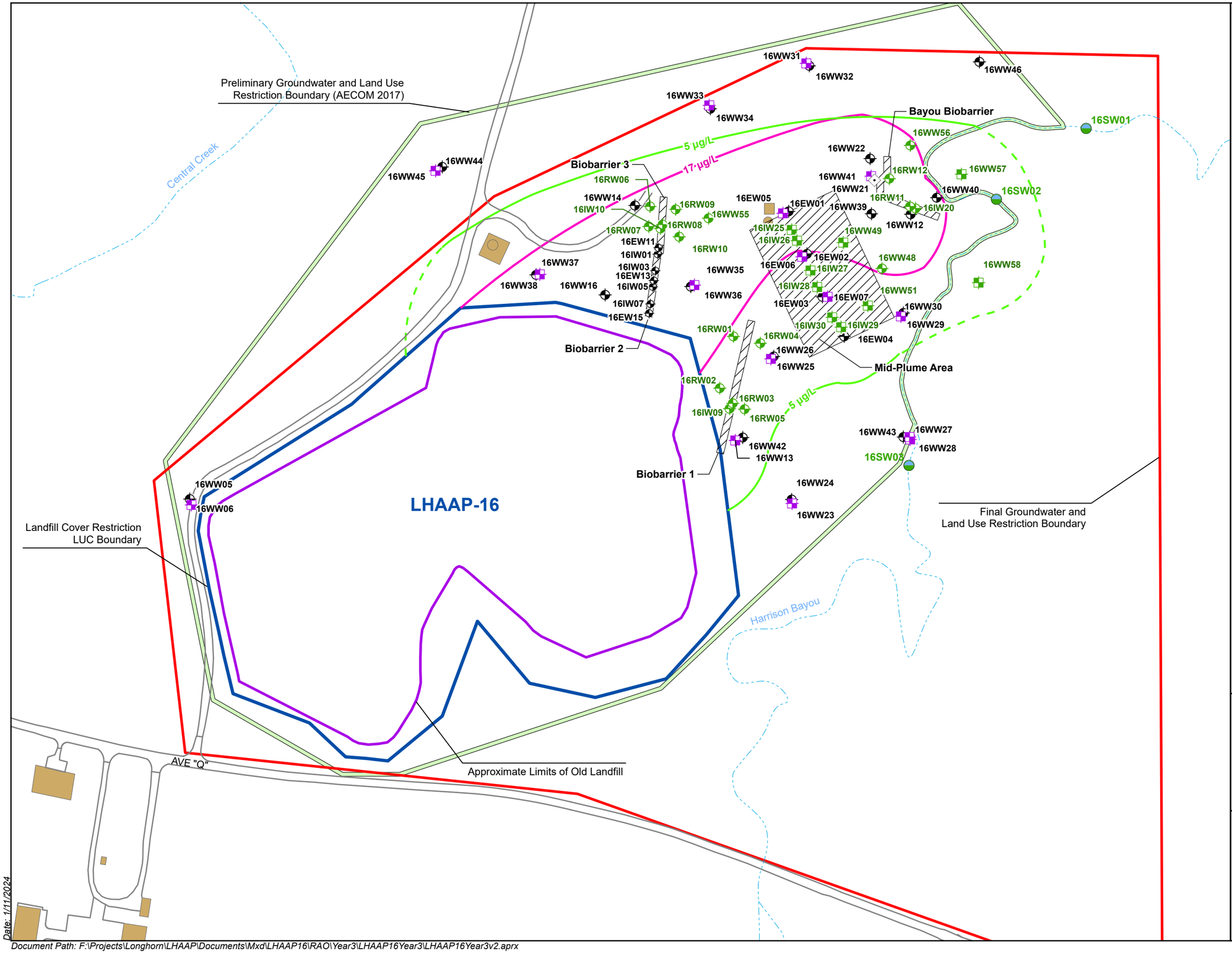
NA - not analyzed

SU - standard pH Units

mV - millivolts

cells/mL - cells per milliliter

UTL - upper tolerance limit



- Shallow Well Installed 2018 or 2019
- Intermediate Well Installed 2018 or 2019
- Existing Shallow Monitoring Well
- Existing Intermediate Monitoring Well
- Existing Upper Deep Monitoring Well
- Surface Water Sample Location
- Extent of Perchlorate Contamination > 17 µg/L in Intermediate and Shallow Zones (September 2019)
- Extent of TCE Contamination > 5 µg/L in Intermediate and Shallow Zones (Dashed Where Inferred) (September 2019)
- Stream
- Sub Area Target In Situ Reaction Zone
- Road
- Final Groundwater and Land Use Restriction Boundary
- Landfill Cover Restriction LUC Boundary
- Approximate Limits of Old Landfill
- Preliminary Groundwater and Land Use Restriction Boundary (AECOM 2017)
- Building or Tank

Notes:
1. µg/L - micrograms per liter
2. LUC - land use control
3. TCE - trichloroethene
4. The eastern side of the Final Groundwater and Land Use Restriction Boundary is shared with the western edge of a similar land use restriction that will cover LHAAP-17 and LHAAP-18/24 located to the east of LHAAP-16.

N

0 100 200 Feet

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

PCIbhate APTIM

Figure 1-3
Site Details
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2024

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Year3\LHAAP16Year3v2.aprx

Subject: **Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting: **WebEx**
Date of Meeting: **17 April 2024 – 10:00 AM Central Daylight Time (CDT)**

Attendees:

USAEC:	Lena Sierocinski (LS)
USGS:	Tim Bartos
USACE:	Aaron Williams (AW), Chelsea Montoya
BRAC:	Kyle Russell (KR)
TCEQ:	April Palmie (AP), Juan Martinez
TLI:	Jon Tatman (JT)
PCI/Bhate JV:	Kim Nemmers (KN), Scott Beesinger (SB), Nick Alfino, and Erin Bradley
APTIM:	Praveen Srivastav (PS), William Foss (WF)
HDR:	Gregory Kelly (GK)

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

There were no outstanding action items to discuss.

Groundwater Treatment Plant (GWTP) – SB stated the GWTP has been running three days a week over the last several weeks, and he has continued to air sparge and backwash the sand filter on non-operational days. SB summarized maintenance activities including the replacement of two pumps on interception collection trench (ICT) wells and the replacement of four flow meters. SB stated an electrical contractor was onsite to replace a hand switch on a well in addition to contactors and motor starters in two other wells. SB said ongoing repairs include replacing probe wire as well as replacing an additional two pumps on ICT wells, pending tractor repair.

KN stated results were received in April 2024 from sampling of before and after the ion exchange (IX) vessels. Both results were non-detect for perchlorate, indicating the fluidized bed reactor (FBR) is performing as designed. Additionally**,** KN reported the Tier II Report and Annual Waste summary were completed for 2023.

Field Work – SB stated LHAAP-17 sampling occurred in March 2024 and that no sampling is scheduled for April 2024. SB stated that groundwater sampling is planned for LHAAP-50 and LHAAP-58 in May 2024. WF said SB obtained the first round of groundwater and surface water elevation measurements for LHAAP-16 in late March and the staff gauges survived recent flooding.

KN asked everyone to refer to the Document and Issues (DI) Tracking Table for April 2024.

- **Tasks 1 -5** (Project Management) – KN stated the draft March 2024 Monthly Managers Meeting (MMM) minutes are currently undergoing internal review and are likely to be submitted to the Regulators by 19 April 2024. KN said the Restoration Advisory Board (RAB) Chair, Judy VanDeventer, confirmed 27 June 2024 as the next RAB meeting date. KN stated preparation for the RAB meeting will commence in May 2024. KN encouraged the MMM members to email Bhate with any specific items they wish to have presented. LS proposed changing the frequency of RAB meetings from three times a year to two times a year contingent upon MMM members' and Judy VanDeventer's approval. AP concurred with reducing the frequency of the meetings.

- **Task 6** (LHAAP-04) – KN said that the Draft Year 4 Annual Remedial Action- Operation (RA-O) Report was submitted on 2 April 2024. KN stated the report includes a recommendation to alter sampling strategy due to the contaminants of concern (COCs) concentrations remaining far below the screening level. KN stated if the recommendation is accepted, the change will be implemented as part of the Year 5 2nd semi-annual RA-O sampling event.

- **Task 7** (LHAAP-12) – KN stated the 2023 Annual RA-O Report is in progress with a likely submittal date to the Regulators of late April or early May 2024.

- **Task 8** (LHAAP-16) – WF reported that the Year 3 RA-O Report is in the final stages of the internal review process, after which responses to comments from the United States Environmental Protection Agency (USEPA) and the Texas Commission on Environmental Quality (TCEQ) will be submitted to the Army. WF stated the Year 3 RA-O Report will likely be submitted to the Regulators by the end of April 2024. WF said the Army Draft Year 4 RA-O Report is in progress and will likely be submitted to the Army in April 2024 and to the Regulators in June 2024.

- **Task 1022** (Option 22: LHAAP-16) – WF stated the first step of field work has been completed for the Conceptual Site Model (CSM) and monthly readings will be collected for the next five months. WF said the report will then be prepared based on the data collected.

- **Task 9** (LHAAP-18/24) – KN said the next semi-annual sampling event for LHAAP-18/24 is scheduled for June 2024. KN said the validated data will be presented in July or August 2024, contingent upon the date of the July MMM. KN stated the 2nd Quarter 2023 GWTP Report comments have been addressed in the 3rd Quarter 2023 GWTP Report, apart from a change page issued for Appendix E in response to TCEQ comment. KN stated the 3rd Quarter 2023 GWTP Report has an anticipated submittal by the end of April 2024 to the Army. Comments from the Regulators on the 2nd Quarter 2023 Report will also be incorporated into the 4th Quarter 2023 Report, as appropriate. KN said that due to the number and type of comments addressed in the 3rd Quarter 2023 Report, the subsequent reports will be submitted within a close time frame. The 4th Quarter 2023 Report includes LHAAP-18/24 analytical data and is currently in internal review, with an anticipated submittal of late May 2024 to the Regulators dependent upon army review. KN said the 1st Quarter 2024 Report is also in preparation and does not include LHAAP-18/24 analytical data.

- **Task 10** (LHAAP-37) – WF stated the Year 6 Annual RA-O Report will be included in the 4th Quarter 2023 Administrative Record (AR). WF said the Year 7 Annual RA-O Report is currently under Army review and will likely be submitted to the Regulators in May 2024.

- **Task 11** (LHAAP-46) – WF said the Year 9 Annual RA-O Report was submitted for regulatory review and proceeded to present the validated data from the Year 10 Annual RA-O sampling event (February 2024). WF reported that monitoring well LHSMW21, located downgradient, has demonstrated an upward trend in trichloroethene (TCE) concentrations over the past several sampling events; however, the TCE concentration in LHSMW21 decreased by approximately 25% in February 2024 in comparison to the previous event. WF said it is uncertain at this time whether the TCE concentration is stabilizing or if it will

continue to fluctuate. WF stated the results were similar to that of previous events for all other wells sampled. WF said the Year 10 RA-O report is in progress.

- **Task 12** (LHAAP-50) **–** KN stated the second Year 10 semi-annual sampling event is scheduled for May 2024, and the validated data will be presented at the June 2024 meeting.

- **Task 13** (LHAAP-58) – KN stated pending USEPA concurrence, the Year 10 Annual RA-O sampling event will be moved to May 2024. KN said she sent an email to the USEPA on 16 April 2024 for concurrence to adjust the sampling schedule and is awaiting response.

- **Task 14** (LHAAP-67)- WF stated the Year 10 Annual RA-O report is in preparation, with a likely submittal date to the Regulators in May 2024. WF stated the Year 9 RA-O report was completed and would be placed in the 4th Quarter 2023 AR.

- **Task 15** (LHAAP-001-R-01 and LHAAP-003-R-01) – KN stated significant rainfall prevented the completion of mowing and annual inspections. Additionally, the tractor broke down; however, it is anticipated to be repaired by 26 April 2024. KN said the annual inspections are still expected to be completed by the end of April 2024, subject to weather conditions. KN stated the Annual Long Term Monitoring (LTM) report will commence upon completion of inspections.

- **Task 16** (Surface Water)- KN inquired if TCEQ issues a transmittal letter for the Annual Surface Water Sampling Report. AP stated TCEQ does not issue a letter; however, AP confirmed she sent a response via email on 20 March 2024. KN stated she will follow up to ensure the 2nd Quarter 2024 surface water sampling occurs and that SB will sample on 18 April 2024.

- **Task 17** (2023 Land Use Control [LUC] Management Plan) –KN stated the Draft 2023 Update will likely be submitted by 19 April 2024. AW confirmed approval was given on the revisions of the Draft.

- **Task 18** (Administrative Record [AR]) – WF said the July through September 2023 AR was shipped in April 2024 and to contact him if anyone did not receive copies. WF stated the 4th Quarter 2023 AR will go into printing pending replacement pages and will likely be shipped in May 2024. WF said documents for the 1st Quarter 2024 AR are currently being prepared.

  WF brought attention to a previous discussion surrounding transitioning to an electronic AR and discontinuing the printing of hard copies. LS stated eliminating the printing of hardcopies is possible due to access provided at the public library. KN clarified there are no hardcopies at the public library. LS stated there are compact discs (CDs) at the library and suggested making a computer and CDs available at the GWTP. LS inquired if there are any documents at the GWTP that are not electronically scanned yet. WF stated that documents in the AR are available electronically. LS said this could be further discussed during the in person June 2024 MMM, so that it can be added into the contract. KN stated computers

with CD/digital versatile disc (DVD) capabilities are difficult to find, and LS suggested using an external CD/DVD drive.

Update on other DERP Sites:

- **LHAAP 18/24 –** GK stated the Final 100% Remedial Design was submitted 1 March 2024 and will be included in the 1st Quarter 2024 AR Update.

- **LHAAP-29** – GK stated the Final 100% Remedial Design was submitted 29 February 2024 and will be included in the 1st Quarter 2024 AR Update.

- **LHAAP-47** – GK stated progress on the Remedial Design is awaiting the optional wells and pump test, which remain on hold. AW stated funds for the additional wells are expected to be awarded by the end of April 2024.

- **LHAAP-17** – KN stated the Quarterly Performance Monitoring Event 10 was completed in March 2024. KN explained that per the decision document, the target concentration for perchlorate is 20,000 parts per billion. KN said there is a clear decreasing trend in perchlorate concentrations in well 17WW06, which is located west of the LHAAP-17 site boundary. KN stated overall, the results are favorable and demonstrate progress, although well 17WW06 perchlorate concentrations are taking longer to decrease than the Record of Decision (ROD) suggested. KN stated the groundwater extraction is planned to continue. AW added that the award for the additional year of RA-O is underway and that the expectation is to continue extraction. KN stated JT will send a full detailed email update to the meeting participants due to him experiencing technical difficulties during the meeting. Via the chat option in WebEx, JT indicated that he had provided AW and LS with response to comments in March 2023. AW stated he did not receive the response to comments from TLI and requested JT re-send the email.

Per- and polyfluoroalkyl substances (PFAS) Update: LS stated the Performance Work Statement (PWS) is in preparation for the PFAS Remedial Investigation (RI) to be awarded next fiscal year. LS stated the Preliminary Assessment (PA)/ Site Inspection (SI) Report was uploaded in the AR and is available to the public. LS stated there is a potential for an open house for communication regarding the PFAS investigations.

Five-Year Review: LS said the Five- Year Review (FYR) will undergo a final review and then be submitted to legal. LS stated the FYR it will be submitted to TCEQ and USEPA following the review by legal. AP stated the DI tracker shows an April 2024 due date, although June 2024 appears to be a more accurate date of submittal. LS stated the legal review is estimated to take four weeks or less and anticipates a May 2024 submittal. AP suggested updating the DI tracker for the next meeting.

Transfer Update: KR stated there is no update at this time.

Schedule Next Managers' Meeting:

KN said the next MMM will be held via WebEx on Wednesday, 15 May 2024 at 10:00 AM CDT. Meeting concluded at approximately 10:45 AM CDT.

ACRONYM LIST

AP	April Palmie
AR	Administrative Record
AW	Aaron Williams
CD	Compact Disk
CDT	Central Daylight Time
CSM	Conceptual Site Model
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DVD	Digital versatile disc
FBR	Fluidized bed reactor
FYR	Five year review
GK	Gregory Kelly
GWTP	Groundwater Treatment Plant
ICT	Interception Collection Trench
INF	Intermediate-Range Nuclear Forces Treaty
JT	Jonathan Tatman
KN	Kim Nemmers
KR	Kyle Russel
LHAAP	Longhorn Army Ammunition Plant
LS	Lena Sierocinski
LTM	Long Term Management
LUC	Land Use Control
MMM	Monthly Managers' Meeting
OM&M	Operation, Maintenance, and Monitoring
ORP	Oxidation Reduction Potential
PA/SI	Preliminary Assessment/Site Inspection
PBJV	Poarch Creek Indians, Governmental Services, LLC /Bhate Environmental Associates Joint Venture
PS	Praveen Srivastav
PWS	Performance Work Statement
RAB	Restoration Advisory Board
RACR	Remedial Action Construction Report
RA-O	Remedial Action – Operation
ROD	Record of Decision
RTC	Response to comments
SB	Scott Beesinger
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Command
USEPA	United States Environmental Protection Agency
WF	William Foss

LHAAP Validated Data
MMM April 2024

LHAAP-17 *Quarterly Perchlorate Sampling – March 2024*
Perchlorate (6850)

LHAAP-46 *Annual Remedial Action Operation Monitoring (Year 10)- February 2024*
Volatile Organic Compounds (8260C)
Dissolved Gases (RSK-175)
Nitrate, Chloride, and Sulfate (SW9056A)
Total Organic Carbon (SM5310B)
Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, and pH)

Quarterly Perchlorate Groundwater Analytical Results
LHAAP-17 March 2024

Location ID: Sample Date:	Units	PCL	130_030424 3/4/24	17WW01_030424 3/4/24	17WW02_030424 3/4/24	17WW02_030424-a 3/4/24	17WW03_030424 3/4/24	17WW06_030424 3/4/24
Perchlorate (6850)								
Perchlorate	µg/L	17	**4.27**	< 0.500 U	**4,600**	**5,470**	**0.916 J**	**51,100**

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

Bold indicates detection

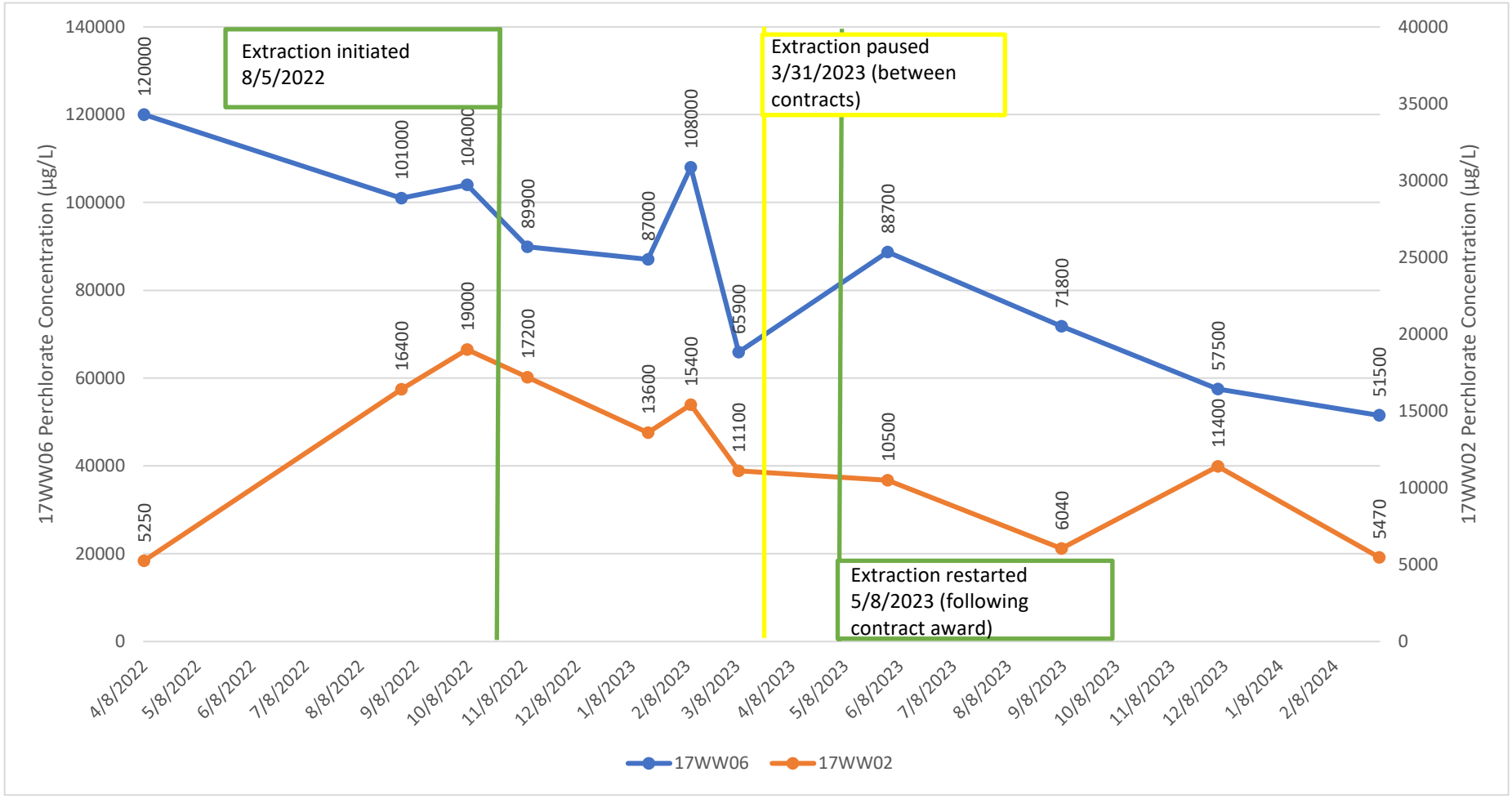
Highlighted results exceed the perchlorate PCL

µg/L - micrograms per liter

U - non detect

J - estimated value between the method detection limit and limit of quantitation

Figure 3-1
LHAAP-17 Perchlorate Trend Chart



17WW15
17WW20
17WW12
17WW11
17WW18
MW-19
17WW09
17WW10
17WW16
130
17WW02
17WW19
17WW06
SCUDDAY AVE
17WW13
17WW05
17WW17
17WW03
17WW01
17WW14
LHAAP-17
17WW04
Approximate Groundwater Flow Direction
17WW07
17WW08
18WW14
18WW15
Approximate Pump House Location
LONG POINT RD
AVE "Q"
C-07
Approximate Location of Overhead Electrical Lines
HAYSTACK RD.

N

Longhorn Army Ammunition Plant
Karnack
LHAAP-17
Installation Area Location

Legend

- 17WW02 Performance Monitoring Locations Highlighted
- Extraction Well
- Shallow Monitoring Well
- Intermediate Monitoring Well
- Deep Monitoring Well
- LHAAP-17 Boundary
- System Piping
- Effluent Line Piping
- Road
- Stream

Longhorn Army Ammunition Plant
Karnack, Texas

Figure 1-2
LHAAP-17 Site Map

0 50 100 200 Feet
1 inch = 100 feet

Prepared By: MMG TLI JOINT VENTURE

Map Date: 12/11/2023

Service Layer Credits: Google satellite imagery

Document Path: Z:\Projects\MSC2020\0016 Longhorn\0002 RIP\0031 RA RACR\Annual RAO YR1\Figure 1-2.mxd

LHAAP-46 Year 10 Annual RA-O Sampling
February 2024

			Location Code	46WW02		46WW03		46WW05		46WW06		46WW07		46WW08	
			Sample ID	46WW02-240226		46WW03-240226		46WW05-240226		46WW06-240226		46WW07-240222		46WW08-240226	
			Sample Date	2/26/2024		2/26/2024		2/26/2024		2/26/2024		2/22/2024		2/26/2024	
			Location Description	Site 46 - Central, Within Site Boundary, Intermediate Zone		Site 46 - Central, Within Site Boundary, Deep Zone		Site 46 - North, Within Site Boundary, Intermediate Zone		Site 46 - West, Within Site Boundary, Intermediate Zone		Site 46 - North, Within Site Boundary. Intermediate Zone		Site 46 - NNW, Inside Site Boundary. Intermediate Zone	
Analyte	**Units**	**MCL**		**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		0.46		0.53		0.54		0.26		5.72		0.45	
Ferrous Iron	mg/L	NV		0.67		NM		3.21		NM		NM		NM	
Oxidation Reduction Potential	mV	NV		243		154		206		-13		159		-26	
pH	Std. Units	NV		4.87		7.36		4.8		5.96		6.59		6.09	
Dissolved Gases (RSK-175)															
Carbon dioxide	µg/L	NV		100,000	R	NA		210,000		NA		NA		NA	
Ethane	µg/L	NV		0.586	J	NA		1.9		NA		NA		NA	
Ethylene	µg/L	NV		< 0.5	U	NA		< 0.5	U	NA		NA		NA	
Methane	µg/L	NV		1.07		NA		3.04	J	NA		NA		NA	
General Chemistry (SM5310B/SW9056A)															
Chloride	mg/L	NV		46.7		NA		218		NA		NA		NA	
Nitrate	mg/L	NV		0.0508	J	NA		0.177	J	NA		NA		NA	
Sulfate	mg/L	NV		249		NA		4,340		NA		NA		NA	
Total organic carbon	mg/L	NV		8.69		NA		7.4		NA		NA		NA	
Volatile Organic Compounds (Method SW8260C)															
cis-1,2-Dichloroethene	µg/L	70		2.7		< 1	U	1.8		< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5		**35**		< 1	U	**57**		< 1	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2		< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U

Notes:

Blue highlighting indicates concentrations above the MCL

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

R - The data was rejected due to MS/MSD recoveries outside of the validation criteria

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

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.

MCL - Maximum Contaminant Limit

ug/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolts

Std. Units - standard pH units

< - The analyte was not detected above the concentration shown

Val Qual - Validation Qualifier

NA - not analyzed

NV - no value; MCLs only shown for constituents of concern

ID - identification

FD - field duplicate

LHAAP-46 Year 10 Annual RA-O Sampling
February 2024

	Location Code	46WW09				46WW11		46WW14		46WW16		46WW17	
	Sample ID	46WW09-240222		46WW09-240222-FD		46WW11-240222		46WW14-240222		46WW16-240226		46WW17-240222	
	Sample Date	2/22/2024		2/22/2024		2/22/2024		2/22/2024		2/26/2024		2/22/2024	
	Location Description	Site 46 - Central, Within Site Boundary. Intermediate Zone				Site 46 - Central, Within Site Boundary, Shallow Zone		Site 45 - Northeast, Within Site Boundary, Intermediate Zone		Site 46 - North, Within Site Boundary, Intermediate Zone		Site 46 - Northeast, Within Site Boundary, Shallow/Intermediate Zone	
Analyte	**Units**	**MCL**	**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	5.48		5.48		1.42		0.62		0.31		3.56	
Ferrous Iron	mg/L	NV	1.46		1.46		0.33		NM		0.19		NM	
Oxidation Reduction Potential	mV	NV	139		139		101		-105		-124		117	
pH	Std. Units	NV	6.37		6.37		5.18		6.73		7.17		6.23	
Dissolved Gases (RSK-175)														
Carbon dioxide	µg/L	NV	63,000		NA		170,000		NA		46,000		NA	
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	1.81		NA		< 0.5	U	NA	
Ethylene	µg/L	NV	< 0.5	UJ	< 0.5	UJ	< 0.5	UJ	NA		< 0.5	U	NA	
Methane	µg/L	NV	1.27		1.38		75.5		NA		1.97	J	NA	
General Chemistry (SM5310B/SW9056A)														
Chloride	mg/L	NV	374		389		157		NA		269		NA	
Nitrate	mg/L	NV	< 0.05	UJ	0.03	J	< 0.05	UJ	NA		< 0.1	U	NA	
Sulfate	mg/L	NV	1,660		1,750		238		NA		592		NA	
Total organic carbon	mg/L	NV	3.19		3.17		1.77		NA		2.6		NA	
Volatile Organic Compounds (Method SW8260C)														
cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 1	U	< 1	U	**18**		< 1	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U

Notes:

Blue highlighting indicates concentrations above the MCL

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mV - millivolts

Std. Units - standard pH units

< - The analyte was not detected above the concentration shown

Val Qual - Validation Qualifier

NA - not analyzed

NV - no value; MCLs only shown for constituents of concern

ID - identification

FD - field duplicate

LHAAP-46 Year 10 Annual RA-O Sampling
February 2024

	Location Code	LHSMW19				LHSMW21		LHSMW23R				LHSMW25	
	Sample ID	LHSMW19-240222		LHSMW19-240222-FD		LHSMW21-240222		LHSMW23R-240226		LHSMW23R-24026-FD		LHSMW25-240222	
	Sample Date	2/22/2024		2/22/2024		2/22/2024		2/26/2024		2/26/2024		2/22/2024	
	Location Description	Site 46 - Central, Within Site Boundary, Shallow Zone				Site 46 - North, Within Site Boundary, Shallow Zone		Site 46 - South, Within Site Boundary, Intermediate Zone				Site 46 - East, Within Site Boundary, Intermediate Zone	
Analyte	**Units**	**MCL**	**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	0.71		0.71		0.53		4.44		4.44		0.39	
Ferrous Iron	mg/L	NV	NM		NM		1.12		NM		NM		NM	
Oxidation Reduction Potential	mV	NV	77		77		103		126		126		8	
pH	Std. Units	NV	6.47		6.47		6.73		5.53		5.53		6.23	
Dissolved Gases (RSK-175)														
Carbon dioxide	µg/L	NV	NA		NA		43,000		NA		NA		NA	
Ethane	µg/L	NV	NA		NA		0.878	J	NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		< 0.5	UJ	NA		NA		NA	
Methane	µg/L	NV	NA		NA		1.41		NA		NA		NA	
General Chemistry (SM5310B/SW9056A)														
Chloride	mg/L	NV	NA		NA		95.3		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		< 0.05	UJ	NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		816		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		1.6		NA		NA		NA	
Volatile Organic Compounds (Method SW8260C)														
cis-1,2-Dichloroethene	µg/L	70	12		12		**170**		0.66	J	0.65	J	< 1	U
Trichloroethene	µg/L	5	**18**		**19**		**45**		0.56	J	< 0.5	U	< 1	U
Vinyl chloride	µg/L	2	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U

Notes:

Blue highlighting indicates concentrations above the MCL

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< - The analyte was not detected above the concentration shown

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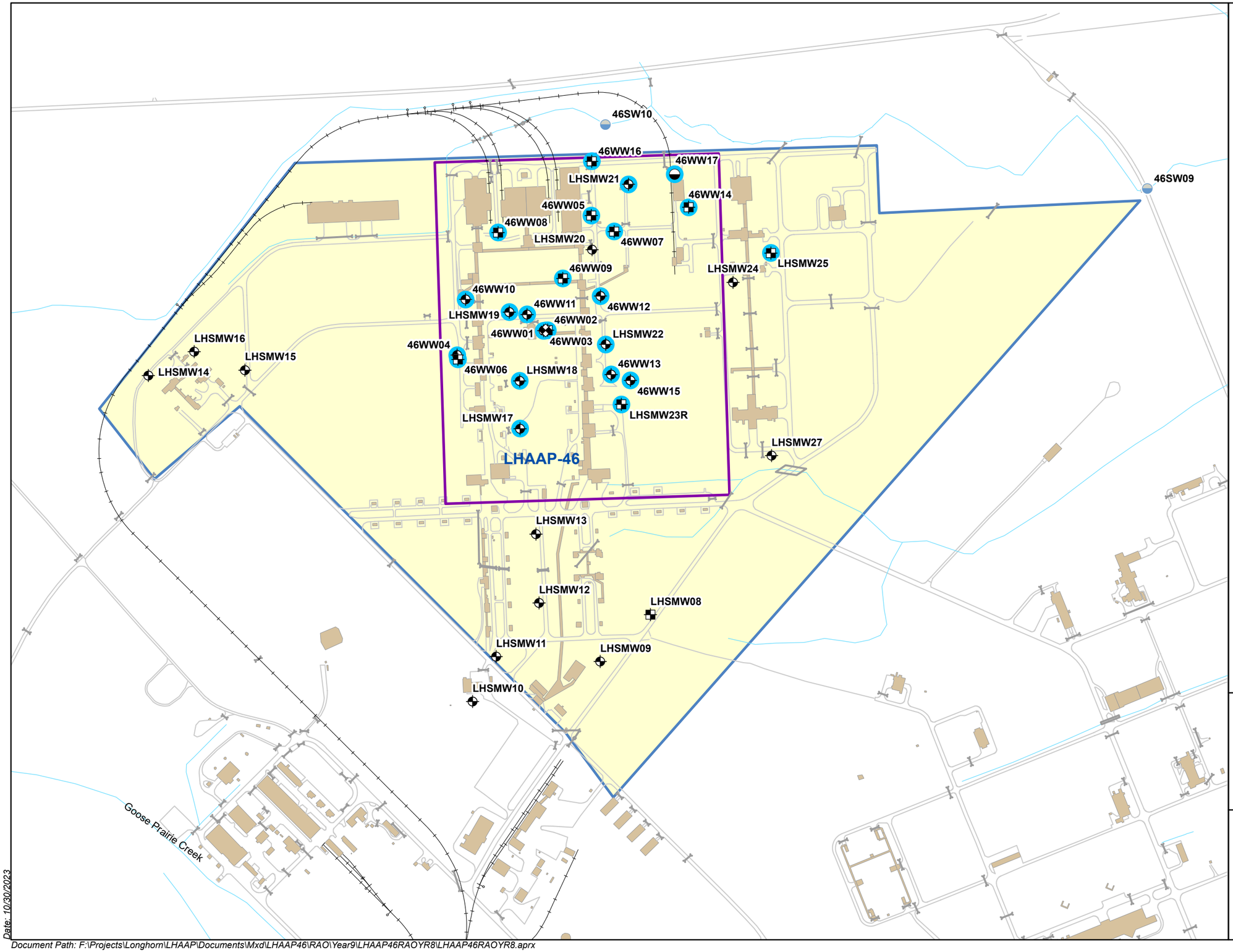

- Shallow Monitoring Well
- Shallow/Intermediate Monitoring Well
- Intermediate Monitoring Well
- Deep Monitoring Well
- RA-O Monitoring Well
- Surface Water Sample Location
- Former Railroad Location
- Culvert
- Surveyed Land Use Control Boundary
- Stream
- Roads
- Former Buildings
- LHAAP-46 Site Boundary

Note:
1. RA-O = Remedial Action Operations
2. LHAAP = Longhorn Army Ammunition Plant

N

0 250 500 Feet

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

PCIbhate APTIM

Figure 2-6

Year 10 Annual RA-O Monitoring Locations
Ninth Annual RA-O Report
LHAAP-46
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 10/30/2023

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP46\RAO\Year9\LHAAP46RAOYR8\LHAAP46RAOYR8.aprx

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY ENVIRONMENTAL COMMAND
2455 REYNOLDS ROAD
JOINT BASE SAN ANTONIO FORT SAM HOUSTON, TX 78234-7588

May 9, 2024

SUBJECT: Draft Final Third Annual Remedial Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas, May 2024

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

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 review: (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 document includes revisions based upon comments on the Draft version received from the Environmental Protection Agency (USEPA) on March 8, 2024, and from the Texas Commission on Environmental Quality (TCEQ) on March 7, 2024. Tables of responses to the USEPA and TCEQ comments on the Draft version are included with this Draft Final document. In accordance with the Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by the PCI-Bhate Joint Venture (PCI-Bhate) team, on behalf of the Army as part of PCI-Bhate's Performance Based Remediation contract for the facility. I ask that Zack Beck, PCI-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 (726) 999-0505, or by email at lena.j.sierocinski.civ@army.mil.

Sincerely,

Lena Sierocinski

Lena Sierocinski
LHAAP Environmental Support Manager
U.S. Army Environmental Command

Electronic copies furnished:
A. Palmie, TCEQ, Austin, TX
J. Reyes, USEPA Region 6, Dallas, TX
E. Duerkop, USFWS, Caddo Lake NWR, TX (1 CD)

C. Montoya, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
K. Russell, BRAC, Huntsville, AL
Z. Beck, Bhate, Lakewood, CO
N. Alfino, PCI Environmental, Denver, CO
P. Srivastav, APTIM, Houston, TX

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY ENVIRONMENTAL COMMAND
2455 REYNOLDS ROAD
JOINT BASE SAN ANTONIO FORT SAM HOUSTON, TX 78234-7588

May 9, 2024

SUBJECT: Draft Final Third Annual Remedial Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas, May 2024

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

Dear Ms. Palmie,

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The point of contact for this action is the undersigned. I may be contacted at (726) 999-0505, or by email at lena.j.sierocinski.civ@army.mil.

Sincerely,

Lena Sierocinski

Lena Sierocinski
LHAAP Environmental Support Manager
U.S. Army Environmental Command

Electronic copies furnished:
B. Follin, USEPA Region 6, Dallas, TX
J. Reyes, USEPA Region 6, Dallas, TX
E. Duerkop, USFWS, Caddo Lake NWR, TX (1 CD)

C. Montoya, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
K. Russell, BRAC, Huntsville, AL
Z. Beck, Bhate, Lakewood, CO
N. Alfino, PCI Environmental, Denver, CO
P. Srivastav, APTIM, Houston, TX

Response to Comments on
Draft Third Annual Remedial Action Operation Report, LHAAP-16

Document Date: February 7, 2024
Comment Date: March 8, 2024

Reviewers: Brian Follin - USEPA
Respondent: Lena Sierocinski - 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]
1	Section 1.3, p. 1-5, 2nd paragraph, 8th sentence (begins with "TCE was also detected…")	Would be helpful to indicate that wells 16WW57 and 16WW58 are completed in the intermediate zone.	C	Text has been revised as follows: "TCE was also detected above the maximum contaminant level (MCL) at two intermediate zone wells, 16WW57 and 16WW58, located on the east side of Harrison Bayou, in September 2019 at 24 µg/L and 4,300 µg/L, respectively."	
2	Section 2.1.2, p. 2-2, 2nd paragraph, 2nd sentence	1) Sentence indicates screen siltation ranged from 0.1 to 40.1 percent for 1st sampling event, and 0.1 to 19.9 percent for 2nd sampling event, but table 2-1 reports screen siltation values of "0.0" or "none" for some wells (e.g., see year 3 RA-O siltation values for well 16WW34). Additionally, the difference between a value of 0.0 and "none" is not explained in text or table 2-1 (including table footnotes). 2) Using parentheticals, the sentence identifies the wells associated with each siltation	C	1. Siltation percent interval has been updated to 0.0 percent for the January 2023 sampling event. During the June/July 2022 sampling event, the lowest siltation percent measured was 0.1%. None indicates that the siltation percentage was negative because the measured well depth is deeper than the total well depth, which may be due to small inaccuracies in the originally reported constructed depth from ground surface which was used to calculate the depth below top of casing. The differences between the measured and constructed depths are less than 1% of each other. The following note has been added to Table 2-1: "None - Measured well depths were deeper than the depth of the well screen.." 2. A parenthetical has been added to identify well 16IW26 as the well with 40.1 percent siltation.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		percentage value except for the 40.1 percent value for the June/July 2022 sampling event. Table 2-1 indicates this value is for well 16IW26.	C		
3	Section 2.2, p. 2-2, 1st paragraph, 2nd sentence	Year 2 RA-O indicated the RA-O groundwater monitoring network approved in the Draft Final RAWP includes 61 wells, but this year 3 RA-O indicates the network includes 58 wells. Unclear why the number of wells differs between the two RA-Os.	C	Changes to the monitoring network were approved as part of the Year 2 RA-O. It should be noted that 58 wells were included in the revised network, but one of the wells is a proposed location that has not been installed yet. To avoid confusion over the number in the approved network and the number sampled, the sentence has been revised as follows: "The RA-O groundwater monitoring network includes changes proposed in the Technical Memorandum for LHAAP-04 and LHAAP-16 (Bhate 2022) and approved by TCEQ and EPA in the Final Second Annual RA-O report (Bhate 2023)."	
4	Section 2.2.1, p. 2-3, 2nd paragraph (1st paragraph below 2 bullets), 1st sentence	1) Sentence indicates localized hydraulic gradients in the shallow zone near biobarrier #1 word to the north and northeast during June/July 2022, but potentiometric contours in fig. 2-2 indicate the gradients generally were to the south and southeast in the vicinity of biobarrier during that time. The localized north and northeast gradient description is more applicable to the areas located east and west of biobarriers 2 and 3. 2) Sentence indicates the localized north and northeastward hydraulic gradients were also present in the mid-plume area, but fig. 2-2 indicates this was true for only a small area north/northwest of the northeast corner of the diagonally dashed mid-plume "subarea".	C	1. Agreed, the flow is generally south-southeast near Biobarrier #1. Text has been revised as follows: "The groundwater flow gradient for June/July 2022 in the shallow groundwater zone was interpreted to be generally to east and southeast, with localized north and northeastward gradients present on the west side and east side of Biobarriers #2 and #3, respectively (Figure 2-2)". 2. See above, as the sentence revision addresses this comment too.	
5	2nd paragraph (1st paragraph below 2	1) Sentence indicates shallow zone hydraulic gradient during July 2023 was generally	C	1. The text has been revised as follows: "The groundwater flow gradient in the shallow	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
	bullets), 2nd sentence	eastward. However, the potentiometric contours in fig. 2-3 indicate the gradient was predominantly northeastward (instead of eastward) for most of the study area, although there is an eastward gradient in the northern portions of the study area. Believe it would be more appropriate to describe the gradient as primarily towards the northeast and east. 2) Near end of sentence, the month of the potentiometric-surface map is incorrectly identified as July 2023 instead of January 2023.		groundwater zone was interpreted to be generally northeastward with an eastward gradient in the northern portion of the site, based on the potentiometric map for January 2023." 2. See above, as the sentence revision addresses this comment too.	
6	Section 2.2.1, p. 2-3, 3rd paragraph (2nd paragraph below 2 bullets), 1st sentence	Sentence indicates the shallow zone hydraulic gradient was predominantly to the east during June/July 2022, but fig. 2-4 indicates the gradient was primarily towards the southeast and east.	C	This paragraph is about the intermediate zone hydraulic gradient. Text has been revised to split the sentence into two sentences, with the first sentence addressing June/July 2022 as follows: "The groundwater flow gradient in the intermediate groundwater zone was interpreted to be generally to the east and southeast in June/July 2022 (**Figure 2-4**)."	
7	Section 2.2.1, p. 2-3, 3rd paragraph (2nd paragraph below 2 bullets), 1st sentence	Sentence indicates the shallow zone hydraulic gradient was predominantly to the southeast during January 2023. Fig. 2-4 indicates this is applicable to the northeastern and southern portions of the study area—the gradient was predominantly northeastward for the remaining areas in the study area.	C	Text has been revised to split the sentence into two sentences, with the second sentence addressing January 2023 as follows: "In January 2023, the hydraulic gradient in the intermediate groundwater zone was interpreted to be generally northeastward with flow to the southeast in the northeastern and southern portions of the site (**Figure 2-5**)."	
8	Fig. 2-4, Map portion of fig	Control for intermediate zone contours within LHAAP-16 landfill boundary is poor, so recommend dashing in this area.	C	The requested contours within LHAAP-16 landfill boundary have been dashed on Figure 2-4.	
9	Fig. 2-5, Map portion of fig	1). Recommend dashing 171 ft potentiometric-surface contour east of intermediate zone well 16WW58.	C	The 171ft potentiometric contour passes to the west of 16WW58. The northern and southern portions of the contour have been dashed on Figure 2-5 as suggested.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
10	Section 2.2.2.1, p. 2-4, 1st paragraph, 4th sentence	The text "at upgradient wells" should be changed to "at the upgradient well" because there is only one upgradient well (16RW01).	C	The text has been revised as follows: "Perchlorate concentrations were below the PCL (17 µg/L) at the upgradient well, downgradient wells, and the well within the biobarrier during both semiannual sampling events in the Year 3 RA-O event."	
11	Section 2.2.2.2, p. 2-6, 1st paragraph, last sentence	Significant wording	C	Text has been revised to: "Perchlorate was detected above the PCL at 16WW35 in the intermediate zone, 75 feet east of the biobarrier, during both semiannual events."	
12	Section 2.2.2.2, p. 2-6, 1st paragraph, 1st sentence	Sentence indicates there was a "slight" increase in the TCE concentration in intermediate zone well 16WW35 between June 2022 to January 2023. However, the TCE concentration more than doubled between the 2 sampling events (from 7,800 µg/L to 17,000 µg/L), so the word "slight" seems inappropriate here.	C	Text has been revised as suggested.	
13	Section 2.2.4, p. 2-10, 2nd paragraph, 1st sentence	The "J" qualifier is missing for the 0.000805 µg/L arsenic concentration for well 16WW39.	C	The "J" qualifier has been added to text as suggested.	
14	Section 2.2.4, p. 2-10, 2nd paragraph, 2nd sentence	The chromium concentration value reported for well 16WW44 has an extra 0 (should be 0.00469 J µg/L). Correction of this mistake requires the lowest chromium concentration value to be changed to 0.0007 J µg/L (well 16WW39).	E	The chromium concentration of 0.000469 J mg/L in well 16WW44 is correct based on the results shown in the laboratory data package (HS22070320) and on Table 2-12. However, during review and revision of the document, it was noted that throughout Section 2.2.4, the units for the metals results were incorrectly shown as µg/L instead of mg/L. The text was revised to correct the units to mg/L where applicable.	
15	Section 2.2.4, p. 2-10, 2nd paragraph	Several sentences in paragraph evaluate manganese concentrations in relation to an EPA MCL of 7.8 µg/L, but metal does not have an EPA MCL — it has an SMCL value of 50 µg/L. Presumably, the 7.8 µg/L value represents a different standard, so the text should be revised as needed.	C	The value of 7.8 mg/L is based on a 95% UTL calculated from background concentrations and is used as the cleanup value for manganese in accordance with the note on Table 1-1 in the Remedial Action Work Plan. The text has been revised to refer to the cleanup value accordingly.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
16	Section 2.2.4, p. 2-10, General comment	It would be helpful to include a figure showing metal sampling results.	C	A figure presenting metal sampling results has been included as Figure 2-28 and the text has been updated accordingly.	
17	Section 3.1.1, Outside Treatment Area subsection, p. 3-2, 1st paragraph, last sentence	Sentence indicates cis-1,2-DCE concentration in well 16RW04 increased from 66 µg/L to 160 µg/L. This is incorrect because fig. 2-6 indicates the concentration in July 2022 was 130 µg/L, not 66 µg/L. Additionally, this sentence notes the importance of the increase in cis-1,2-DCE concentrations as an indicator of reductive dechlorination, but it does not mention the corresponding increase in TCE concentration during the same time period.	C	The concentration of cis-1,2-DCE in well 16RW04 has been revised from 66 µg/L to 130 ug/L. The importance of the increase in cis-1,2-DCE is that it is an as an indicator of reductive dechlorination. For clarity, the text has been revised as follows: “An increase in the daughter product, cis-1,2-DCE, was observed from 130 µg/L to 160 µg/L at 16RW04, between July 2022 and January 2023, which suggests that reductive dechlorination is occurring. However, the TCE concentration also increased from 2,500 µg/L to 3,300 µg/L in 16RW04 over the same time period.”	
18	Section 3.1.1, Outside Treatment Area subsection, p. 3-2, 4th paragraph, 1st sentence	1) Should add the word “zone” between “intermediate” and “groundwater.” 2) The text “below the detection limit” at end of sentence is incorrect. TCE was detected a concentration of 1.3 µg/L in June 2022 and 4.9 µg/L in January 2023. Believe sentence meant to indicate the COCs continue to be below the MCL, not below the detection limit. Need to revise accordingly.	C	1. Text has been revised to: “Monitoring well 16WW25 is screened in the intermediate zone groundwater, and all COCs continue to be below their respective MCLs.” 2. The revised text is shown above.	
19	Section 3.1.1, Outside Treatment Area subsection, p. 3-2, 4th	Should add the word “zone” between “intermediate” and “groundwater.”	C	The text has been revised as follows; “At monitoring well 16WW13, also screened in the intermediate zone groundwater, TCE, cis 1,2-DCE, and VC have decreased to 89 J µg/L, 610 J	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
	paragraph, 2nd sentence			µg/L, and 2.9 J µg/L, respectively, in January 2023."	
20	Section 3.1.2, Within Treatment Area subsection, p. 3-3, 2nd paragraph, 1st sentence	The "J" qualifier is missing for the 3,600 µg/L TCE concentration for well 16IW03.	C	The "J" qualifier has been added to the text.	
21	Section 3.1.2, Outside Treatment Area subsection, p. 3-4, 1st paragraph, 2nd sentence	Sentence notes non-detections of 1,1-DCE and 1,2-DCE in well 16WW16 during January 2023 in comparison with detections of these compounds during June 2022. However, this difference between the 2 sampling events may be attributable to differences in reporting limits. The reporting limit for the January 2023 samples was < 50 µg/L, which a value much higher than the detected/measured concentrations in the June 2022 samples. This indicates the June 2022 samples had substantially lower reporting limits for these 2 compounds.	C	This is correct. The limit of detection in June 2022 was 5 µg/L for 1,1-DCE and 1,2-DCA. Therefore, the text has been revised as follows to reflect the detection limit: "At 16PM03, concentrations of perchlorate, TCE, cis 1,2 DCE, VC, 1,1-DCE, and 1,2-DCA were detected above the MCL during the Year 3 RA-O June 2022 sampling event. In January 2023, 1,1-DCE and 1,2-DCA concentrations were not detected, but the reporting detection limit was elevated at 50 µg/L."	
22	Section 3.1.2, Outside Treatment Area subsection, p. 3-4, 2nd paragraph, 2nd sentence	A much-needed comma is missing after the word "PCL."	C	Text has been revised as suggested.	
23	Section 3.1.2, Outside Treatment Area subsection, p. 3-4, 2nd paragraph, 1st sentence	Believe the word "as" in "as originally planned" should be changed to "than" (or something similar).	C	Text has been revised by replacing "as" with "than", as suggested.	
24	Section 3.1.3, Outside Treatment Area subsection, p. 3-5, 1st paragraph, 2nd to last sentence	At end of sentence, well 16IW10 needs to be corrected to well 16**R**W10.	C	Text has been revised as suggested.	
25	Section 3.2.1.7, p. 3-11, 1st paragraph, 1st sentence	The compound identified as "1,2-DCE" should be corrected to "1,2-DC**A**."	C	Text has been revised as suggested.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
26	Section 3.2.1, Oxidation-Reduction Potential subsection, p. 3-17, 1st paragraph, 2nd sentence	Reported ORP range is incorrect— per table 2-3, ORP was measured at a value of -111 in well 16 IW09 in January 2023.	D	The ORP range in this sentence includes all wells outside of the treatment area; therefore, the only well it does not include is 16IW09. No change was made to the document.	
27	Section 3.2.1, Carbon Dioxide subsection, p. 3-18, 1st paragraph, 2nd sentence	Would be helpful to insert "in well 16IW09" between "levels" and "were."	C	Text has been revised to add "in well 16IW09" between "levels" and "were", as suggested.	
28	All concentration trend figures, Legend below fig. body/x-axis	1) Some horizontal lines representing concentration values are missing on some figs. (e.g., fig. 2-20). 2) All concentration trend figures: In the legend below the figure body, hyphens are missing between "cis" and "1,2" and between "1,2" and "DCE."	C	The horizontal lines have been darkened. The punctuation in the legends has been corrected.	
29	Table 3-2, Notes section below table body	1) Meaning of bolded text is not explained. 2) For the NA abbreviation, need to add "or PCL" after "MCL."	C	1. Note has been added: **"Bold** indicates statistically significant increasing or decreasing trend." 2. PCL has been added to NA abbreviation note. PCL abbreviation explanation has been added to Table 3-2.	
30	Section 3.3.4, p. 3-28, 1st paragraph, last sentence	Need to cite Table 2-6 after "(1,540 cells/mL)."	C	Text has been revised by adding (**Table 2-6**) to the end of the sentence, as suggested.	
31	General comment	Agree with TCEQ conclusions regarding biobarrier #2: 1) There may still be an identified source of contamination. 2) Agree with recommendation to sample and measure groundwater levels in well 16PM01 and possibly measure groundwater levels in other wells east of and within the biobarrier to improve groundwater-flow direction characterization in this area.	C	Noted. Please see Response to TCEQ Comment #7. 1. Concur with the potential for unidentified source or residual sorbed mass to be present. 2. Additional sampling to address the comment will be recommended in the Year 4 Report and implemented beginning with the Year 5 sampling in July 2024.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		3) Strongly agree with recommendations to consider addition of one or more new wells east of the biobarrier and north of well 16WW16, and possibly one new well closer to the landfill.		3. Recommendation for new wells may be added based on the results of the Conceptual Site Model Update and the result of the Years 4 and 5 sampling events.	

Response to Comments on
Draft Third Annual Remedial Action Operation Report, LHAAP-16

Document Date: February 7, 2024
Comment Date: March 7, 2024

Reviewers: April Palmie - TCEQ
Respondent: Lena Sierocinski - 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]
1	1.0, 1-2, 1st paragraph	Please revise this sentence as shown (or similar) and make sure there is a space before the next sentence: The final remedy also incorporates the LUCs implemented during the early IRA which was a containment presumptive remedy (U.S. Army 2016).	C	The text has been revised as follows: "The final remedy also incorporates the LUCs implemented during the early IRA which was a containment presumptive remedy (U.S. Army 2016)."	
2	1.2, last paragraph	Add text that surface water sampling was omitted in year 3.	C	Section 1.2 discusses the site performance objectives and does not discuss the activities that occurred during a specific year of RA-O activities. The specific annual activities are provided in Section 2.0 and the surface water sampling is specifically in Section 2.2.5. To address the comment, the following sentence has been added to the last paragraph of Section 1.0: "During the Year 3 RA-O, the surface water sampling was inadvertently omitted because the locations were not listed in the updated RA-O monitoring network table in the Final Second Annual RA-O Report (Bhate 2023); however, they have been added for the Year 4 RA-O."	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
3	1.3, 1-5, surface water paragraph	Add details between 2018 and present. Also add "Surface water sampling was inadvertently omitted during the Year 3 RA-O."	C	The text has been revised as follows: "Surface water sampling was inadvertently omitted during the Year 3 RA-O." Additional text has been added describing the surface water sampling and results for the Year 1 and Year 2 RA-O periods.	
4	2.1	1) The Year 2 LUC inspection was completed October 25, 2021. The July 19, 2023, inspection seems like it should be the Year 4 LUC inspection. Was there an inspection completed in 2022? 2022 should be the inspection year included in this report (2.1 and in Appendix A) to go with June/July 2022 and January 2023 sampling.	C	The annual LUC inspection checklist and certification was not completed during the Year 3 monitoring. However, a site inspection was performed in February 2023 as part of the Five Year Review and no land use inconsistent with the LUCs other than the growth of trees on the landfill cap was noted. The first sentence of the first paragraph in Section 2.1 has been revised to read: "The annual LUC compliance inspection checklist and certification were not completed during the third annual RA-O period. However, a site inspection including walking the landfill cover was performed for the Five Year Review in February 2023 and no land use inconsistent with the LUCs other than growth of trees on the landfill cap was identified." The first sentence of the second paragraph has been revised to read: "An annual LUC inspection was completed on July 19, 2023, during the Year 4 monitoring period, and the Compliance Certification Documentation Form is included in **Appendix A**."	
5	2.2.1, 2-3	1) Paragraph after bullets – Correct 2nd sentence to January 2023.	C	The text has been revised by replacing July with January, as suggested.	
6	2.2.5 (and similar language in 2.2.3)	Surface water sampling is required by the ROD (also documented in RAWP, RACR, and prior reports). Revise these sentences as shown (or similar): Surface water sampling was inadvertently omitted during the Year 3 RA-O. The surface water sampling locations were not listed in the updated RA-O Monitoring Network table but	C	The text has been revised as follows: "During previous surface water sampling events, perchlorate levels have been below or near the detection limit. Surface water sampling was inadvertently omitted during the Year 3 RA-O. The surface water sampling locations were not listed in the updated RA-O Monitoring Network table but have been added to the Year 4 RA-O	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		have been added to the Year 4 RA-O Table 2-10 and are included in Figures 1-3 and 2-1.		Table 2-10 and are included in Figures 1-3 and 2-27." Section 2.2.3 has been revised similarly.	
7	4.2	TCEQ agrees with the recommendations. Additional requests: Landfill Biobarrier #2 – • An assertion is made in the report (2.2.2.2) that the results in 16PM06 support degradation when compared to upgradient. Given that TCE and certain degradation COCs are higher in 16PM06 than on the "upgradient" side of the biobarrier, and higher than historic results, that doesn't seem to be the correct explanation/assertion. • There may be source in this area that isn't documented with sampling. • From the historic results table, 16PM01 has never been sampled. Is there a reason why this well isn't sampled? • Please start sampling and gauging 16PM01 (and gauging some other locations). A couple rounds gauging	C/E	1. Biological reductive dechlorination is the primary source of cis-1,2-DCE and VC. As noted, the high levels of TCE downgradient of the barrier are concerning; however, the increased levels of the daughter products at the downgradient wells do indicate that reductive dechlorination is occurring. The following has been added as the final sentence in the second to last paragraph of Section 2.2.2.2: "However, the high levels of TCE present downgradient of the barrier may indicate the presence of significant residual sorbed mass or a previously unrecognized source area." 2. To address the possible presence of significant residual sorbed mass or a source area, as stated above, the following has been added as the final sentence in the second to last paragraph of Section 2.2.2.2: "However, the high levels of TCE present downgradient of the barrier may indicate the presence of significant residual sorbed mass or a previously unrecognized source area." 3. The monitoring network selected in the Remedial Design did not include sampling of 16PM01, and sampling of 16PM02 and 16PM03 was presumed to be sufficient for upgradient evaluation of the remedy at the biobarrier. The continued high concentrations downgradient of the barrier suggest that future sampling of 16PM01 could be useful. 4. Sampling of 16PM01 and gauging of other nearby wells will be added as a recommendation in the Year 4 RA-O report and implemented in the	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		additional wells east of the biobarrier and within the biobarrier would inform the gradient and flow path information for this area. After that data, we may need to consider new well(s) east of the biobarrier and north of 16WW16 and another well perhaps closer to the landfill to get a better picture of this source area.		first sampling event of Year 5 (July 2024), since the Year 4 sampling events have already concluded, as noted in Comment #17. Additional data collected during Year 5 and the Conceptual Site Model Update currently underway should lead to another round of monitoring network evaluation and revision, as necessary.	
8	Table 2-10 and List of Tables	Remove "Approved" from the table's title. The whole report is eventually "approved" so the qualifier is not necessary. Consider adding locations for Landfill Biobarrier #2 (relates to comment 6).	C	The word "Approved" has been removed from the title of Table 2-10 and the List of Tables has been updated. This appears to be referring to Comment #7. See response to Comment #7 for discussion of monitoring location response.	
9	Table 2-10	Noting 16WW39 is included twice - in Biobarrier and Mid-Plume ISB lists.	E	Table 2-10 lists the monitoring wells and purpose of sampling. Well 16WW39 is included in the table twice because it is used as an upgradient well for the Bayou Biobarrier and as a downgradient well for the Mid-Plume ISB.	
10	Table 2-12	Add "for Metals" to the title.	C	The title has been updated to "Five Year Review Monitoring for Metals, LHAAP-16".	
11	Figure 2-1 and 2-27	Add the surface water sampling locations.	C	Surface water sampling locations have been added to the figures.	
12	Figure 2-7	Move or delete the 16SW01 label and blue arrow near Biobarrier 1 between 16RW05 and 16WW25. 16RW12 and 16IW26 are noted as new wells but were included in Year 3.	C	The incorrectly located 16SW01 label and symbol have been removed from Figure 2-27 and added to the map at the correct location. The blue highlighting indicates wells recently added to the monitoring network in 2023, not newly constructed wells. 16RW12 and 16IW26 were included in the monitoring network for the first time in Year 3.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
13	New figure	Propose to number this figure 2-28, a new figure to include the metals analytical results.	C	A figure presenting metal sampling results has been included as Figure 2-28 and the text has been updated accordingly.	
14	Appendix B Photo log	It looks like the 16EW04 slab needs fill underneath (June 23 Photo 4). There are some comments that need to be deleted when you prepare the final report.	C	The following text has been added as a bullet to Section 2.1.2: “16EW01: The well pad may need to be leveled by adding fill underneath." Comments have been removed.	
15	Appendix C and D	Remove “on CD” from the cover pages	C	The words “on CD” have been removed as suggested.	
16	Appendix F	All calculations include this note – correct “PCE”: The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.	C	The note has been revised to: “The estimated cleanup time was calculated as the time it would take the most recent detected contaminant of concern concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.”	
17	General	Explain why the draft report lagged a year behind the 2nd sampling event. Regulator review for the year 3 report coincides with the 2nd event for year 4. Best case, any comments provided by TCEQ or EPA can be implemented with year 5 1st semi-annual event.	C	Due to very long delays by the laboratory in providing useable data packages for validation and numerous issues identified during validation, the lab was slow to revise. The validated data for the Year 3 RA-O Report was not available until June 2023, despite the second RA-O sampling event occurring in January 2023. In addition, the transition to the new contract and subsequent contracting between Aptim and PCI-Bhate did not allow work to begin on the report until several months after the second sampling event. This combination of factors and the fact that the Year 3 RA-O Report covers a significant quantity of data, figures, and tables led to the delay. In contrast, the Year 4 data validation was already completed in March 2024 and preparation of the Year 4 RA-O Report is well underway to ensure the document is submitted in time to allow regulatory comment on the recommendations referenced in previous responses prior to beginning the Year 5 sampling.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
18	Quality Control	Why don't the LHAAP-16 reports include quality control summary reports?	C	The LHAAP-16 reports follow the pattern of RA-O Reports for other LHAAP sites that began prior to implementation of the remedy at LHAAP-16, and those reports have not included QCSRs. Data validation checklists can be made available for the laboratory data packages covered by this and previous reports, and the reports can be added to future documents if requested.	

Draft Final
Third Annual Remedial Action Operation Report
LHAAP-16 Landfill
Longhorn Army Ammunition Plant
Karnack, Texas

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Rev 0
May 2024

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Acronyms and Abbreviations

µg/L	micrograms per liter
1,1,2-TCA	1,1,2-trichloroethane
1,2-DCA	1,2-dichloroethane
ABC+™	microscale ZVI and ABC™
ABC™	carbon source
AECOM	AECOM Technical Services, Inc.
APTIM	Aptim Federal Services, LLC
Bhate	Bhate Environmental Associates, Inc.
cells/mL	cells per milliliter
COCs	contaminants of concern
CVOCs	chlorinated volatile organic compounds
DCE	dichloroethene
DHC	*Dehalococcoides ethenogenes*
DO	dissolved oxygen
EDS-ER™	Electron Donor Solution Extended Release
EPA	Environmental Protection Agency
EVO	emulsified vegetable oil
IRA	interim remedial action
ISB	in-situ bioremediation
J	estimated value
LHAAP	Longhorn Army Ammunition Plant
LUC	land use control
MC	methylene chloride
MCL	maximum contaminant level
mg/L	milligram(s) per liter
MNA	monitored natural attenuation
mV	millivolt(s)
No.	number
OHM	OHM Remediation Services Corp.
ORP	oxidation-reduction potential
PCI	Poarch Creek Indians-Governmental Services
PCI-Bhate JV	PCI-Bhate Joint Venture
PCL	protective concentration level
RACR	Remedial Action Completion Report
RA-O	remedial action operation
RAWP	Remedial Action Work Plan
RD	Remedial Design
ROD	Record of Decision
SDC-9™	APTIM's dechlorinating microbial consortium

Acronyms and Abbreviations (continued)

TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TOC	total organic carbon
U.S.	United States
USACE	U.S. Army Corps of Engineers
VC	vinyl chloride
VOC	volatile organic compound
ZVI	zero valent iron

1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted with the Poarch Creek Indians-Governmental Services (PCI) Bhate Environmental Associates, Inc. (Bhate) Joint Venture LLC (PCI-Bhate JV) under Omaha Multiple Environmental Government Acquisition, National Small Business Multiple Award Contract Number (No.) W912BV23C0007, Environmental Remediation Services with Military Munitions Response Program, Task Order No. W45XMA31085678, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The PCI-Bhate JV Team consists of the PCI-Bhate JV as the prime contractor and Aptim Federal Services, LLC (APTIM) as a subcontractor responsible for remedial activities at several sites, including LHAAP-16. LHAAP is a government-owned, formerly contractor operated and maintained Department of Defense facility located in east Texas (**Figure 1-1**).

LHAAP is located in east-central Texas, between State Highway 43 in Karnack, Texas and the western shore of Caddo Lake, in the northeastern corner of Harrison County (**Figure 1-1** and **Figure 1-2**). 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 northeast.

LHAAP-16 is a capped landfill covering approximately 17.8 acres in the south-central portion of LHAAP (**Figure 1-2**). Harrison Bayou is located along the eastern edge of LHAAP-16 and flows into Caddo Lake, northeast of the former LHAAP. The landfill covered approximately 13 acres prior to the cap construction. It was established in the 1940s for the disposal of solid and industrial wastes and was used until the 1980s, when disposal activities were terminated.

The contaminated media at LHAAP-16 include buried source material (landfill waste under the cap) and the shallow and intermediate groundwater beneath and downgradient of the landfill. The U.S. Department of the Army (U.S. Army) and the Environmental Protection Agency (EPA) signed an Interim Record of Decision (ROD) (U.S. Army 1995), and the Texas Water Commission (now the Texas Commission on Environmental Quality [TCEQ]) concurred in 1995, approving an interim remedial action (IRA) for LHAAP-16 to mitigate potential risks posed by buried source material at the site. The IRA included the construction of a landfill cap, which is considered a component of the final remedy for the site. Construction of the multilayer cap was completed in 1998. The groundwater extraction system was voluntarily installed by the U.S. Army in 1996 and 1997 as a treatability study to prevent the groundwater plume from migrating to Harrison Bayou (OHM Remediation Services Corp. [OHM] 1998). According to the letters written by the Army to EPA and TCEQ (U.S. Army 1996), the intended duration of operation of the extraction system at LHAAP-16 was 24 months; however, the extraction system was in operation until September 27, 2019, with two prolonged outages from August 2012 to November 2012, and December 2018 to September 4, 2019, due to power feed outages (Bhate 2021).

The Final ROD for LHAAP-16 (including the impacted groundwater) was issued in September 2016 and describes the final selected remedy for the site. The final selected remedy for LHAAP-16 includes maintenance of the existing cap, enhanced land use controls (LUCs), in situ enhanced bioremediation in a target area, biobarriers, and monitored natural attenuation (MNA). The final remedy also incorporates the LUCs implemented during the early IRA which was a containment presumptive remedy (U.S. Army 2016). The groundwater contaminants of concern (COCs) identified in the Final ROD include chlorinated volatile organic compounds (CVOCs) (trichloroethene [TCE], cis-1,2-dichloroethene [cis-1,2-DCE], 1,1-dichloroethene [1,1-DCE], 1,2-dichloroethane [1,2-DCA], vinyl chloride [VC], 1,1,2-trichloroethane [1,1,2-TCA], and methylene chloride [MC]), perchlorate, and metals (arsenic, chromium, manganese, nickel, and thallium) in the shallow and/or intermediate groundwater. The Final Remedial Design (RD) was submitted and approved in January 2017 (Army 2017), and the Draft Final Remedial Action Work Plan (RAWP) describing the in-situ bioremediation (ISB) activities was submitted and approved in June 2018 (Bhate 2018a). The injection activities for the ISB remedy took place between September 24 and December 21, 2019, as reported in the Final Remedial Action Completion Report (RACR) in April 2021 (Bhate 2021).

The Remedial Action Operation (RA-O) Report represents the Year 3 RA-O implementation and summarizes the results of the site inspections and semiannual sampling activities. During the Year 3 RA-O, the surface water sampling was inadvertently omitted because the locations were not listed in the updated RA-O monitoring network table in the Final Second Annual RA-O Report (Bhate 2023); however, they have been added for the Year 4 RA-O. The third year RA-O semiannual sampling events were conducted in June/July 2022 and January 2023.

1.1 Remedial Action Objectives

The remedial action objectives for LHAAP-16, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Protection of human health and the environment by preventing exposure to landfill contents.
- Protection of human health and the environment by reducing leaching and migration of landfill hazardous substances into the groundwater.
- Protection of human health by preventing human exposure to the contaminated groundwater.
- Protection of human health and the environment by preventing COCs and COC daughter products from migrating into Harrison Bayou at levels that cause surface water in Harrison Bayou to exceed surface water criteria.
- Return of groundwater to its potential beneficial use as drinking water, wherever practicable.

1.2 Performance Objectives

The remedy selected for groundwater at LHAAP-16 in the Final ROD (U.S. Army 2016) includes the following components:

- Maintenance of the existing landfill cap to preserve its integrity and minimize or prevent infiltration through the landfill.
- LUCs to maintain the integrity of any current or future remedial or monitoring systems and preventing the use of groundwater contaminated above cleanup levels as a potable water source.
- ISB to reduce contaminant mass in the most contaminated portion of the shallow and intermediate groundwater zones and reduce the COC concentrations reaching the biobarriers in the future.
- Installation of four biobarriers to reduce the shallow groundwater concentrations to levels that will not cause the surface water to exceed surface water standards, control potential migration of contaminants from the landfill, and reduce groundwater contaminant mass.
- Monitored natural attenuation (MNA) to return groundwater to its beneficial use, wherever practicable. Data from eight quarterly sampling events will be combined with historical data to evaluate the effectiveness of various natural physical, chemical, and biological processes in reducing contaminant concentrations.
- Groundwater and surface water monitoring to evaluate the effectiveness of the cap, confirm the decrease in COC concentrations within the groundwater plume, and protect surface water in Harrison Bayou from the seepage of contaminated groundwater in accordance with the monitoring program established in the RD (AECOM Technical Services, Inc. [AECOM] 2017).
- Long-term operation of the remedy, including maintenance of the landfill cap, maintenance of LUCs, groundwater and surface water monitoring, and reinjection of the vegetable oil in the biobarriers, as needed, to provide continued treatment effectiveness.

The performance monitoring program and LUC inspection program are provided in the RAWP (Bhate 2018a). The performance objectives for the operation of the remedy selected in the ROD are as follows:

- LUC performance objectives to be achieved via annual inspections and maintenance include:
  - Prohibit access to the contaminated groundwater except for environmental monitoring and testing only.
  - Preserve the integrity of the landfill cap and restrict intrusive activities (e.g., digging) that would degrade or alter the cap.

  - Restrict land use to nonresidential.
  - Maintain the integrity of any current or future remedial or monitoring systems.
  - Prevent the use of groundwater contaminated above cleanup levels as a potable water source.
- ISB treatment areas, biobarriers, and MNA remedy performance objectives are:
  - Achieve and maintain plume stability as measured by concentrations decreasing in the majority of performance wells relative to the baseline and/or historical concentrations.
  - Achieve and maintain geochemical conditions conducive to natural attenuation of COCs in the shallow and intermediate groundwater zones based on evaluation of biodegradation screening scores using EPA guidance.
  - Demonstrate MNA processes are occurring using attenuation rate calculations, increases in COC daughter product concentrations, and microbial culture counts.

The performance objective evaluations for the biobarriers and ISB treatment areas will determine when follow-up injections are necessary in the ISB treatment areas based on the criteria presented in Section 4.7.4 of the RAWP (Bhate 2018a).

The performance evaluation of the MNA remedy in the shallow and intermediate groundwater zones outside the active treatment areas will determine if MNA is effective. Per the ROD, if MNA is found to be ineffective, a contingency remedy of bio-amendment injections outside the active treatment areas will be implemented following documentation in an Explanation of Significant Differences.

This report summarizes the LUC compliance inspection; monitoring well inspection, maintenance, and repair; results of groundwater sampling; and an evaluation of the current state of the remedy.

1.3 Conceptual Site Model

The contaminated media at LHAAP-16 include buried source material (landfill waste under the cap) and the shallow and intermediate groundwater beneath and downgradient of the landfill. The IRA implemented in 1996 through 1998 included placement of a multilayer cap at LHAAP-16 mitigating potential risks posed by buried landfill waste. The cap prevents rainfall from infiltrating and leaching contaminants from principal threat wastes within the landfill. However, groundwater in contact with the buried waste material still provides a mechanism for transportation of COCs away from the landfill (Jacobs Engineering Group, Inc. 2000). A groundwater extraction system was installed as a treatability study to prevent the groundwater plume from migrating to Harrison Bayou (OHM 1998) and extraction continued until the system was shut off on September 27, 2019, to allow for ISB injections in the mid-plume area.

The groundwater COCs for LHAAP-16 identified in the Final ROD (U.S. Army 2016) include CVOCs (TCE, cis-1,2-DCE, 1,1-DCE, 1,2-DCA, VC, 1,1,2-TCA, and MC), perchlorate, and metals (arsenic, chromium,

manganese, nickel, and thallium) in the shallow and/or intermediate groundwater. Five metals (arsenic, chromium, manganese, nickel, and thallium) had sporadic elevated detections in 2009 and were retained as COCs in shallow and/or intermediate groundwater in the Final ROD. The detected metals do not appear to be associated with widespread releases of contamination from the landfill and are presumed to be naturally occurring; however, the concentrations of metals in groundwater may be influenced by changes in the geochemical conditions related to the remediation of the contaminant plumes and will continue to be evaluated as part of the RA-O.

The pre-remedy sampling conducted in October 2018 and September 2019 showed volatile organic compound (VOC) contamination (over 10,000 micrograms per liter [µg/L] of TCE) in the shallow zone at monitoring wells 16WW16, 16WW36, and 16EW02. Monitoring well locations are shown on **Figure 1-3**. **Figure 1-4** and **Figure 1-5** show the extent of the TCE and perchlorate plumes in shallow and intermediate groundwater, respectively, based on the pre-remedy sampling conducted in 2018 and 2019. The concentrations and plume contours shown on **Figure 1-4** and **Figure 1-5** are based on the 2019 data, except in cases where the well was not sampled in 2019, and 2018 data was used. The wells with the highest perchlorate concentrations in the shallow zone were 16WW16 and 16WW55, with detections of over 400 µg/L. Perchlorate was detected above the protective concentration level (PCL) of 17 µg/L at four intermediate wells, with the highest concentration of perchlorate detected at well 16WW35, which contained a concentration of over 400 µg/L. One well, 16WW21, in the upper deep groundwater zone, was sampled in October 2018 and did not contain COCs above detection limits. The highest concentration of VOCs in the intermediate zone was detected at 16WW35, which contained 21,000 µg/L of TCE in October 2018 and 13,000 µg/L in September 2019. TCE was also detected above the maximum contaminant level (MCL) at two intermediate zone wells, 16WW57 and 16WW58, located on the east side of Harrison Bayou, in September 2019 at 24 µg/L and 4,300 µg/L, respectively. The shallow groundwater plume extent is shown as undefined on the figures at the boundary with Harrison Bayou based on uncertainty regarding the interaction between Harrison Bayou and the shallow groundwater zone. During drilling of 16WW57 and 16WW58 to the east of Harrison Bayou, coarse-grained strata were encountered at shallow depths, but there was no indication of saturated conditions at depths that would be consistent with the shallow groundwater zone found to the west of the Bayou.

Surface water samples collected in October 2018 from three locations, 16SW01, 16SW02, and 16SW03, shown on **Figure 1-3**, did not contain VOCs or perchlorate above the detection limits. Surface water samples were collected at 16SW01, 16SW02, and 16SW03 in Harrison Bayou during all four quarterly RA-O sampling events during the Year 1 RA-O. Perchlorate and VOCs were not detected at any of the three locations during the Year 1 RA-O. Arsenic, chromium, manganese, and nickel were detected but found to be below their respective cleanup levels. Thallium was not detected at any location during all four quarters of the Year 1 RA-O. Surface water samples were collected during the Year 2 RA-O at the same three locations during three out of four quarterly RA-O sampling events (April 2021, July 2021, and January 2022). There was no flow in the Bayou in Year 2 Quarter 3 (October 2021), and therefore, surface water samples were not collected. VOCs were not detected at any of the three locations;

perchlorate was not detected at any of the three locations in the first three quarters and was detected at estimated concentrations below the PCL in Year 2 Quarter 4. Arsenic, chromium, manganese, and nickel were detected but found to be below their respective cleanup levels. Thallium was detected in the sample from 16SW01, collected during the April 2021 sampling event, at a concentration of 0.00117 milligrams per liter (mg/L) and was not detected in the remaining samples (Bhate 2023). Surface water sampling was inadvertently omitted during the Year 3 RA-O.

Based on the current and historical groundwater elevation data, flow direction is to the east/southeast toward Harrison Bayou in the shallow and intermediate zones. The mean hydraulic conductivity values vary from 1.5×10^{-3} centimeters per second in the shallow zone to 4.2×10^{-4} centimeters per second in the deep zone. The groundwater velocity is estimated to vary from 0.31 feet per year in the deep zone to 37 feet per year in the shallow and intermediate zones (Geosyntec 2009).

The Year 3 results indicate that perchlorate and TCE concentrations show a reduction in concentrations post ISB injections; however, concentrations remain above the cleanup levels. The wells located in the treatment areas continue to show reductions in COC concentrations and favorable geochemical conditions. Downgradient of the biobarriers, reductions have been observed as treated groundwater migrates downgradient.

The perchlorate and TCE plume concentrations have generally decreased in concentration between the Year 1 and Year 3 RA-O in the areas where the highest concentrations existed prior to the ISB treatment, although a few locations saw increases in COC concentrations over time. The highest perchlorate and TCE concentrations in Year 3 RA-O continue to be detected in the vicinity of Landfill Biobarrier #2, which may be due to short-term fluctuations in groundwater elevations or contaminant flux from the nearby upgradient source. In January 2023, the highest TCE concentrations were detected at the upgradient well 16PM02 at 80,000 µg/L and at the downgradient monitoring well 16PM06 at 85,000 µg/L. The highest levels of perchlorate are also associated with upgradient area at the Landfill Biobarrier #2. In January 2023, the highest concentration of perchlorate at LHAAP-16 was detected at 16WW16 at 630 µg/L. Overall, the shape of the groundwater plumes mimics the pattern of groundwater flow to the east and southeast.

In October 2023, a Technical Memorandum (PCI-Bhate JV 2023) proposed activities to update the conceptual site model at LHAAP-16 by:

1. Installing two surface water elevation gauges in Harrison Bayou.
2. Performing monthly gauging of stream elevations and groundwater elevations for six months at monitoring wells in the shallow and intermediate zones adjacent to the Bayou.
3. Performing a topographic survey of the LHAAP-16 site.

These activities are intended to provide additional information about the relationship between groundwater and surface water in the shallow and intermediate zones in the vicinity of Harrison Bayou.

A better understanding of that relationship is necessary to determine if additional delineation and/or remediation of the shallow or intermediate groundwater plumes is necessary to achieve the LHAAP-16 remedial action objectives.

1.4 In-Situ Bioremediation Activities

ISB was conducted at LHAAP-16 to remediate groundwater impacted with VOCs and perchlorate from September through December 2019. As planned in the RD (AECOM 2017) and RAWP (Bhate 2018a), the following six ISB systems were implemented (**Figure 1-3**):

- Landfill Biobarrier #1 in the shallow groundwater zone southwest of the Mid-Plume Area and adjacent to the landfill.
- Landfill Biobarrier #2 in the shallow groundwater zone west of the Mid-Plume Area and adjacent to the landfill at the location of the past Semi-Passive Biobarrier Demonstration.
- Landfill Biobarrier #3 in the shallow groundwater zone west of the Mid-Plume Area and adjacent to the landfill and immediately north of Landfill Biobarrier #2.
- A "Bayou Biobarrier" in the shallow groundwater zone northeast of the Mid-Plume Area near Harrison Bayou.
- A biogrid in the shallow groundwater zone in the Mid-Plume Area.
- A biobarrier in the intermediate groundwater zone in the Mid-Plume Area.

The primary injection components were the carbon source and APTIM's dechlorinating microbial consortium (SDC-9™). The same carbon source (an emulsified vegetable oil [EVO] product known as Electron Donor Solution Extended Release [EDS-ER™] from Tersus Environmental, LLC) was used for the injection mixtures at all ISB areas except for the Bayou Biobarrier. EDS-ER™ was supplied as a water mixable oil that contains no water; therefore, it was mixed with water in the field to generate the applicable volumes for each barrier in accordance with the RAWP (Bhate 2018a). At the Bayou Biobarrier, an amendment mixture referred to as ABC+™ (composed of microscale zero valent iron [ZVI] and a carbon source [ABC™]) was used instead of EDS-ER™. ZVI was added to the injectate solution at the Bayou Biobarrier to supplement the other amendments and accelerate degradation of the site COCs. The volume of amendment mixtures injected at each area and the targeted injection intervals are provided in the RACR (Bhate 2021). The EDS-ER™ product used contains EVO, which should not require replenishment for three to five years (AECOM 2017). The long-lived C14 to C18 fatty acids contained in the ABC+™ used in the Bayou Biobarrier are expected to last at least two years.

Pre-remedy (baseline) sampling was conducted in October 2018 and September 2019 in the shallow and intermediate zones in accordance with the RAWP and is summarized in the Final RACR (Bhate 2021). The pre-remedy sampling began in October 2018, before all wells were installed. The remaining well installations were delayed by heavy rainfall and saturated ground conditions that persisted through the spring of 2019. The final wells were installed in August 2019. Overlapping with this time period, the

groundwater extraction system was inoperable from December 26, 2018, to September 3, 2019, due to damage to the main LHAAP electrical transformer. After groundwater extraction resumed on September 4, 2019, the extraction system was operated for approximately two weeks prior to sampling to allow aquifer hydraulic conditions to stabilize. To address the possibility that the October 2018 results might not be representative of conditions at the start of ISB due to the extraction system outage, the September 2019 pre-remedy sampling network consisted of a representative subset of the sampling network from the RAWP (Bhate 2018a), with concurrence from TCEQ and EPA (TCEQ 2019, EPA 2019). While fluctuations in concentration were detected in some wells between the October 2018 and September 2019 events, the groundwater flow directions and extent of contamination were comparable between the two events. The September 2019 sampling results are the most representative of the conditions present immediately prior to the ISB implementation.

2.0 SITE ACTIVITIES AT LHAAP-16

This section describes the results of the third annual RA-O activities from February 2022 to January 2023, including the annual LUC compliance inspection, semiannual groundwater monitoring, and monitoring system inspections performed at LHAAP-16.

2.1 Annual LUC Compliance Inspection

2.1.1 LUC Inspection

The annual LUC compliance inspection checklist and certification were not completed during the third annual RA-O period. However, a site inspection including walking the landfill cover was performed for the Five Year Review in February 2023 and no land use inconsistent with the LUCs other than growth of trees on the landfill cap was identified. The objectives of the LUCs at LHAAP-16 are to prevent human exposure to groundwater contamination presenting an unacceptable risk to human health and ensure that there is no withdrawal or use of groundwater beneath the site for anything other than environmental monitoring and testing, as well as requiring the integrity of any current or future remedial monitoring systems to be maintained. The LUCs also prohibit intrusive activities within the landfill boundary for as long as the landfill waste remains or until levels of COCs in soil and groundwater allow for unlimited use and unrestricted exposure.

An annual LUC inspection was completed on July 19, 2023, during the Year 4 monitoring period, and the Compliance Certification Documentation Form is included in **Appendix A**. No noncompliance issues or concerns were noted during the annual inspection. During the Cap inspection conducted on July 19, 2023, pine trees were noted to be growing on the cap and will be removed during the fourth year of RA-Os. The vegetation will continue to be monitored to determine if corrective measures are deemed necessary.

2.1.2 Groundwater Monitoring Network Inspections and Maintenance

Aside from standard wear and tear, no major damage to bollards, well pads, or protective casings were observed during the well inspections with the following exceptions which will be addressed during the Year 4 RA-O:

- 16EW01: The well pad may need to be leveled by adding fill underneath.
- 16WW30-2301: Damage to the lid of the protective casing (i.e., cracked) and leaning bollards were observed.
- 16WW29: The protective casing was observed as being off center, causing the lid to not close properly.

- 16WW32: The 4-inch metal well pipe was observed to be set too far north, causing the lid to not close completely. The pipe will need to be cut down and the well resurveyed to properly protect the well.
- 16WW33: The well needs to be repainted.
- 16WW34: The well needs to be repainted.

Minimal encroachment of weeds or brush on the well pads was observed. Area mowing and clearing around the wells is conducted on an as-needed basis, but typically is done before sampling events. Mowing at LHAAP-16 was conducted on June 14, 2022, and January 18, 2023. Well inspection forms and a photo log for each monitoring well is included in **Appendix B**.

The well siltation measurements from the Year 3 RA-O are included in **Table 2-1**. Screen siltation during the Year 3 RA-O ranged from 0.1 percent (16WW32) to 40.1 percent (16IW26) during the June/July 2022 sampling event and 0.0 (16WW34) to 19.9 (16WW40) percent during the January 2023 sampling event.

Monitoring wells 16EW08, 16WW13, and 16WW37 were silted during the first year RA-O (January 2021) and were redeveloped in October 2021. During the Year 3 reporting period, these three wells continued to exceed 10 percent siltation, and it is possible that the total well depths may have been recorded erroneously during installation and therefore show up as silted even though they have been redeveloped.

Monitoring wells 16EW01, 16IW26, 16WW18, 16WW40, and 16WW42 also showed siltation in excess of 10 percent during the Year 3 RA-O Monitoring. Due to the excess siltation observed during the Year 2 RA-O, wells 16WW40 and 16WW42 were redeveloped in June 2022 during the Year 3 semiannual sampling event. The current siltation level does not appear to be affecting the groundwater elevation measurements or the ability to collect representative samples from the wells that were redeveloped in October 2021.

During the Year 2 RA-O Monitoring, it was recommended that efforts to sample 16EW05, 16EW06, and 16EW07 be discontinued because groundwater elevations in all three wells remained anomalously high and the level of oil residue was still interfering with the ability of the laboratory to run groundwater samples from the wells without high dilutions or using methods that are approved for solid samples instead of liquids. In response, these wells were replaced in the monitoring network by well 16IW26. An additional new well has been proposed for installation in the intermediate zone between 16EW06 and 16EW07 but has not yet been installed.

2.2 Groundwater Monitoring

The third annual reporting period includes two semiannual groundwater sampling events conducted in June/July 2022 and January 2023. The RA-O groundwater monitoring network includes changes proposed in the Technical Memorandum for LHAAP-04 and LHAAP-16 (Bhate 2022) and approved by

TCEQ and EPA in the Final Second Annual RA-O report (Bhate 2023). Surface water sampling was inadvertently not conducted during the Year 3 RA-O because the surface water locations were not listed in the updated RA-O monitoring network table in the Final Second Annual RA-O Report (Bhate 2023). The surface water monitoring locations have been added to the Year 4 RA-O table and will be sampled in the future. The analytes for each well are summarized in **Table 2-2**. The RA-O monitoring well locations are depicted on **Figure 2-1**.

Before collecting groundwater samples, the wells were gauged using a water level probe, and both the depth to water and total depth of the well were recorded to the nearest 0.01 foot from the top of casing. Depth-to-water measurements were used to calculate the groundwater elevations presented in **Table 2-1**. Water samples were collected using low-flow sampling methods, as described in the groundwater sampling procedures discussed in the *Final Installation-Wide Work Plan* (Bhate 2018b) to minimize turbidity in the groundwater samples. After water quality parameters stabilized and were within acceptable ranges per the Installation-Wide Work Plan, samples were collected at the same low flow rate.

Groundwater sample collection logs are presented in **Appendix C**. Chain-of-custody forms, laboratory reports, and data validation reports are presented in **Appendix D**.

2.2.1 Groundwater Elevations and Flow Direction

During the third year RA-O semiannual sampling events, groundwater elevations measured in individual wells varied by anywhere from 0.1 to 6.2 feet throughout the year, with the largest differential occurring at 16WW42. The highest groundwater elevations generally occurred during the January 2023 event, and the lowest elevations occurred during the June/July 2022 event. Groundwater elevations are included in **Table 2-1**. The following wells were not used in the development of potentiometric contours for the reasons provided in each bullet:

- Monitoring wells 16IW03 and 16IW04 do not have survey data available and were not included in the development of potentiometric contours.
- Monitoring wells 16EW05, 16EW06, and 16EW07 were not included in the development of potentiometric contours per the recommendation of the Year 2 RA-O to discontinue measurements. These wells were used for injections as part of the ISB remedy and noted during previous sampling events to have varying levels of residue from the injections that appears to have affected the well screens and the groundwater elevation measurements to varying degrees.

The groundwater flow gradient for June/July 2022 in the shallow groundwater zone was interpreted to be generally to east and southeast, with localized north and northeastward gradients present on the west side and east side of Biobarriers #2 and #3, respectively (**Figure 2-2**). The groundwater flow gradient in the shallow groundwater zone was interpreted to be generally northeastward with an eastward gradient in the northern portion of the site, based on the potentiometric map for

January 2023 (**Figure 2-3**). The slight change in groundwater flow direction from June/July 2022 to January 2023 may be attributed to seasonal fluctuations; however, the general groundwater flow direction throughout the site remains towards Harrison Bayou, with the southward and southeastward areas of flow typically mimicking the significant topographic variations in those areas.

The groundwater flow gradient in the intermediate groundwater zone was interpreted to be generally to the east and southeast in June/July 2022 (**Figure 2-4**). In January 2023, the hydraulic gradient in the intermediate groundwater zone was interpreted to be generally northeastward with flow to the southeast in the northeastern and southern portions of the site (**Figure 2-5**). Note that the biobarriers and the shallow mid-plume treatment areas were confined to the shallow groundwater zone; therefore, their locations are not shown on the intermediate groundwater zone maps. To describe the location of wells adjacent to the various treatment areas in subsequent sections of this report, it is assumed that the groundwater flow across the site is generally from the west to the east towards Harrison Bayou, though the local flow in the vicinity of the barrier may vary between sampling events. Based on that assumption, the wells to the west of the treatment areas are considered upgradient and wells to the east of the treatment areas are considered downgradient, unless specifically described otherwise.

2.2.2 Groundwater Analytical Results

Semiannual groundwater samples were collected from 58 monitoring wells and analyzed for perchlorate (EPA Method 6850) and VOCs (EPA Method 8260C). Samples from 21 monitoring wells were also analyzed for selected geochemical parameters as shown in **Table 2-2**. ISB was conducted at LHAAP-16 in six treatment areas (**Figure 1-3**) to remediate groundwater impacted with VOCs and perchlorate:

1. Landfill Biobarrier #1.
2. Landfill Biobarrier #2.
3. Landfill Biobarrier #3.
4. Bayou Biobarrier.
5. Mid-Plume Area in shallow groundwater zone.
6. Mid-Plume Area in intermediate groundwater zone.

The locations of the ISB treatment areas are shown on **Figure 2-1**. The analytical results are discussed for each treatment area in this section. Some of the wells sampled during the RA-O event lie outside of the above six treatment areas and are discussed separately in **Section 2.2.2.7**. At several of the wells, matrix interference issues or significantly elevated concentrations caused elevated detection limits for the VOCs. Where elevated detection limits exceed the COCs, they are highlighted in **Tables 2-3** through **2-9**.

2.2.2.1 Landfill Biobarrier #1

Groundwater samples were collected at six shallow zone monitoring wells (16IW09, 16RW01, 16RW04, 16RW05, 16WW26, and 16WW42) for evaluation of the Landfill Biobarrier #1 ISB injection area and two

intermediate zone monitoring wells (16WW13 and 16WW25) for evaluation of MNA in the intermediate zone, as shown in **Table 2-2**. The analytical results for Landfill Biobarrier #1 are summarized in **Table 2-3** and on **Figure 2-6**. Contamination trend plots for 16WW26 and 16WW42 are included on **Figures 2-7** and **2-8**, respectively. Perchlorate concentrations were below the PCL (17 µg/L) at the upgradient well, downgradient wells, and the well within the biobarrier during both semiannual sampling events in the Year 3 RA-O event. Four of the six shallow zone wells contained TCE above the MCL in Year 3 June/July 2022 and five of the six wells contained TCE above the MCL in Year 3 January 2023. The performance well within Landfill Biobarrier #1, 16IW09, contained TCE at a concentration below the MCL in both semiannual events (June 2022 and January 2023) of Year 3 RA-O monitoring. As discussed in **Section 2.2.1**, the overall flow across the site is from west to east towards Harrison Bayou, which is slightly different from the local flow in the vicinity of Landfill Biobarrier #1; considering the overall flow, the wells located west of the barrier are considered upgradient and wells located to the east of the barrier are considered downgradient. Upgradient well 16RW01 and downgradient well 16RW04 showed TCE concentrations above the MCL during both semiannual events of the Year 3 RA-O sampling event; TCE at 16RW01 and 16RW04 was detected at 2,000 µg/L and 3,300 µg/L, respectively, in January 2023. Downgradient well 16RW05 did not show any perchlorate or VOC concentrations above the MCLs/PCLs with the exception of TCE during the January 2023 sampling event (6.1 µg/L). Downgradient well 16WW26 did not show any perchlorate concentrations above the MCLs/PCLs; however, TCE was detected above the MCLs/PCLs during both semiannual events (June 2022 and January 2023) at concentrations of 1,100 µg/L and 71 µg/L, respectively. Downgradient well 16WW42 showed TCE concentrations above the MCL during both semiannual events (June 2022 and January 2023) at concentrations of 850 µg/L and 27 µg/L, respectively. The intermediate zone monitoring well, 16WW13, located southeast of the barrier, showed decreasing TCE concentrations in Year 3 RA-O; TCE concentrations decreased from 2,500 µg/L in July 2022 to 89 µg/L in January 2023. Perchlorate and VOC concentrations were below the MCLs/PCLs at downgradient intermediate well 16WW25 during both semiannual events in Year 3 (June 2022 and January 2023).

TCE, cis-1,2-DCE, and VC concentrations remained above the MCLs during at least one semiannual event in upgradient and downgradient wells with the exception of 16WW25. The presence of VC and cis-1,2-DCE in the vicinity of Landfill Biobarrier #1 is an indication that reductive dechlorination is occurring.

2.2.2.2 Landfill Biobarrier #2

Groundwater samples were collected at seven shallow zone monitoring wells (16IW03, 16PM02, 16PM03, 16PM06, 16PM09, 16PM14, and 16WW36) for evaluation of the Landfill Biobarrier #2 ISB injection area, as shown in **Table 2-2**. Groundwater samples were also collected at one shallow zone (16WW16) well and one intermediate zone monitoring well (16WW35) for evaluation of MNA in the vicinity. The analytical results for Landfill Biobarrier #2 are summarized in **Table 2-4** and on **Figure 2-9**. Perchlorate was detected above the PCL (17 µg/L) in two of the three upgradient wells (16PM03 and 16WW16) during both semiannual events in Year 3 (June 2022 and January 2023). Perchlorate was

detected below the PCL at performance monitoring well 16IW03, within the biobarrier, and four out of five downgradient wells for both semiannual events. Perchlorate was detected above the PCL at 16WW35 in the intermediate zone, 75 feet east of the biobarrier, during both semiannual events.

Performance monitoring well 16IW03 showed a decrease in TCE concentration, from 7,300 µg/L in Year 3 June 2022 to 3,600/1,200 µg/L (parent sample and field duplicate sample) in Year 3 January 2023. The concentration of cis-1,2-DCE increased from 17,000 µg/L in Year 3 June 2022 to 18,000 in Year 3 January 2023, indicating that biodegradation is likely occurring. TCE concentrations continue to remain well above the MCL at upgradient wells 16PM02, 16PM03, and 16WW16 and downgradient wells 16PM06, 16PM14, 16PM09, and 16WW36. Contaminant trend charts for downgradient wells 16PM06 and 16WW36 are included on **Figures 2-10** and **2-11**, respectively. TCE was detected at 63,000 µg/L at upgradient monitoring well 16WW16 in Year 3 January 2023. At upgradient well 16PM02, TCE was detected at 80,000 µg/L in January 2023, an increase from 32,000 µg/L detected in June 2022, but consistent with historical concentrations prior to Year 3. In the downgradient well 16PM06, the highest TCE concentration since October 2020 was detected in the January 2023 sample at 85,000 µg/L. TCE, cis-1,2-DCE, VC, 1,1-DCE, and 1,2-DCA concentrations remained above the MCLs in upgradient and downgradient wells. The presence of significantly higher concentrations of VC and cis-1,2-DCE relative to TCE in 16PM06 and 16IW03 when compared to upgradient locations is an indication that reductive dechlorination is occurring. However, the high levels of TCE present downgradient of the barrier may indicate the presence of significant residual sorbed mass or a previously unrecognized source area.

Monitoring well 16WW35, located to the east of the biobarrier in the intermediate zone, showed an increase in TCE concentrations from 7,800 µg/L in June 2022 to 17,000 µg/L in January 2023, but that concentration still represents an overall decline in TCE concentrations compared to the baseline concentration of 21,000 µg/L from October 2018.

2.2.2.3 Landfill Biobarrier #3

Groundwater samples were collected from five shallow zone monitoring locations for evaluation of the Landfill Biobarrier #3 ISB injection area and one additional shallow zone location for evaluation of MNA in the vicinity, as shown in **Table 2-2**. Although 16WW14 was removed from the RA-O monitoring network to evaluate the treatment due to redundancy, this well was sampled in June 2022 for metals only as required for the five-year review (see **Section 2.2.4**). The analytical results for Landfill Biobarrier #3 are summarized in **Table 2-5** and on **Figure 2-12**. Contaminant trend charts for wells 16IW10 and 16RW10 are included on **Figures 2-13** and **2-14**.

Perchlorate was not detected above the PCL (17 µg/L) upgradient or within the biobarrier during both semiannual events in Year 3 (June/July 2022 and January 2023). Perchlorate was also not detected above the PCL in the downgradient wells, except for 16WW55. In Year 3, the perchlorate concentration at 16WW55 decreased from 147 µg/L in June 2022 to 55.5 µg/L PCL in January 2023.

The TCE concentrations at performance well 16IW10, located within the treatment zone, remained below the MCL during the Year 3 RA-O sampling events in June 2022 and January 2023 at 2.1 µg/L and 1.6 µg/L, respectively. Upgradient of the biobarrier, in Year 3 January 2023, TCE concentrations were above the MCL at the two upgradient wells (16RW06 and 16RW07), with the highest concentrations at 16RW07 at 2,200 µg/L. Downgradient of the biobarrier, TCE at 16WW55 decreased from 5,900 µg/L in October 2018 (pre-remedy sampling event) to 2,100 µg/L in Year 3 January 2023. At downgradient well 16RW09, TCE decreased from 1,900 µg/L in July 2022 to 590 µg/L in January 2023.

2.2.2.4 Bayou Biobarrier

Groundwater samples were collected from six shallow zone monitoring wells (16IW20, 16RW12, 16WW12, 16WW22, 16WW39, and 16WW40) for evaluation of the Bayou Biobarrier ISB injection area. Also, one additional shallow zone well (16WW56) and one intermediate zone monitoring well (16WW41) were sampled to evaluate MNA in the area of the Bayou Biobarrier. During the June 2022 sampling event, 16WW21 was also sampled for metals only for the five-year review (see **Section 2.2.4**). The analytical results are summarized in **Table 2-6** and on **Figure 2-15**. Contaminant trend charts for wells 16IW20, 16RW12, and 16WW40 are included on **Figures 2-16** through **2-18**.

During the Year 3 semiannual sampling, perchlorate concentrations remained below the PCL (17 µg/L) at all monitoring wells with the exception of shallow well 16WW12 and intermediate well 16WW41 during the June 2022 event. At 16WW12, perchlorate was detected at 58.3 µg/L and 21.9 µg/L in June 2022 and January 2023, respectively. Perchlorate was detected above the PCL at 16WW41 in June 2022 at 85 µg/L and then decreased to 11 µg/L in January 2023.

Within the biobarrier, TCE concentrations at 16IW20 remained below the MCL during both semiannual events during the Year 3 RA-O sampling events at 1.6 µg/L and 2.5 µg/L, in June 2022 and January 2023, respectively. Monitoring well 16WW39, located southwest and upgradient of the Bayou Biobarrier, showed a reduction in TCE concentration from 3,900 µg/L in October 2018 to 120 µg/L in January 2022; however, concentrations increased in January 2023 to 490 µg/L. TCE concentrations at upgradient well 16WW12 decreased from 2,100 µg/L to 1,400 µg/L between June 2022 and January 2023 during the Year 3 RA-O sampling events. The downgradient well 16WW40 TCE concentrations fluctuated up from 660 µg/L in October 2018 to 1,700 µg/L in October 2020 then back down to 480 µg/L in January 2023. TCE concentrations in monitoring well 16WW56, located northeast and diagonally downgradient of the Bayou Biobarrier, also fluctuated from 27 µg/L in September 2019 up to 520 µg/L in March 2020 then down to 7 µg/L January 2022, followed by a slight increase to 27 µg/L in January 2023.

The intermediate zone well located upgradient and west of the Bayou Biobarrier, 16WW41, has shown an overall reduction in TCE concentrations from October 2018 to October 2021 through natural attenuation processes; however, since October 2021, the TCE concentrations have been increasing with detections of 6,200 µg/L in June 2022 and 6,800 µg/L in January 2023. The Year 3 concentrations remained below the baseline concentration of 9,800 µg/L detected in October 2018.

2.2.2.5 Mid-Plume Area, Shallow

Groundwater samples were collected from six shallow zone monitoring locations (16EW01, 16EW02, 16EW03, 16EW04, 16WW30, and 16WW48), as shown in **Table 2-2**. The analytical results for the Mid-Plume Area in the shallow groundwater zone are summarized in **Table 2-7** and on **Figure 2-19**. The contaminant trend graphs for wells 16EW02, 16WW30, and 16WW48 are included on **Figures 2-20** through **2-22**.

Perchlorate was detected above the PCL (17 µg/L) in only one well, 16EW01, during the Year 3 RA-O sampling events. Perchlorate in 16EW01 decreased from 180 J (estimated value) µg/L in January 2021, to 61 µg/L in January 2022 and 30.7 µg/L in January 2023, but results were still above the PCL. The perchlorate concentrations at 16WW48 were below the PCL for the first time in January 2022 and remained below the PCL during the Year 3 RA-O.

All six shallow zone monitoring wells (16EW01, 16EW02, 16EW03, 16EW04, 16WW30, and 16WW48) showed TCE concentrations above the MCL in Year 3 January 2023. The highest TCE concentration was detected at monitoring well 16EW02 at 35,000 µg/L in June 2022. At 16EW02, cis-1,2-DCE showed increasing concentrations compared to pre-remedy sampling results, indicating that reductive dechlorination is occurring. Monitoring well 16EW01, located at the northern side-gradient edge of the treatment area, showed a decline in TCE concentration from 3,700 µg/L in March 2020 to 1,800 µg/L in January 2022; however, concentrations increased to 2,900 µg/L (July 2022) and 2,400 µg/L (January 2023) during Year 3. TCE concentrations at monitoring well 16WW30, located downgradient and outside of the treatment area, decreased from 360 µg/L in September 2019 to 45 µg/L in June 2022 and then increased to 120 µg/L in January 2023. At monitoring well 16WW48, located downgradient and outside of the treatment area, TCE increased from 8,800 µg/L during the pre-remedy sampling event in October 2018 to the highest level of 20,000 µg/L in June 2022 and then decreased to 13,000 µg/L in January 2023. The cis-1,2-DCE concentrations increased despite the decline in TCE concentrations between June 2022 and January 2023, indicating reductive dechlorination was occurring concurrent with TCE desorption.

2.2.2.6 Mid-Plume Area, Intermediate

Groundwater samples were collected from five intermediate zone monitoring locations (16EW08, 16IW26, 16WW29, 16WW49, and 16WW51), as shown in **Table 2-2**. The analytical results for the Mid-Plume Area in the intermediate groundwater zone are summarized in **Table 2-8** and on **Figure 2-23**. Per recommendation of the Year 2 RA-O (Bhate 2023), efforts to sample 16EW05, 16EW06, and 16EW07 were discontinued due to biofouling caused by their use as injection locations. In response, these wells were replaced in the monitoring network by well 16IW26, which was installed on May 2, 2018, in the intermediate zone in proximity to 16EW06 and 16EW07. Monitoring well 16EW08, which was also used as an injection location, has not retained significant residual from the injections and difficulties achieving detection limits below the MCL/PCL have not been encountered. The contaminant trend graphs for wells 16WW49 and 16WW51 are included on **Figures 2-24** and **2-25**, respectively. The new well

proposed for installation between 16EW06 and 16EW07 was not installed during the Year 3 RAO but will be installed in the future.

Perchlorate concentrations remained below the PCL (17 µg/L) at all monitoring wells in the Mid-Plume intermediate zone during the Year 3 RA-O.

At 16IW26, located in the treatment zone, TCE, cis-1,2-DCE, and VC all remained below their respective MCLs during both semiannual events in Year 3 (June 2022 and January 2023). Monitoring well 16EW08, located on the southern edge of the treatment zone, also remained below the MCL for TCE during both semiannual events in Year 3.

TCE and other COCs at monitoring well 16WW29 remained below the MCLs from the pre-remedy sampling event through Year 3 RA-O. Monitoring well 16WW49 showed a decline in TCE concentration from 260 µg/L in September 2019 to below the MCL at 2.5 µg/L in January 2021; however, TCE increased to above the MCL in April 2021 and remained above the MCL during the Year 3 RA-O at 46 µg/L and 73 µg/L in June 2022 and January 2023, respectively.

Monitoring well 16WW51, located downgradient of the mid-plume treatment area, showed a decline in TCE concentration from 1,000 µg/L in January 2021 to 560 µg/L in April 2021; however, the TCE concentration increased to 2,000 µg/L in June 2022 to 5,900 µg/L in January 2023. The increase in cis-1,2-DCE concentration indicates that reductive dechlorination is occurring.

2.2.2.7 Outside the Treatment Areas

Groundwater samples were collected from seven shallow zone monitoring locations (16WW24, 16WW32, 16WW34, 16WW38, 16WW43, 16WW44, and 16WW46) and seven intermediate zone monitoring locations (16WW58, 16WW23, 16WW27, 16WW31, 16WW33, 16WW37, and 16WW57) for evaluation of MNA outside of the treatment areas, as shown in **Table 2-2**. The analytical results for wells outside of the treatment areas and that are not used to evaluate the performance of treatment areas are summarized in **Table 2-9** and on **Figure 2-26**.

Perchlorate was detected above the PCL (17 µg/L) at 1 out of 14 monitoring wells in the Year 3 RA-O June 2022 sampling event, at 16WW37. The perchlorate concentrations detected in intermediate zone monitoring well 16WW37, located at the western upgradient end of the site, increased from 2.74 µg/L in July 2021 to 168 µg/L in October 2021 before declining to 55.3 µg/L in January 2022, 25.1 µg/L in June 2022, and below the PCL at 11.3 µg/L in January 2023.

In the Year 3 RA-O, TCE was detected above the MCL at four locations (16WW37, 16WW38, 16WW57, and 16WW58). At the upgradient shallow zone monitoring well, 16WW38, TCE was detected at 4,400 µg/L in October 2018, and decreased to 1,200 µg/L in January 2022; however, concentrations increased back up to 4,200 µg/L and 3,700 respectively, during the June 2022 and January 2023 semiannual Year 3 RA-O events. In the upgradient intermediate zone well, 16WW37, located next to 16WW38, TCE has increased from 84 µg/L detected during the 2018 pre-remedy sampling to 200 µg/L in

both June 2022 and January 2023 sampling events. These upgradient concentrations are likely to represent continued migration of contamination from the source area within Landfill 16.

Monitoring wells 16WW57 and 16WW58, located across Harrison Bayou, contained TCE concentrations at 120 µg/L and 2,600 µg/L in June 2022 samples and 160 µg/L and 7,000 µg/L, respectively, during January 2023 in Year 3, both of which are the highest values detected during the baseline and RA-O sampling events.

2.2.3 Groundwater Monitoring Network

Revisions to the RA-O monitoring network were proposed in the Technical Memorandum for LHAAP-04 and LHAAP-16 (Bhate 2022) and in the Second Annual RA-O Report (Bhate 2023). Those recommended changes were approved by TCEQ and EPA and implemented during the Year 3 RA-O. Surface water sampling was inadvertently omitted during the Year 3 RA-O because the locations were not listed in the updated RA-O Monitoring Network table approved by the regulators (Bhate 2022). The surface water monitoring locations have been added to the Year 4 RA-O table and will be sampled in the future. As discussed further in **Section 3.1.1**, shallow zone well 16RW03 will be analyzed for VOCs during the July 2024 semiannual sampling event to determine if there are concentrations of COCs exceeding the MCL/PCL. If so, it will be recommended as a replacement for shallow zone well 16IW09 in the Year 4 RA-O Report. No further changes to the monitoring network are recommended for the Year 4 RA-O. The Year 4 RA-O monitoring network is shown in **Table 2-10** and on **Figure 2-27**.

2.2.4 Metals Sampling

The selected remedy in the ROD requires sampling of groundwater for metals for its first five-year review to determine if further monitoring of metals is warranted. This sampling was conducted in conjunction with Year 3 Semiannual event in June/July 2022 at the locations shown in **Table 2-11.** In accordance with Section 4.8 of the RAWP (Bhate 2018a), samples from the full list of monitoring wells from Table 1-2 of the RAWP were analyzed for thallium, and samples from selected wells were analyzed for arsenic, chromium, manganese, and/or nickel based on the previous results. The analytical results are summarized in **Table 2-12.** Wells with at least one metal detected above the MCL or PCL are shown on **Figure 2-28**.

Arsenic was detected at six shallow zone wells with concentrations ranging from 0.000805 J mg/L (16WW39) to 0.0132 mg/L (16WW44). All locations were below the MCL (0.01 µg/L) with the exception of 16WW44 (0.0132 mg/L). Chromium was detected at eleven shallow zone wells and two intermediate zone wells with concentrations ranging from 0.000469 J mg/L (16WW44) to 0.578 mg/L (16WW12). Chromium concentrations were detected above the MCL (0.1 mg/L) in six out of the thirteen well locations (16WW12, 16WW14, 16WW24, 16WW34, 16WW38, and 16WW41). Nickel was detected at eight shallow zones wells and one intermediate zone well with concentrations ranging from 0.00284 mg/L (16WW44) to 2.1 mg/L (16WW41). Nickel concentrations were detected above the MCL (0.49 mg/L) in two out of the nine well locations (16WW34 and 16WW41). Thallium was nondetect for all shallow and intermediate zone well locations during both Year 3 semiannual events (June/July 2022

and January 2023). Manganese was detected at nine shallow zone wells and eight intermediate zone wells with concentrations ranging from 0.0571 mg/L (16WW44) to 32 mg/L (16WW42). Manganese concentrations were detected above the Cleanup Level based on background concentrations (7.8 mg/L) (Bhate 2018a) in five intermediate zone wells (16WW13, 16WW23, 16WW25, 16WW27, and 16WW28) and two shallow zone wells (16WW36 and 16WW42). At 16WW24, the laboratory incorrectly analyzed the sample for magnesium instead of manganese in June 2022; therefore, this well was sampled again in January 2023 and correctly analyzed for manganese. In January 2023 manganese was detected at 6.2 mg/L at 16WW24, below the Cleanup Level of 7.8 mg/L.

2.2.5 Surface Water Sampling

During previous surface water sampling events, perchlorate levels have been below or near the detection limit. Surface water sampling was inadvertently omitted during the Year 3 RA-O. The surface water sampling locations were not listed in the updated RA-O Monitoring Network table but have been added to the Year 4 RA-O **Table 2-10** and are included on **Figures 1-3** and **2-27**.

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3.0 REMEDY EVALUATION

This section presents the results of the natural attenuation evaluation in accordance with the three lines of evidence discussed in the Final RD (AECOM 2017) for LHAAP-16 groundwater COCs.

For the evaluation of the remedy, monitoring wells within 15 feet of an injection location, in the same groundwater zone, are assumed to be under the direct influence of the treatment zone, while wells located downgradient from the treatment areas are expected to possibly be influenced by the effects of the injections as treated groundwater flows into these areas. Wells located cross-gradient (parallel to groundwater flow direction) from the treatment areas may not show any direct influence from the treatment but can be useful in monitoring geochemical changes outside of but adjacent to the treatment areas. Wells located outside the 15-foot radius of influence are expected to show reductions in COC concentrations over time depending on their distance from the treatment area. **Table 2-2** breaks down the list of wells in each treatment area by their location with respect to the treatment zones. The discussion of the first line of evidence in **Section 3.1** separates the wells into those inside of the treatment area and those outside of the treatment area to single out the locations where the effects from the ISB treatment would be expected to be observed by Year 3 of RA-O monitoring.

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 sorption. The decrease of COC concentrations over time in the absence of any other treatment is evidence of natural attenuation, though the observed decrease or increase in COC concentrations may also be influenced by other factors such as short-term fluctuations in groundwater elevations and other natural attenuation processes such as volatilization, sorption, aquifer dilution, and dispersion.

TCE and perchlorate are the most widespread COCs in the shallow and intermediate groundwater. Historical perchlorate and TCE concentrations are shown in **Table 3-1** and discussion of their trends and degradation are provided in **Sections 3.1.1** through **3.1.6**.

3.1.1 Landfill Biobarrier #1

COC concentrations for the Year 3 RA-O sampling events are provided on **Figure 2-6** as well as in **Table 2-3**. Contaminant trends for monitoring wells 16WW26 and 16WW42 are shown on **Figures 2-7** and **2-8**.

Within Treatment Area

No COCs were detected above the cleanup levels during the Year 3 RA-O sampling events at monitoring well 16IW09, located in the treatment area. It appears that 16IW09 was installed in an area of the biobarrier that does not contain significantly elevated COCs; therefore, the effect of the biobarrier

during the third year of monitoring cannot be fully evaluated due to fluctuations of the detection limits and the lack of clear trends in COC concentrations. Shallow zone well 16RW03 is also located within the barrier nearby; however, this well was only used to evaluate the radius of influence during the design effectiveness evaluation and has not been sampled for VOCs. It is recommended to sample 16RW03 for VOCs during the July 2024 sampling event to determine if it contains concentrations above the MCL and would be an appropriate replacement well for 16IW09 in future RA-O sampling event events.

Outside Treatment Area

As discussed in **Section 2.2.1**, the overall flow across the site is from west to east towards Harrison Bayou; however, the flow in the vicinity of Landfill Biobarrier #1 in June/July 2022 was to the south-southeast and to the northeast in January 2023. Therefore, groundwater may not pass directly through all parts of the biobarrier but may move more parallel. Upgradient well 16RW01 and downgradient well 16RW04, are nearly cross gradient from one another based on the groundwater flow direction in June/July 2022. TCE concentrations were above the MCL during both Year 3 RA-O semiannual events, with concentrations of 2,000 µg/L and 3,300 µg/L detected at 16RW01 and 16RW04, respectively, in January 2023. An increase in the daughter product, cis-1,2-DCE, was observed from 130 µg/L to 160 µg/L at 16RW04, between July 2022 and January 2023,which suggests that reductive dechlorination is occurring. However, the TCE concentration also increased from 2,500 µg/L to 3,300 µg/L in 16RW04 over the same time period.

Downgradient well 16WW26 historically contained TCE as high as 4,580 µg/L in May 2013 followed by a decrease to 1,000 µg/L in January 2021 and 26 µg/L by July 2021, before beginning to increase (**Table 2-3**). During the Year 3 RA-O, concentrations of TCE continued to increase to 1,100 µg/L in June 2022 before declining back to 710 µg/L in January 2023 as shown on **Figure 2-7**.

During the Year 1 RA-O, TCE concentrations at downgradient well 16WW42 were below the MCL and remained below the MCL for subsequent quarters. During the Year 2 RA-O, TCE concentrations remained below the MCL during the first two quarters; however, both TCE and cis-1,2-DCE levels increased during the last two quarters. During the Year 3 RA-O, TCE concentrations in June 2022 and January 2023 were above the MCL at 850 µg/L and 27 µg/L, respectively. Cis-1,2-DCE concentrations also decreased from above the MCL in July 2022 (1,400 µg/L) to below in January 2023 (44 µg/L). The decrease may be due to groundwater level fluctuations as shown on **Figure 2-8**.

Monitoring well 16WW25 is screened in the intermediate zone groundwater, and all COCs continue to be below their respective MCLs. At monitoring well 16WW13, also screened in the intermediate zone groundwater, TCE, cis-1,2-DCE, and VC have decreased to 89 J µg/L, 610 J µg/L, and 2.9 J µg/L, respectively, in January 2023. The decrease in TCE suggests migration of contaminants from the landfill is subsiding in the intermediate zone, while increases in degradation daughter products, including VC, suggest that reductive dechlorination is occurring and degrading contaminant mass.

Summary

VOC concentrations remain above the MCLs at locations upgradient and downgradient of the treatment area, but daughter products indicative of dechlorination, including cis-1,2-DCE and VC, have been detected. Reductions in COC concentrations are expected in the downgradient wells as groundwater flows through the biobarrier.

The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to the groundwater flow directions observed during the Year 1 RA-O monitoring; however, the June/July 2022 flow was nearly parallel to the biobarrier, complicating the comparison of upgradient to downgradient locations across the barrier. Similar flow regimes in the future may require adjustment of the monitoring locations to evaluate the effectiveness of the biobarrier, due to the groundwater flow variability. Future sampling at downgradient wells will aid in determining effectiveness of the biobarriers.

3.1.2 Landfill Biobarrier #2

COC concentrations for the third year RA-O sampling events are provided on **Figure 2-9** as well as in **Table 2-4**. Contaminant trends for monitoring wells 16PM06 and 16WW36 are shown on **Figures 2-10** and **2-11**. As discussed in **Section 2.2.1**, the overall flow across the site is from west to east towards Harrison Bayou; however, the flow in the vicinity of Landfill Biobarrier #2 was to the northeast in January 2023. Therefore, groundwater may not pass directly through all parts of the biobarrier as observed on **Figure 2-3**.

Within Treatment Area

COCs were detected in upgradient monitoring wells 16PM03, 16WW16, and 16PM02, indicating that elevated concentrations are entering the biobarrier. As elevated levels of COCs migrate downgradient, into and through the biobarrier, increases in these compounds may be observed within the biobarrier. However, as the COCs are treated in the biobarrier, COCs in the downgradient zones are expected to decrease.

At monitoring well 16IW03, located within the biobarrier, TCE has decreased from concentrations as high as 13,000 µg/L in July 2020 to the lowest level detected at this well in January 2023 at 3,600 J µg/L. Fluctuations in both daughter products cis-1,2-DCE and VC indicate that biodegradation is likely occurring within the barrier. The decreasing TCE and presence of cis-1,2-DCE, VC, and ethene indicate that complete reductive dechlorination is occurring in the biobarrier and reducing COC mass as groundwater migrates through. Perchlorate has not been detected above the PCL (17 µg/L) at this well during Year 1 through Year 3 RA-O sampling events.

Outside Treatment Area

Upgradient of the biobarrier, three wells (16PM03, 16PM02, and 16WW16) are used to evaluate the groundwater coming into the treatment area. At 16PM03, concentrations of perchlorate, TCE, cis-1,2-DCE, VC, 1,1-DCE, and 1,2-DCA were detected above the MCL during the Year 3 RA-O June 2022 sampling event. In January 2023, 1,1-DCE and 1,2-DCA concentrations were not detected, but the reporting detection limit was elevated at 50 µg/L. During the January 2023 sampling event at well 16WW16, TCE, cis-1,2-DCE, and VC were detected at 63,000 µg/L, 24,000 µg/L, and 520 µg/L, respectively. Also, during the Year 3 January 2023 sampling event at 16PM02, TCE was detected at 80,000 µg/L, which is the highest level detected at this well during the three years of RA-O.

At 16PM06, located downgradient of the biobarrier, perchlorate has not been detected above the PCL, but increases in each of the other COCs have been detected. TCE concentrations increased from 28,000 µg/L to 85,000 µg/L between January 2022 and January 2023. The degradation products cis-1,2-DCE and VC also increased over the same time period in this area. The data indicates that VOC concentrations remain above the MCLs at locations outside the treatment area, but daughter products indicative of dechlorination, including cis-1,2-DCE and VC, have been detected. The trend graph on **Figure 2-10** for 16PM06 suggests that groundwater elevation fluctuations may be influencing COC concentrations.

At 16PM09, also located close to and downgradient of the biobarrier, perchlorate has not been detected. At this well, TCE and the degradation products increased during the Year 3 RA-O. The increase in COCs at this well may be due to the high concentrations of COCs migrating and being treated as they move through the biobarrier.

At monitoring well 16PM14, TCE increased from 2,300 µg/L in January 2022 to 5,400 µg/L in January 2023. At this well, the degradation products cis-1,2-DCE, VC, and 1,2-DCA have remained consistent during the Year 3 RA-O, suggesting that these compounds are being created and degraded to lower chlorinated compounds.

At well 16WW36, TCE has fluctuated from 22,000 µg/L in October 2018 to 1,500 µg/L in January 2021, to 32,000 µg/L in June 2022 which may be due to the groundwater flowing more parallel to the barrier and downgradient than originally planned. Cis-1,2-DCE and TCE concentrations showed similar fluctuations, as shown on the trend graph for 16WW36 on **Figure 2-11**. The TCE daughter product VC was also detected and decreased from 260 µg/L in June 2022 to 190 µg/L January 2023 (**Table 2-4**). The similar decreasing trend in concentrations were observed for each of the COCs, suggesting that fluctuations may be due to changes in groundwater elevations.

In the intermediate groundwater well, 16WW35, perchlorate, TCE, cis-1,2-DCE, VC, and 1,1-DCE were detected above their respective PCLs/MCLs during the Year 3 RA-O sampling events. The concentrations of these compounds have also fluctuated during the first three years of RA-O sampling, and the

groundwater treatment is focused on the shallow zone. Decreases in the intermediate zone may eventually occur as the COCs in the shallow groundwater are reduced.

Summary

The data indicates that TCE and perchlorate degradation is occurring in Landfill Biobarrier #2, as shown by the decrease in parent products and the presence of daughter products cis-1,2-DCE, VC, and ethene. COCs remain above the MCLs downgradient of the biobarrier at this time; however, decreases in COCs are occurring as groundwater COCs are being reduced within the biobarrier and cleaner water is migrating into this area.

3.1.3 Landfill Biobarrier #3

COC concentrations for the Year 3 RA-O sampling events are provided on **Figure 2-12** as well as in **Table 2-5**. Contaminant trends for monitoring wells 16IW10 and 16RW10 are shown on **Figures 2-13** and **2-14**.

Within Treatment Area

At monitoring well 16IW10, which lies within the treatment area, all COCs remained below their respective MCLs during the Year 3 semiannual events in June 2022 and January 2023, with the exception of VC, which was detected at 4.2 µg/L in January 2023. The decrease in COCs within the treatment area indicates that the ISB biobarrier is reducing contaminant concentrations as expected. The contaminant trend chart for monitoring well 16IW10 on **Figure 2-13** does not show any definite correlation between groundwater elevations and COC concentrations.

Outside Treatment Area

To evaluate the groundwater coming into the treatment area, two upgradient wells, 16RW06 and 16RW07, were evaluated. At 16RW06, only TCE and VC were detected above their respective MCLs; however, TCE concentrations increased from 37 µg/L in January 2022 to 160 µg/L in January 2023. During the Year 3 RA-O, only TCE and VC were detected above their respective MCLs at 16RW07 in June 2022; however, in January 2023, TCE, 1,1-DCE, cis-1,2-DCE, and VC were detected above their respective MCLs. The groundwater containing elevated VOC concentrations upgradient will continue to migrate into the biobarrier as designed, and the compounds are expected to be completely reduced as indicated by the decreases detected at 16RW10. As the lower upgradient concentrations flow through the barrier in the future, it is expected that downgradient concentrations will decline further reflecting the degradation occurring within the barrier.

The two closest downgradient wells to Biobarrier 3 are 16RW09 and 16RW10, and COC concentrations have fluctuated during the Year 3 RA-O. At 16RW09, TCE concentrations increased from 730 µg/L in January 2022 to 1,900 µg/L in June 2022 and then decreased to 590 µg/L in January 2023. Although the

TCE levels have fluctuated, the presence of cis-1,2-DCE, VC, and ethene suggests that complete dechlorination is occurring.

At 16RW10, perchlorate levels have decreased during the Year 3 RA-O and were detected at 3.39 µg/L in January 2023, below the PCL of 17 µg/L. Although TCE increased from 930 µg/L in July 2022 to 1,100 µg/L in January 2023, there is an overall decrease in cis-1,2-DCE and VC detected at this well during the Year 3 RA-O. Also, ethene was detected during each sampling event (July 2022 and January 2023) at 30.1 J µg/L and 19.3 J µg/L, respectively. The contaminant trend chart for monitoring well 16RW10 on **Figure 2-14** shows that the fluctuations in TCE concentrations may be correlated to the fluctuations in groundwater elevations; however, the presence of ethene indicates that complete dechlorination is occurring within the treatment area.

Summary

The ISB remedy is effectively reducing COC concentrations within the treatment area. Although COCs remain above their respective MCLs/PCLs upgradient and downgradient of the biobarrier at this time, decreased concentrations of COCs are observed within the biobarrier and as cleaner water is migrating into this area, further reductions in concentrations are expected in the downgradient wells.

3.1.4 Bayou Biobarrier

COC concentrations for the third year RA-O sampling events are provided on **Figure 2-15** as well as in **Table 2-6**. Contaminant trend charts for monitoring wells 16IW20, 16RW12, and 16WW40 are shown on **Figures 2-16** through **2-18**, respectively.

Within Treatment Area

Two wells are located in the treatment area, 16RW11 and 16IW20; however, based on the proximity of 16RW11 and 16IW20 to each other, it was recommended in the Year 2 RA-O report that 16RW11 be replaced with 16RW12 in the Year 3 monitoring network to allow evaluation of the northern end of the Bayou Biobarrier (Bhate 2023). During the Year 3 RA-O, all COCs remained below the MCL at 16IW20 with the exception of VC, which exceeded its respective MCL during both June 2022 and January 2023 semiannual events at 3.7 µg/L and 18 µg/L, respectively. TCE concentrations remained below the MCL within the treatment area at 1.6 µg/L in June 2022 and 2.5 µg/L in January 2023, as shown on **Figure 2-15**. Ethene was detected at 16IW20 during the Year 3 RA-O at estimated concentrations of 25.7 J µg/L (June 2022) and 33.6 J µg/L (January 2023), indicating that complete reductive dechlorination is occurring in the treatment area. A contaminant trend chart for 16IW20 is shown on **Figure 2-16**.

Outside Treatment Area

As discussed at the other biobarriers, to evaluate the groundwater migrating into the treatment area, one cross-gradient wells (16WW39) and two upgradient wells (16WW22 and 16WW41 [intermediate zone well]) are sampled. Due to the generally east-southeast groundwater flow direction, the

downgradient wells in the current monitoring network are 16RW12 and 16WW40. Groundwater is flowing generally parallel to the southern portion of the biobarrier based on the Years 1 through 3 RA-O potentiometric surface maps shown on **Figures 2-2** and **2-3**. At 16WW12, perchlorate, TCE, cis-1,2-DCE, VC, and 1,2-DCA exceeded their respective MCLs/PCLs during the Year 3 RA-O. In January 2023, perchlorate and TCE were detected at 21.9 µg/L and 1,400 µg/L, respectively and will continue to migrate through the treatment area over time. At the cross-gradient well 16WW39, which is also located downgradient of the Mid-Plume shallow treatment area, TCE was detected at 230 µg/L in June 2022 and continued to increase during the Year 3 RA-O to 490 µg/L in January 2023 (**Table 2-6**).

At the intermediate zone well 16WW41, perchlorate levels have continued to decrease from as high as 310 µg/L in March 2020 to 11 µg/L in January 2023. TCE concentrations have remained relatively the same since May 2013 at 6,550 µg/L and in January 2023 at 6,800 µg/L. At this well, biological degradation daughter products have also been detected including ethene, which was detected in both semiannual events (June 2022 and January 2023) at an estimated concentration of 34.5 J µg/L and 32 J µg/L, indicating that complete dechlorination is occurring within the intermediate zone upgradient of the treatment area.

16RW12 is located on the downgradient edge of the treatment zone and was added to the groundwater sampling program, starting during the Year 3 RA-O per the Technical Memorandum (Bhate 2022). During the Year 3 RA-O sampling event, perchlorate was not detected above the PCL of 17 µg/L (**Table 2-6**). TCE and VC were both observed above their respective MCLs and were detected at 130 and 9.5 µg/L in January 2023. Although TCE increased from 52 µg/L to 130 µg/L between June 2022 and January 2023, the presence of cis-1,2-DCE and VC indicate that reductive dechlorination of the chlorinated ethenes is occurring.

At downgradient well 16WW40, TCE increased during the Year 1 and 2 RA-O sampling events to as high as 1,900 µg/L in July 2021. After July 2021, TCE levels began to decrease and, in January 2022, TCE was detected at 540 µg/L. During Year 3 RA-O, TCE increased at 16WW40 to 990 µg/L in June 2022 and then decreased to the lowest level detected at this well (480 µg/L) in January 2023, as shown on **Figure 2-18**. The cis-1,2-DCE concentrations also exceeded the MCL during the Year 3 RA-O sampling events, with concentrations of 180 J µg/L and 200 µg/L in June 2022 and January 2023, respectively (**Table 2-6**). The decreasing concentrations of TCE indicate that the biobarrier is reducing levels downgradient.

The elevated levels detected upgradient of the biobarrier will continue to migrate into the treatment area and are expected to be reduced in the biobarrier. The data does not show a definite correlation between groundwater elevations and COC concentrations.

Summary

The ISB remedy is effectively reducing COC concentrations within the treatment area at 16IW20. At 16RW12, located on the downgradient edge of the treatment zone, the presence of cis-1,2-DCE and VC indicate that reductive dechlorination is occurring. COC concentrations have decreased downgradient of

the treatment area at 16WW40, which indicates that groundwater is being treated in the treatment zone and aiding in decreasing concentrations downgradient. COC concentrations are above the MCL/PCL in most wells upgradient and downgradient of the biobarrier but are expected to decrease in the downgradient wells as groundwater flows through the biobarrier in locations where the flow is crossing the barrier.

As discussed in **Section 1.3**, a shallow saturated zone that would correlate to the shallow groundwater zone on the west side of Harrison Bayou was not detected in intermediate monitoring wells 16WW57 and 16WW58. Therefore, the Bayou Biobarrier is likely to only influence the shallow zone between the biobarrier and the bayou. As mentioned in the First Annual RA-O Report (Bhate 2022b), the groundwater hydraulic gradient near the southern end of the Bayou Biobarrier indicates that groundwater is flowing to the east-southeast, nearly parallel to the barrier instead of crossing it. It is likely that the barrier is not adequately treating the groundwater flowing to the east-southeast from the mid-plume treatment area, and it is suggested that a southward extension of the biobarrier be considered to treat this flow if concentrations remain elevated at 16WW48 and 16WW30 located to the west of the Bayou biobarrier near the Mid-Plume Area. The groundwater and surface water elevation data to be collected as part of the planned Conceptual Site Model Update (PCI-Bhate JV 2023) should be helpful for better understanding the influence of Harrison Bayou on flow in the shallow and intermediate groundwater zones.

3.1.5 Mid-Plume Area, Shallow

COC concentrations for the second year RA-O sampling events are provided on **Figure 2-19** as well as in **Table 2-7**. Contaminant trends for monitoring wells 16EW02, 16WW30, and 16WW48 are shown on **Figures 2-20**, **2-21**, and **2-22**.

Within Treatment Area

Within the treatment area, four wells (16EW01, 16EW02, 16EW03, and 16EW04) are used to evaluate the treatment zone groundwater. At monitoring well 16EW02, located within the direct-push technology injection treatment zone, TCE decreased from 42,000 µg/L in September 2019 to 19,000 µg/L in January 2022 and then increased to 32,000 µg/L in January 2023 (**Figure 2-20**). During the Year 3 RA-O, both cis-1,2-DCE and VC also increased between January 2022 and January 2023, from 16,000 µg/L to 39,000 µg/L and 340 µg/L to 1,100 µg/L, respectively. At monitoring well 16EW03, TCE decreased from 7,400 µg/L in February 2019 to 84 µg/L in January 2022. During Year 3 RA-O, concentrations of TCE decreased to the lowest estimated level detected at this well at 3.8 J µg/L in June 2022 before increasing to 420 µg/L in January 2023. The fluctuating concentrations of cis-1,2-DCE and VC and the presence of ethene at elevated levels indicates that reductive dechlorination is occurring. Monitoring well 16EW04 is located on the edge of the treatment zone, and during the Year 1 RA-O, TCE increased from 3,400 µg/L in March 2020 to 17,000 µg/L in February 2021, and then decreased to 3,400 µg/L in January 2022. However, during the Year 3 RA-O, TCE concentrations increased to 9,800 µg/L in June 2022 and 28,000 µg/L in January 2023. Daughter products cis-1,2-DCE

and VC were present, which indicates that degradation is occurring upgradient within the treatment area.

While 16EW01 is shown as a treatment zone well, it should be noted that the well is located cross-gradient to flow along the northern edge of the treatment area. This is the only well in the Mid-Plume Shallow Area where perchlorate is present above the PCL of 17 µg/L, and during the Year 3 RA-O, concentrations decreased from 38.1 µg/L in June 2022 to 30.7 µg/L in January 2023. During the Year 2 RA-O, TCE concentrations ranged from 3,500 µg/L in April 2021 to 970 µg/L in October 2021. TCE concentrations were in the same range during the Year 3 RA-O, at 2,900 µg/L in July 2022 and 2,400 µg/L in January 2023. Fluctuating concentrations of cis-1,2-DCE, VC, and the final degradation product ethene indicate that reductive dechlorination is occurring at this site.

Outside Treatment Area

During the Year 3 RA-O, at downgradient monitoring well 16WW30, only TCE was above the MCL at 45 µg/L in June 2022 and 120 µg/L in January 2023. At this well, TCE had decreased from 360 µg/L in September 2019 to 2.2 in January 2021, however levels have been increasing since April 2021 as shown on **Figure 2-21.** The figure also shows that TCE concentrations may be correlated to the fluctuations in groundwater elevations.

Monitoring well 16WW48 is located on the downgradient side of the Mid-Plume shallow zone. Perchlorate at 16WW48 decreased from 122 µg/L in January 2021 to 14.8 µg/L in January 2022 and remained below the PCL in Year 3 RA-O during both semiannual events (June 2022 and January 2023) at 7.87 µg/L and 2.35 µg/L, respectively. The reduction of perchlorate indicates that either the groundwater is becoming more reducing and has utilized this compound as a respiratory substrate or cleaner groundwater has migrated in from upgradient. TCE concentrations at 16WW48 increased during the Year 1 RA-O from 7,100 µg/L to 13,000 µg/L as shown on **Figure 2-22**, likely due to a combination of the cessation of groundwater extraction and desorption effects from the treatment zone mobilizing COCs. During the Year 3 RA-O, TCE concentrations in 16WW48 decreased from a high of 20,000 µg/L in June 2022 to 13,000 µg/L in January 2023, with similar levels of cis-1,2-DCE. The final TCE degradation products, VC and ethylene, were also detected, indicating that dechlorination is occurring downgradient of the treatment area.

Summary

The impact of the ISB remedy is limited in the Mid-Plume Area shallow zone. In all wells in the treatment area, select COCs decreased during the Year 3 RA-O, which suggests that the amendments aided in reducing contaminant levels. The presence of cis-1,2-DCE, VC, and the final degradation product ethene indicate that reductive dechlorination is occurring. COCs remain above the MCL/PCL upgradient of, within, and downgradient of the treatment area.

3.1.6 Mid-Plume Area, Intermediate

COC concentrations for the third year RA-O sampling events are provided on **Figure 2-23** as well as in **Table 2-8**. Contaminant trend plots for monitoring wells 16WW49 and 16WW51 are shown on **Figures 2-24** and **2-25**, respectively.

Within Treatment Area

During the Year 2 RA-O it was recommended to discontinue the use of 16EW05, 16EW06, and 16EW07 to evaluate the treatment area because of the oil residue that has interfered with the ability to sample these wells and the laboratory analysis. In response, these wells were replaced in the monitoring network by well 16IW26, which was installed May 2, 2018, near 16EW06 (Bhate 2023) as shown on **Figure 2-23** and a well to be installed later between 16EW06 and 16EW07.

At both monitoring wells 16IW26, located within the treatment area, and 16EW08, located on the southern edge of the treatment area, all VOC concentrations were below their respective MCLs/PCLs during the Year 3 RA-O sampling events.

Outside Treatment Area

Monitoring of the downgradient side of the Mid-Plume treatment area in the intermediate zone is performed at three wells,16WW29, 16WW49, and 16WW51. Perchlorate has not been detected at any of the three wells during RA-O sampling. During the Year 3 RA-O sampling, all COCs continued to be below their respective MCLs at 16WW29 and have been at these low levels since before the remedial action. At downgradient monitoring well 16WW49, TCE was the only COC above its MCL during the Year 3 RA-O as shown on **Figure 2-24**. TCE concentrations decreased from 260 µg/L in September 2019 to below the MCL during the first year of RA-O; however, the concentrations increased during the Year 3 RA-O to 73 µg/L in January 2023. TCE concentrations also increased at the downgradient well 16WW51 from 830 µg/L in March 2020 to 3,200 µg/L in January 2022 to 5,900 µg/L in January 2023. The cis-1,2-DCE concentrations also increased during the same time frame, which suggests that dechlorination is occurring in the upgradient site groundwater, within the treatment area as shown on **Figure 2-25**.

Summary

During the Year 3 RA-O, all COCs in the treatment area are below their respective MCLs, indicating that ISB is reducing contaminants in the Mid-Plume Area-Intermediate Zone. Downgradient of the treatment area, TCE has increased in some wells; however, the presence of cis-1,2-DCE and VC indicates that biodegradation is likely occurring. Concentrations of COCs remain below the MCL/PCL at 16WW29, 16IW26, and 16EW08. The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to decreases in COCs and the groundwater flow directions observed during the Year 3 RA-O monitoring.

3.1.7 Mann-Kendall Analysis

Mann-Kendall analysis for the Year 3 RA-O monitoring period was completed for 1,1-DCE, 1,2-DCA, cis-1,2-DCE, TCE, VC, and/or perchlorate based on the criteria stated below. At each treatment area, select wells were used for this analysis, one in the treatment zone and one downgradient. The analysis was performed for any COC that was above their respective MCL/PCL during the Year 3 RA-O monitoring. A summary of the Mann-Kendall results is presented in **Table 3-2**. The results are presented in **Appendix E** in graphical format with the 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 samples with no detected concentrations. For locations with duplicate samples, the regular sample was used. The level of statistical significance is calculated for each analysis and provided on the trend analysis sheet. It should be noted that the trends identified in the Mann-Kendall analysis may have been influenced by groundwater elevation fluctuations.

3.1.7.1 Landfill Biobarrier #1

During the Year 3 RA-O, two wells (16IW09, located in the treatment area, and 16RW04, located downgradient) were used to statistically evaluate trends at this area. During the Year 3 RA-O, all COCs were below their respective MCLs at 16IW09. At 16RW04, TCE, cis-1,2-DCE, and VC were above their respective MCLs. A stable trend was observed for TCE and cis-1,2-DCE; all other COCs had no trend. At this well, stable trends indicate that the treatment zone is working as expected and concentrations are not increasing and are remaining stable downgradient.

3.1.7.2 Landfill Biobarrier #2

During the Year 3 RA-O, two wells (16IW03, located in the treatment area, and 16PM06, located downgradient) were used to statistically evaluate trends at this area.

At 16IW03, TCE, cis-1,2-DCE, VC, and 1,1-DCE were detected above their respective MCLs during the Year 3 RA-O. The concentrations for 1,2-DCA were below the detection limits during the Year 3 RA-O (June 2022 and January 2023) at less than 12 µg/L and less than 50 µg/L; however, the statistical evaluation uses one half of the detection limit for non-detect values and one half of the detection limits for 1,2-DCA (6 µg/L and 25 µg/L) were above the MCL. Therefore, the Mann-Kendall trend for this compound was also evaluated. A decreasing trend was observed for TCE with a probably increasing trend for cis-1,2-DCE and no trend for VC. As the chlorinated ethenes are sequentially degraded, cis-1,2-DCE and VC is created; therefore, an increase in cis-1,2-DCE and fluctuating levels of VC indicates that reductive dechlorination is occurring. No trend was observed for 1,1-DCE. An increasing trend was observed for 1,2-DCA; however, the Year 3 RA-O concentrations were below the detection limits but above the MCL.

Downgradient of the treatment zone, at 16PM06, Mann-Kendall analysis was conducted for 1,1-DCE, 1,2-DCA, TCE, cis-1,2-DCE, and VC. No trend was observed for TCE; however, a decreasing trend was observed for both cis-1,2-DCE and VC. A stable trend was observed for both 1,1-DCE and 1,2-DCA.

The decreasing trends in some COCs and no increasing trends indicates that the treatment zone is working as expected and decreasing concentrations downgradient.

3.1.7.3 Landfill Biobarrier #3

During the Year 3 RA-O, two wells (16IW10, located in the treatment area, and 16RW10, located downgradient) were used to statistically evaluate trends at this area. During the Year 3 RA-O, only VC was above its respective MCL at 16IW10, and a probable decreasing trend was observed at this well, indicating that the groundwater treatment is working as expected in the treatment zone. At the downgradient well 16RW10, TCE, cis-1,2-DCE, 1,1-DCE, and VC were above their respective MCLs during the Year 3 RA-O. A decreasing trend was observed for TCE and the other compounds exceeding the MCL had stable trends (1,1-DCE and cis-1,2-DCE) or no trend (VC) during the Year 3 RA-O. The Mann-Kendall analysis indicates that the treatment zone is working as expected by decreasing concentrations of COCs downgradient.

3.1.7.4 Bayou Biobarrier

During the Year 3 RA-O, two wells (16IW20 and 16WW40) were used to statistically evaluate trends in this area. At 16IW20, located within the treatment zone, TCE, cis-1,2-DCE, 1,2-DCA, and VC were above their respective MCLs during Year 1, while TCE and VC were above their respective MCLs during the Year 2 RA-O and only VC was above the MCL during the Year 3 RA-O. VC is the only COC remaining above its respective MCL and no statistical trend was observed for VC. At the downgradient well, 16WW40, TCE, cis-1,2-DCE, and VC were detected above their MCLs during the Year 3 RA-O sampling. No trend was observed for VC and a stable trend was observed for cis-1,2-DCE and TCE. As clean groundwater migrates downgradient, decreasing trends are expected to be observed in the future.

3.1.7.5 Mid-Plume Area, Shallow

During the Year 3 RA-O, three wells (16EW02, 16EW03, and downgradient well 16WW48) were used to statistically evaluate trends in this area. At 16EW02, TCE, cis-1,2-DCE, VC, 1,2-DCA, and 1,1-DCE were above their respective MCLs during the Year 3 RA-O. A stable trend was observed for TCE and probable increasing trends were observed for both reductive dechlorination daughter products cis-1,2-DCE and VC, along with 1,2-DCA. No trend was observed for 1,1-DCE. At 16EW03, TCE, cis-1,2-DCE, and VC were above their MCLs in January 2023, during the Year 3 RA-O sampling event. During the Year 2 RA-O, cis-1,2-DCE was probably decreasing, and during the Year 3 RA-O the trend is decreasing. This time, no trend was observed for TCE and a stable trend was observed for VC. At 16WW48, located downgradient of the treatment area, TCE, cis-1,2-DCE, VC, 1,2-DCA, and 1,1-DCE were detected above their respective MCLs during the Year 3 RA-O and an increasing trend was observed for each of these COCs. In this area, the Mann-Kendall analysis indicates the treatment area is not decreasing COC levels as expected, and increases are occurring downgradient.

3.1.7.6 Mid-Plume Area, Intermediate

During the Year 3 RA-O, two downgradient wells (16WW49 and 16WW51) were used to statistically evaluate trends in this area. At 16WW49, TCE and cis-1,2-DCE were above their MCLs during the Years 1 and 2 RA-Os; however, during the Year 3 RA-O, only TCE was above the MCL. During this time, a probable increasing trend was observed for TCE. At the downgradient well, 16WW51, 1,1-DCE, TCE, VC, and cis-1,2-DCE were above their MCLs during the Year 3 RA-O and an increasing or probable increasing trend was observed for each of the COCs. In this area, the Mann-Kendall analysis indicates that although decreases have been observed in the treatment area, increases are occurring downgradient.

3.1.7.7 Summary of Mann-Kendall Analysis

The Mann-Kendall analyses for some locations within the biobarriers show decreasing trends. Increasing trends have also been observed in the wells downgradient of treatment areas, but as treated water migrates downgradient, concentrations in those wells are expected to decrease in the future.

3.1.8 Predictive Modeling

Calculation of time-based attenuation rates was performed as required by the RAWP and was based on the results of the Mann-Kendall analysis (Bhate 2018a). If a statistically significant decreasing trend was determined by the Mann-Kendall analysis and the COC was above the MCL in January 2023, predictive modeling was conducted. The trends for monitoring wells at LHAAP-16 may be influenced by the seasonal fluctuations of groundwater levels, being typically higher in June (spring/summer) and lower during the January (winter) sampling events. Therefore, although estimates of the time to achieve the MCLs have been provided in the discussion below, the current trends may not accurately predict the future declines in COC concentrations. The Mann-Kendall analysis determined that decreasing trends were observed in four of the twelve wells, as shown in **Table 3-2**.

At Landfill Biobarrier #2, a statistically significant decreasing trend was observed at 16IW03 for TCE and at 16PM06 for cis-1,2-DCE and VC. To determine the estimated time to achieve the MCL at 16IW03 and 16PM06, a time-dependent attenuation rate was calculated and is provided in **Appendix F**.

At 16IW03, the first order rate constant for TCE was determined to be 0.0008 day^{-1} and the time to achieve the MCL of 5 µg/L is estimated to be 22.5 years. At 16PM06, the first order rate constant for VC was determined to be 0.001 day^{-1} and the time to achieve the MCL of 2 µg/L is estimated to be 17.3 years. The first order rate constant for cis-1,2-DCE was determined to be 0.0007 day^{-1} and the time to achieve the MCL of 70 µg/L is estimated to be 23.6 years.

At Landfill Biobarrier #3, statistically significant decreasing trends were observed at 16RW10 for TCE. To determine the estimated times to achieve the MCL at this well, time-dependent attenuation rates were calculated and are provided in **Appendix F**. The first order rate constant for TCE is 0.001 day^{-1}, and the time to achieve the MCL of 5 µg/L is estimated to be 14.8 years.

At Mid-Plume Area (Shallow Zone), a statistically significant decreasing trend for cis-1,2-DCE was observed at 16EW03. To determine the estimated times to achieve the MCL at this well, time-dependent attenuation rates were calculated and are provided in **Appendix F**. The first order rate constant for cis-1,2-DCE is 0.001 day^{-1}, and the time to achieve the MCL of 70 µg/L is estimated to be 7.8 years.

While these calculations provide an estimated time to achieve the MCL for specific wells within treatment areas (not the entire treatment area), given lithologic variability and significant seasonal groundwater elevation fluctuations at the site during Years 1 through 3, the time necessary to achieve the MCL 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 may be longer than estimated by these calculations.

3.1.9 Plume Stability

Because there were only minor differences between the plume boundaries based on annual changes, plume maps were completed for the parent products Perchlorate and TCE for January of each year post injection and are presented on **Figures 3-1** and **3-2**. **Table 3-1** provides a concise summary of the historical concentrations of TCE and perchlorate. The ISB remedy at LHAAP-16 is not designed or expected to reduce the overall size of the plume immediately. Additionally, as mentioned in **Section 3.0**, wells located outside of the treatment areas were not expected to show significant changes with only three years of post-remedy sampling. This includes wells within the treatment area footprint that were not in the same groundwater zone and locations that were outside the influence of the ISB treatment areas. However, discussion of these wells has been included in this section because it is an evaluation of the whole plume, including the ISB treatment zones and the broader MNA remedy and they are shown on the plume maps for completeness.

For the purposes of this discussion, the term plume “intensity” is used as a general term in the absence of plume mass calculations to describe relationship of the peak concentrations detected within the plume to the concentrations near the plume boundary and the percentage of the area within the plume where highly elevated concentrations are present. An “intense” plume will have very high peak concentrations and high concentrations distributed throughout the plume area, including near the boundary, while lower intensity would refer to a more diffuse plume with only a few high concentrations, and mostly lower concentrations through the rest of the plume.

TCE and perchlorate are the most widespread COCs in the shallow groundwater. The COC data over the monitoring period indicate that the plumes are stable overall. The lack of complete delineation of the downgradient extent of the plume prevents evaluation of potential downgradient migration or expansion of the plume.

Shallow Zone Stability Evaluation—In the shallow zone, the shapes of both the TCE and perchlorate plumes are oblong, elongated along the easterly-southeasterly groundwater flowpath. The shallow

plumes are shown with a dashed boundary along Harrison Bayou due to uncertainty in the nature of the connection (if any) between the shallow zone and Harrison Bayou and the absence of a shallow saturated zone east of Harrison Bayou, as explained in **Section 1.3**. It is unlikely that shallow zone contamination extends across the bayou due to the lack of a shallow saturated zone to the east of the bayou.

The groundwater contaminants follow the pattern of groundwater flow to the east and southeast. The perchlorate plume decreased in size and intensity between the Year 2 and Year 3 RA-O. The perchlorate plumes to the west and east have remained fairly consistent; however, in the primary ISB treatment areas, Biobarrier 3 and the Mid-Plume treatment area are aiding in reducing concentration levels downgradient of these areas. This decrease in perchlorate can be observed in 16WW55, located downgradient of Biobarrier 3, which decreased from 297 µg/L to 55.5 µg/L between the Year 2 and Year 3 RA-O. At 16WW48, located downgradient of the Mid-Plume treatment area, perchlorate decreased to below the MCL of 17 µg/L for the first time at 7.87 µg/L (June 2022) and 2.35 µg/L (January 2023) during the Year 3 RA-O sampling events.

The TCE plume in January 2023 resembles the shape of the plume in January 2022; however, increases have been observed in some wells as fluctuations are expected. In the shallow zone, high TCE concentrations were detected in the vicinity of Landfill Biobarrier #2 and the Mid-Plume Area. Monitoring wells 16PM02, 16WW16, 16PM06, 16WW36, and 16EW02 show high TCE concentrations. During the first two years of sampling at 16EW04, TCE decreased from 17,000 µg/L to 3,400 µg/L between February 2021 and January 2022 and then increased to 28,000 µg/L in January 2023. These fluctuations may be due to changes in groundwater elevations, and future sampling will determine if the elevated levels become stable. Additionally, the increase in concentration of daughter products at many of the LHAAP-16 wells indicates that reductive dechlorination is occurring.

Intermediate Zone Stability Evaluation—The COC plume maps for boundaries based on annual changes were completed for the parent products perchlorate and TCE for January of each year after injection and are presented on **Figure 3-2**. In the intermediate zone, TCE and perchlorate are the most widespread COCs. Perchlorate was reduced to below the MCL/PCL between January 2022 and January 2023. This decrease in perchlorate can be observed in 16WW37, located upgradient of Biobarrier 3, which decreased from 55.3 µg/L to 11.3 µg/L between the Year 2 and Year 3 RA-O January sampling events.

Also, at 16WW41, located downgradient of Biobarrier #3, perchlorate decreased from 59.1 µg/L to 11 µg/L between January 2022 and 2023.

The TCE plume has remained relatively stable since baseline. The highest concentrations continue to be detected at 16WW35 and 16WW41 and across the bayou at 16WW58. The highest levels continue to be detected at 16WW35, which contained a TCE concentration of 17,000 µg/L in January 2023. At the upgradient well 16WW37, TCE has been present since 2018; however, during the Year 3 RA-O,

concentrations increased from 99 µg/L to 200 µg/L between January 2021 and 2023, suggesting additional mass may be migrating into the LHAAP-16 area.

TCE was detected above the MCL across Harrison Bayou at 16WW57 and 16WW58. At 16WW58, TCE decreased from to 2,700 µg/L in January 2021 to 1,000 µg/L in July 2021, but then increased to 5,500 µg/L in January 2022 and further increased to 7,000 µg/L in January 2023. Concentrations of TCE also increased from 85 to 160 µg/L at 16WW57 between January 2022 and January 2023. While increases or decreases in the TCE concentrations across the creek may be due to the ISB treatments, the lack of complete delineation of the downgradient extent prevents evaluation of the potential for downgradient expansion or migration.

Overall, the COC data suggest that the TCE plume is showing overall stable conditions and is not expanding. The effects of the ISB remedy are identifiable as increased evidence of dechlorination in downgradient wells from all treatment areas, but continued monitoring is necessary to determine if it will be sufficient to achieve the performance objective of reducing concentrations to below the cleanup values. The Bayou Biobarrier does not appear to be intercepting contamination migrating from the vicinity of 16WW48 towards the bayou under the potentiometric conditions observed during most of the Year 3 sampling events. Perchlorate concentrations were similar to Year 2 RA-O and consistent with those prior to the January 2021 data.

3.2 Second Line of Evidence: Geochemical Indicators

Table 2-2 identifies the wells that were chosen to be evaluated for MNA performance parameters. The field parameters for LHAAP-16 wells include dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, conductivity, turbidity, and temperature. MNA parameters (nitrate, sulfate, dissolved gases, carbon dioxide, and total organic carbon [TOC]) were sampled for a subset of wells. In accordance with Section 4.7 of the RAWP (Bhate 2018a), the geochemical indicators ORP and TOC within the treatment areas will be evaluated to determine if or when reinjections may be necessary. When ORP values are less than 50 millivolts (mV), the anaerobic biodegradation pathway is considered possible in accordance with the biodegradation scoring criteria used for the MNA evaluation in **Section 3.3** (EPA 1998). Lower ORP values are more favorable for anaerobic biodegradation and less than -50 mV was established as the performance objective for the treated areas in the RD (AECOM 2017). Comparison of the ORP and TOC to the performance goals of ORP < -50 mV and TOC > 20 mg/L, as well as concentration trends in the downgradient wells, will guide the decision to reinject additional carbon source. The second line of evidence for each treatment area is discussed below.

3.2.1 Landfill Biobarrier #1

Field parameters were measured at all of the monitoring locations to aid in determining the geochemical state of groundwater. Three of the eight wells monitored for Landfill Biobarrier #1 (16IW09, 16RW04, and 16RW05) were analyzed for MNA parameters (**Table 2-2**). Monitoring well

16IW09 was analyzed for nitrate, sulfate, dissolved gases, carbon dioxide, and TOC. Wells 16RW04 and 16RW05 were analyzed for dissolved gases. One additional well, 16WW26, was also sampled for TOC.

Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (EPA 1998). Anaerobic bacteria may be inhibited at DO concentrations greater than approximately 0.5 mg/L, and biotic reductive dechlorination is not expected to occur at DO levels above that threshold. During the Year 3 RA-O, the DO levels outside the treatment area ranged from 0.02 to 2.49 mg/L and averaged 0.62 mg/L, suggesting that anaerobic conditions exist across the site. In the treatment area at 16IW09, DO levels were 0.19 mg/L (June 2022) and 0.07 mg/L (January 2023) during the Year 3 RA-O, as presented in **Table 2-3**. The DO levels suggest that the groundwater in the treatment area is anaerobic and has been favorable for reductive dechlorination. RA-O monitoring will be continued to determine if DO levels fluctuate near 0.5 mg/L as they did during the third year.

Oxidation-Reduction Potential

The ORP levels indicate the oxidative or reductive potential in the aquifer matrix and provide real-time data showing if conditions are conducive for anaerobic biodegradation. During the Year 3 RA-O, the ORP ranged between -58 and 325 mV and averaged 136.14 mV outside of the treatment area. At 16IW09, in the treatment area, ORP levels were below -50 mV during both sampling events, which is conducive to reductive dechlorination. At well 16RW05, close to the downgradient side of the treatment area, the ORP was measured at -58 mV in June 2022, below the performance objective of -50 mV but was above -50 mV in January 2023 (76 mV). The ORP values indicate that conditions in most wells were not conducive to reductive dechlorination.

Nitrate

After DO has been depleted, nitrate may be used as an electron acceptor for anaerobic biodegradation of perchlorate and chlorinated ethenes via denitrification. Nitrate levels above 1 mg/L may compete with the reductive pathway (EPA 1998). The nitrate concentrations in the treatment area at 16IW09 samples continued to be below 1.0 mg/L during the third year RA-O sampling, which is indicative of denitrification and that nitrate will not inhibit anaerobic degradation of site COCs.

Sulfate

After DO and nitrate have been depleted in the groundwater, sulfate may be used as an electron acceptor for anaerobic biodegradation. This process is termed “sulfate reduction” and results in the production of sulfide. Concentrations of sulfate greater than 20 mg/L may cause competitive exclusion of dechlorination. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (EPA 1998). **Table 2-3** indicates that the sulfate concentrations at the treatment zone well 16IW09 were below 20 mg/L during the Year 3 RA-O, which is favorable for the

reduction of site COCs. The amendments injected into the treatment zone are not expected to influence wells farther downgradient or in the intermediate zone groundwater.

Total Organic Carbon

Regardless of the electron acceptor being used, organic carbon is a required source of reduced hydrogen and energy needed to sustain microbial degradation of contaminants. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (EPA 1998). The carbon source was injected into the treatment zone, which is the only area where elevated levels of TOC are expected to be present. During the Year 3 RA-O, TOC concentrations detected at 16IW09, located in the treatment area, were detected at 128 mg/L (June 2022) and 103 mg/L (January 2023), which are favorable for reductive dechlorination. Well 16WW26 is located farther downgradient of the treatment area, and significant increases in TOC were not expected there as concentrations were 2.68 mg/L and 1.68 mg/L in June 2022 and January 2023, respectively. The COC data indicate that TOC concentrations within the biobarrier have been supportive of reductive dechlorination and that a residual mass of carbon remains present within the biobarrier at 16IW09 to support bacterial populations.

Carbon Dioxide

Carbon dioxide is a byproduct of naturally occurring aerobic and anaerobic biodegradation processes that occur in the groundwater. During the Year 3 RA-O, carbon dioxide levels in well 16IW09 were 200,000 µg/L and 150,000 J µg/L in June 2022 and January 2023, respectively (**Table 2-3**). The higher levels detected in the treatment area compared to the background suggest the presence of increased microbial activity.

pH

The pH of groundwater has an effect on the presence and activity of microbial populations in groundwater. Microbes capable of degrading chlorinated aliphatic hydrocarbons and petroleum hydrocarbon compounds generally prefer pH values varying from 6 to 8 standard units (EPA 1998). During the third annual RA-O event, the pH ranged from 4.68 to 6.96 standard units. In the treatment zone, at 16IW09, the pH was above 6.0 in the most recent sampling event at 6.72 standard units in January 2023. At the well closest to the downgradient edge of the treatment zone, 16RW05, the pH was measured at 6.66 standard units in January 2023. The pH levels in and near the treatment area are conducive to biological activity and reductive dechlorination. The sub-optimal pH levels were present in wells farther downgradient; however, biological degradation is not expected to occur at farther distances from the treatment zone.

Methane

Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, and sulfate have been depleted. Methane levels above 500 µg/L are considered to indicate methanogenic conditions (EPA 1998). Methane was measured in selected wells for MNA evaluation and ranged from 101 µg/L to 9,720 µg/L during the Year 3 RA-O. Elevated methane levels were detected within the

treatment area at 16IW09 and measured at 9,720 µg/L in January 2023. Methane levels were elevated (greater than 500 µg/L) in 16RW05 but below 500 µg/L in 16RW04 outside the treatment area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the third annual RA-O event in Landfill Biobarrier #1 indicates that current geochemical conditions (TOC, pH, methane, and carbon dioxide) remain favorable for the biological reduction of VOCs and perchlorate. TOC exceeds the performance objective of 20 mg/L within the biobarrier, while the ORP levels did not meet the performance objective of less than -50 mV downgradient of the barrier during the Year 3 RA-O. Although ORP levels have not been measured below -50 mV in the biobarrier treatment area, all COCs have been reduced to below their MCLs. The geochemical data from the groundwater in the biobarrier indicate that conditions are favorable and sustainable for the degradation of site COCs. The Year 3 monitoring data indicate that no reinjection is recommended at this time. Semiannual RA-O monitoring will be conducted in Year 4 to determine whether conditions continue to be conducive for biological degradation.

3.2.2 Landfill Biobarrier #2

Five of the nine wells (16IW03, 16WW16, 16WW36, 16PM06, and 16WW35) in Landfill Biobarrier #2 were sampled for MNA parameters as shown in **Table 2-2**. Monitoring well 16WW16 is located upgradient of the biobarrier and 16WW35 is screened in the intermediate groundwater zone, where the biobarrier is not expected to have any influence. The well located in the treatment area (16IW03) is the primary well where conditions in groundwater would be expected to be favorable for reductive dechlorination.

Dissolved Oxygen

DO levels for the Year 3 RA-O monitoring events are presented in **Table 2-4**. DO levels in the treatment area at 16IW03 were below 0.5 mg/L during each sampling event of the Year 3 RA-O. DO levels outside the treatment area ranged between 0.04 and 2.01 mg/L with an average of 0.57 mg/L, suggesting that groundwater has been slightly anaerobic during the Year 3 RA-O. Based on the DO readings, groundwater below 0.5 mg/L is conducive to reductive dechlorination.

Oxidation-Reduction Potential

During the Year 3 RA-O sampling events, the ORP decreased in most wells. At 16IW03, located within the treatment area, the ORP increased from -44 mV to -26 mV between June 2022 and January 2023. Also, at 16PM06, located near the biobarrier, the ORP values decreased from 18 mV to -18 mV during the same time period. Outside the treatment area, ORP levels were all measured above -50 mV. The ORP levels during the Year 3 RA-O indicate the groundwater is not reducing and has become more oxidative, which is not conducive to the anaerobic degradation of site COCs.

Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (EPA 1998). The nitrate concentrations were below 1.0 mg/L at 16WW16 and 16WW35 during the third year RA-O sampling, indicating that nitrate will not inhibit anaerobic degradation of site COCs (**Table 2-4**).

Sulfate

Elevated sulfate levels above 20 mg/L may compete as an electron acceptor with perchlorate and VOCs. Outside the treatment area at 16WW16 and 16WW35, sulfate levels remained above 20 mg/L, ranging from 371 to 10,000 mg/L during the Year 3 RA-O.

Total Organic Carbon

TOC concentrations were measured in select wells during the Year 3 RA-O and ranged from 4.3 mg/L to 2,230 mg/L. As expected, elevated levels of TOC were detected within the biobarrier at 16IW03 at 2,230 mg/L and 1,930 mg/L in June 2022 and January 2023, respectively. TOC concentrations were also detected above the 20 mg/L criteria in downgradient intermediate zone well 16WW35 during both sampling events and shallow zone well 16WW36 during the June 2022 sampling event. The elevated levels of TOC downgradient indicate there is a sufficient amount of carbon to support microbial growth.

Carbon Dioxide

Carbon dioxide is a byproduct of naturally occurring aerobic and anaerobic biodegradation processes that occur in the groundwater. Carbon dioxide levels in the groundwater monitoring wells ranged between 97,000 J µg/L and 670,000 J µg/L during the Year 3 RA-O events. In January 2023, the carbon dioxide level at 16IW03 was 670,000 J µg/L, which is significantly higher than the background well 16WW16 at 97,000 J µg/L. The higher levels detected in the treatment area compared to the background suggests increased microbial activity.

pH

During the Year 3 RA-O, the pH ranged from 5.25 to 6.77 standard units, with four out of nine wells showing pH in the optimal range. The pH at 16IW03, in the treatment zone, remained at or below 6.0 standard units, which is not optimal for microbial degradation of site contaminants.

Methane

Methane was measured in selected wells for MNA evaluation and ranged from 69.6 to 6,800 J µg/L during the Year 3 RA-O sampling events. The highest levels were detected in the treatment area well, 16IW03, ranging from 4,280 µg/L to 6,800 J µg/L during the Year 3 RA-O. Methane concentrations indicate reducing conditions are present in the treatment area at well 16IW03.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators for Landfill Biobarrier #2 monitoring locations during the third annual RA-O event at LHAAP-16 indicates that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate within the treatment area closest to the

biobarrier. Though the ORP performance objective was not met, low DO, nitrate, methane, and carbon dioxide values within the biobarrier indicate that reinjections are not necessary and are not recommended. Certain parameters detected in a few locations outside of the treatment area may indicate that conditions could favor biological degradation, such as the presence of degradation products cis-1,2-DCE, VC, and ethene; however, the primary MNA processes reducing concentrations outside of the treatment area are likely to be abiotic, including dilution, dispersion, sorption, and volatilization.

3.2.3 Landfill Biobarrier #3

Seven wells (16IW10, 16RW06, 16RW07, 16RW09, 16RW10, 16WW14, and 16WW55) were sampled for field test parameters to aid in determining the geochemical state of groundwater. Three of the seven wells were sampled for MNA parameters as shown in **Table 2-2**. Well 16WW14 was only sampled in June 2022 because this well was removed from monitoring network once the Year 2 RA-O report was approved. The wells analyzed for MNA parameters were in locations suitable to monitor the performance of the ISB remedy, while 16WW55 was sufficiently downgradient that the biobarrier is not expected to have a significant influence.

Dissolved Oxygen

DO levels for the Year 3 RA-O monitoring events are presented in **Table 2-5** and ranged between 0.03 mg/L and 1.00 mg/L, with an average of 0.43 mg/L. At 16IW10, located in the treatment area, the DO levels were 0.26 mg/L (June 2022) and 0.03 mg/L (January 2023) during the Year 3 RA-O, suggesting that the treatment area is anaerobic. At the two closest wells to the downgradient edge of the biobarrier, 16RW09 and 16RW10, DO levels were measured at 0.08 mg/L and 0.12 mg/L in January 2023. The Year 3 RA-O DO data indicate that the groundwater in the treatment area and downgradient has been anaerobic during most sampling events, which is conducive to reductive dechlorination.

Oxidation-Reduction Potential

During the Year 3 RA-O, the ORP ranged between -149 mV and 134 mV. The ORP levels at 16IW10, in the treatment area, were below the performance objective of -50 mV during Year 3 RA-O, suggesting the groundwater conditions are conducive for the reduction of chlorinated ethenes and perchlorate. The ORP RA-O data suggest that in January 2023, oxidative groundwater conditions (ORP above -50 mV) are present in all six wells which are located either upgradient or downgradient of the Landfill Biobarrier #3 and were not expected to see direct effects of the carbon injection.

Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (EPA 1998). The nitrate concentrations were below 1.0 mg/L during the third year RA-O sampling. These data indicate that nitrate will not inhibit anaerobic degradation of site COCs.

Sulfate

RA-O data from 16IW10 indicates that the sulfate concentrations were below 20 mg/L in the treatment area. Sulfate levels were detected at 694 mg/L (June 2022) and 846 mg/L (January 2023) in the downgradient well 16WW55, which is located outside the influence of the treatment area, and sulfate concentrations are not expected to decrease at this well.

Total Organic Carbon

TOC concentrations were measured in select wells during the Year 3 RA-O and ranged between 1.96 mg/L and 139 mg/L. At well 16IW10, in the treatment area, TOC concentrations decreased from 211 mg/L to 122 mg/L between January 2022 and January 2023 which continues to be high enough to support reductive dechlorination in the treatment area.

Carbon Dioxide

Carbon dioxide is a byproduct of naturally occurring aerobic and anaerobic biodegradation processes that occur in the groundwater. Carbon dioxide levels in the groundwater monitoring wells ranged between 89,000 J µg/L and 590,000 µg/L during the Year 3 RA-O sampling events. In January 2023, the carbon dioxide level at 16IW10 was 590,000 µg/L, which is significantly higher than the downgradient well outside of the treatment area, 16WW55 at 89,000 J µg/L. The higher levels detected in the treatment area compared to the background suggests increased microbial activity.

pH

During the Year 3 RA-O, the pH ranged from 5.62 to 7.18 standard units, with five out of seven wells showing pH in the optimal range, indicating conducive conditions for biodegradation. The pH in the treatment area groundwater at 16IW10 has remained above 6.0 standard units and was measured at 7.18 standard units in January 2023.

Methane

Methane was measured in selected wells for MNA evaluation and ranged from 460 J µg/L to 5,350 µg/L during the Year 3 RA-O events. Methane was detected at 5,350 µg/L at monitoring well 16IW10 in January 2023, indicating highly reducing conditions within the treatment area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the third annual RA-O event in Landfill Biobarrier #3 area indicates that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate within the treatment area. At well 16IW10, DO, TOC, and ORP exceeded the performance criteria within the treatment area. Based on the reduction of COCs to below cleanup levels, TOC and ORP values meeting the performance objectives, and the presence of ethene, reductive dechlorination is occurring and reinjection is not recommended.

3.2.4 Bayou Biobarrier

Eight wells (16IW20, 16RW12, 16WW12, 16WW22, 16WW39, 16WW40, 16WW41, and 16WW56) were sampled for field test parameters that are used to aid in determining the geochemical state of groundwater. Three of the nine wells were sampled for MNA parameters and TOC as shown in **Table 2-2**. Wells 16WW41 (intermediate zone) and 16WW21 (upper deep zone) are located upgradient, and 16WW56 is located cross-gradient to the treatment area. These three wells are not expected to show any influence from the biobarrier.

Dissolved Oxygen

DO levels during the Year 3 RA-O are presented in **Table 2-6**. In the treatment area, DO levels ranged between 0.04 and 2.36 mg/L. At 16IW20, located in the treatment area, the DO levels were 0.2 mg/L (June 2022) and 0.04 mg/L (January 2023), conducive to reductive dechlorination. Outside of the treatment area, DO levels ranged between 0.35 mg/L and 2.36 mg/L and averaged 0.71 mg/L which indicates that conditions are favorable for reductive dechlorination.

Oxidation-Reduction Potential

During the Year 3 RA-O event, the ORP ranged between -104 mV and 199 mV in the Bayou Biobarrier area. In the treatment area, the ORP level was -104 mV in January 2023 at 16IW20. All wells outside the treatment area are above the -50 mV criterion, suggesting that the groundwater is less anaerobic. The ORP values at the Bayou Biobarrier area indicate that the groundwater is strongly not reducing, which is not favorable for the degradation of site contaminants.

Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (EPA 1998). The nitrate concentrations were below 1.0 mg/L during the third year of RA-O sampling, indicating that nitrate will not inhibit anaerobic degradation of site COCs.

Sulfate

The sulfate concentrations during the Year 3 RA-O were above 20 mg/L at 16IW20, indicating that sulfate-reducing conditions have not been established in the treatment area. Outside the treatment area, sulfate was detected at 7,610 mg/L and 9,880 mg/L in June 2022 and January 2023 at 16WW41. Sulfate levels at the Bayou Barrier may compete as an electron acceptor with perchlorate and VOCs.

Total Organic Carbon

TOC concentrations were measured in select wells during the Year 3 RA-O sampling events and ranged from 4.67 mg/L to 48.4 mg/L. TOC greater than 20 mg/L indicates that carbon concentrations are supportive of reductive dechlorination. At the treatment area well (16IW20), the TOC level was 9.0 mg/L in January 2023. TOC was detected above 20 mg/L at 48.4 mg/L in January 2023 in the upgradient intermediate zone well 16WW41, outside the influence of the treatment area. The higher TOC level could be attributed to the Mid-Plume Area treatment in the intermediate zone. The TOC levels suggest

that there is not a sufficient amount of carbon to support degradation in the shallow groundwater zone in this treatment area.

Carbon Dioxide

Carbon dioxide is a byproduct of naturally occurring aerobic and anaerobic biodegradation processes that occur in the groundwater. Carbon dioxide levels in the groundwater monitoring wells ranged between 130,000 J µg/L and 462,000 J µg/L during the Year 3 RA-O events. In January 2023, the carbon dioxide level at 16IW20 was 130,000 J µg/L. The levels detected in the treatment area compared to the wells outside do not suggest there is an increased rate of microbial activity in the treatment area.

pH

During the Year 3 RA-O event, the pH ranged from 5.43 to 6.90 standard units, with all nine wells showing pH in the optimal range in January 2023. The pH data from wells in the Bayou Barrier indicate that the pH levels in this area are conducive conditions for biodegradation.

Methane

Methane was measured in selected wells for MNA evaluation and ranged from 12.2 to 7,790 J µg/L during the Year 3 RA-O events. Methane was detected at 6,270 µg/L in January 2023 within the treatment area at monitoring well 16IW20, indicating highly reducing conditions may be present within the treatment area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the third annual RA-O event in the Bayou Barrier indicates that current geochemical conditions are not favorable for the biological reduction of VOCs and perchlorate. In this area, only the DO and pH values meet the performance objective at numerous wells within and downgradient of the biobarrier. The geochemistry does not suggest that conditions are conducive to biological degradation and TOC levels are below the 20 mg/L criteria. Therefore, reinjection is recommended within the existing biobarrier. As mentioned in **Section 3.1.1.4**, it is likely that the Bayou Biobarrier is not adequately treating the groundwater flowing to the east-southeast from the mid-plume treatment area, and it is recommended that a southward extension of the biobarrier be considered to treat the flow if concentrations remain elevated at 16WW30 and 16WW48.

3.2.5 Mid-Plume Area, Shallow Zone

Six wells (16EW01, 16EW02, 16EW03, 16EW04, 16WW30, and 16WW48) were sampled for field test parameters that are used to aid in determining the geochemical state of groundwater. Three of the six wells (16EW02, 16EW03, and 16WW48) were sampled for MNA parameters, and three wells were sampled for TOC as shown in **Table 2-2**.

Dissolved Oxygen

DO levels in the Year 3 RA-O monitoring event are presented in **Table 2-7** and ranged between 0.02 and 2.1 mg/L, with an average of 0.38 mg/L. In January 2023, DO levels across the site were all below 0.5 mg/L, except for downgradient well 16WW30, which is outside of the treatment area and was above the criteria at 2.1 mg/L, which is expected. The data suggest that the Shallow Mid-Plume Area is mildly anaerobic.

Oxidation-Reduction Potential

During the Year 3 RA-O, ORP ranged between -148 and 139 mV. In the treatment zone, ORP levels in January 2023 were measured at -26 mV at 16EW02 and 12 mV at 16EW03, indicating conditions that are mildly favorable for reductive dechlorination within the treatment area. At 16WW48, closer to the downgradient edge of the treatment area, ORP levels increased from 66 mV to 119 mV between January 2022 and January 2023, indicating that groundwater downgradient of the treatment area is not conducive to reductive dechlorination.

Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (EPA 1998). The nitrate concentrations were below 1.0 mg/L during the third year of RA-O sampling, indicating that nitrate will not inhibit anaerobic degradation of site COCs.

Sulfate

The sulfate concentration at treatment area well 16EW03 was 2,270 mg/L during the January 2023 sampling event. Although the sulfate levels in the treatment area are elevated, the presence of VC and ethene indicate that complete reductive dechlorination is occurring in this area. At the downgradient well 16WW48, sulfate levels were also above 20 mg/L during each of the Year 3 RA-O sampling events, suggesting that sulfate may compete as an electron acceptor with perchlorate and VOCs downgradient of the treatment area.

Total Organic Carbon

TOC concentrations were measured in select wells during the Year 3 RA-O and ranged between 10 and 18.5 mg/L. During the January 2023 sampling event, TOC levels at 16EW03, located within the treatment area, were detected below the 20 mg/L criteria at 15.8 mg/L and 15.7 mg/L in June 2022 and January 2023, respectively, indicating TOC levels have decreased since the Year 2 RA-O events. There is a downward trend to the TOC concentrations in 16EW03, and re-injection may be required if this trend continues.

Carbon Dioxide

Carbon dioxide is a byproduct of naturally occurring aerobic and anaerobic biodegradation processes that occur in the groundwater. Carbon dioxide levels ranged from 170,000 J µg/L to 462,000 J µg/L during the Year 3 RA-O. In January 2023, carbon dioxide at 16EW03, located within the treatment area, was measured at 170,000 J µg/L. The carbon dioxide concentration at 16WW48, downgradient of the

treatment area, was also 170,000 J µg/L. The data suggest that there is not an increase in microbial activity in the treatment area as would be expected with the injection of carbon and the bioaugmentation culture SDC-9™.

pH

During the Year 3 RA-O event, the pH ranged from 5.8 to 6.9 standard units. In January 2023, the pH levels in all wells were above 6.0 standard units, indicating conducive conditions for biodegradation.

Methane

At 16EW03, located in the treatment area, methane was detected above 500 mg/L during the Year 3 RA-O sampling events with a concentration of 2,160 mg/L in January 2023. In the downgradient well, 16WW48, the methane level was 25.8 mg/L in January 2023. The methane data indicate that methanogenic conditions are present in the Mid-Plume treatment area, which is favorable for complete reductive dechlorination.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators measured in the Mid-Plume shallow treatment area during the third annual RA-O indicate that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate in the treatment area. TOC levels were below the performance objective of 20 mg/L in the treatment area indicate that sufficient carbon source for microbial growth may be limited in extent. Although lower DO levels and elevated methane concentrations are favorable for biological reduction, elevated ORP levels and reduced TOC concentrations indicate that reinjection may be required. The increasing cis-1,2-DCE, VC, and ethene concentrations suggest that complete dechlorination is occurring within the treatment area. However, the primary MNA processes reducing TCE concentrations downgradient of the treatment area may be abiotic, including dilution, dispersion, sorption, and volatilization in some areas.

3.2.6 Mid-Plume Area, Intermediate Zone

Five wells (16EW08, 16IW26, 16WW29, 16WW49, and 16WW51) were sampled for field test parameters to aid in determining the geochemical state of groundwater. One of the five wells, 16IW26 (in the treatment area), was sampled for MNA parameters during the Year 3 RA-O as shown in **Table 2-2**.

Dissolved Oxygen

DO levels in the Year 3 RA-O monitoring events are presented in **Table 2-8** and ranged between 0.03 mg/L and 0.9 mg/L, with an average of 0.28 mg/L. During the January 2023 sampling event, low DO levels (< 0.5 mg/L) were detected at four of the five wells. The only well above 0.5 mg/L in January 2023 was downgradient of the treatment zone at 16WW51 with a DO measurement of 0.9 mg/L. The Year 3 RA-O DO levels in the intermediate zone Mid-Plume Area are conducive to reductive dechlorination in the treatment area and at the downgradient locations.

Oxidation-Reduction Potential

During the Year 3 RA-O events, the ORP ranged between -183 mV and 27 mV. At 16IW26, located in the treatment area, ORP levels were below -50 mV during the Year 3 RA-O events at -183 mV and -150 mV in June 2022 and January 2023, respectively. The ORP levels during January 2023 were below the performance objective of -50 mV with the exception of two wells outside of the treatment area (16WW49 and 16WW51), indicating that most of the groundwater is favorable for reductive dechlorination.

Nitrate

The nitrate concentrations continue to be below 1.0 mg/L at 16IW26, located in the treatment zone, during the third year RA-O sampling events, indicating that nitrate will not inhibit anaerobic degradation of site COCs.

Sulfate

During the Year 3 RA-O, sulfate levels at 16IW26, located in the treatment area, were 1.96 mg/L and 3.5 mg/L in June 2022 and January 2023, respectively. The low levels of sulfate detected in the treatment area indicate that sulfate will not inhibit degradation.

Total Organic Carbon

TOC concentrations detected at 16IW26 during the Year 3 RA-O events were 85.8 mg/L and 110 mg/L in June 2022 and January 2023, respectively. TOC concentrations were above 20 mg/L in the groundwater for both semiannual events of Year 3 RA-O, indicating that there is a sufficient amount of carbon to sustain microbial growth.

Carbon Dioxide

Carbon dioxide is a byproduct of naturally occurring aerobic and anaerobic biodegradation processes that occur in the groundwater. During the Year 3 RA-O, carbon dioxide levels were 465,000 J mg/L and 490,000 mg/L in June 2022 and January 2023, respectively.

pH

During the Year 3 RA-O, the pH ranged from 5.66 to 7.40 standard units. In January 2023 all five wells were within the optimal range for pH. This data indicates the pH levels are ideal for biodegradation in the treatment area of the Mid-Plume Area intermediate zone.

Methane

During the Year 3 RA-O sampling events, elevated levels of methane were detected in well 16IW26. In January 2023, methane was detected at 5,780 µg/L, above 500 µg/L, indicating that methanogenic conditions exist within the treatment area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the third annual RA-O event indicate that current geochemical conditions are favorable for the biological reduction of VOCs and perchlorate in and near the treatment area. The TOC concentrations detected within the treatment zone were above the performance objective of 20 mg/L. The ORP levels at most wells were below the performance objective of -50 mV during the third year, indicating that the ORP is conducive for reductive dechlorination. The TOC and DO values, along with elevated methane, the presence of biodegradation daughter products, and the mildly reducing groundwater conditions, indicate that the conditions are favorable for biological degradation in the treatment area. The low DO and ORP, and elevated TOC values indicate that no reinjection is necessary based on the Year 3 RA-O monitoring data.

3.3 Third Line of Evidence: Microbial Analysis

If the first two lines of evidence for MNA are deemed inadequate or inconclusive, data from the field or microcosm studies will be necessary to establish the third line of evidence for MNA. Dechlorinating bacteria, *Dehalococcoides ethenogenes* (DHC), were analyzed at select wells. DHC populations of 1,000 cells per milliliter (cells/mL) are generally favorable for reductive dechlorination, with populations over 10,000 cells/mL considered to be ideal. Wells sampled for DHC during the Year 3 RA-O are shown in **Table 2-2**. DHC concentrations in each area is discussed in **Sections 3.3.1** through **3.3.6**.

3.3.1 Landfill Biobarrier #1

One well was sampled for DHC (16IW09) during the Year 3 RA-O. At 16IW09, concentrations were below the detection limit of 2.5 cells/mL in June 2022 and 2.1 cells/mL in January 2023 during the Year 3 RA-O sampling events (**Table 2-3**). These low concentrations indicate that concentrations in the barrier are not high enough to expect complete reductive dechlorination.

3.3.2 Landfill Biobarrier #2

One well (16IW03) was sampled for DHC during the Year 3 RA-O. DHC concentrations in the Landfill Biobarrier #2 Area at 16IW03 were 7,150 cells/mL (June 2022) and 80,600 cells/mL (January 2023) during the Year 3 RA-O sampling events (**Table 2-4**). These high DHC concentrations are sufficient to expect reductive dechlorination.

3.3.3 Landfill Biobarrier #3

At 16IW10, located inside the treatment area, DHC concentrations in the Landfill Biobarrier #3 Area were detected at 5,110 cells/mL in June 2022 and 2,840 cells/mL in January 2023 during the Year 3 RA-O sampling events (**Table 2-5**). These concentrations indicate that DHC is present at levels that sufficient to expect reductive dechlorination.

3.3.4 Bayou Biobarrier

During the Year 3 RA-O, one shallow Bayou Biobarrier monitoring well (16IW20) was sampled for DHC. DHC concentrations at 16IW20 have decreased since January 2022. Low levels, less than 1,000 cells/mL,

were detected during June 2022 (563 cells/mL); however, concentrations increased in January 2023 (1,540 cells/mL), indicating that inside the treatment area, microbial populations are present at levels but not ideal to be able to support complete reductive dechlorination of chlorinated ethenes (**Table 2-6**).

3.3.5 Mid-Plume Area, Shallow Zone

During the Year 3 RA-O, 16EW02 was sampled for DHC in the shallow Mid-Plume Area. At this well, the population increased from 563 cells/mL in January 2022 to 21,000 cells/mL in January 2023, suggesting that microbial populations are increasing (**Table 2-7**). Elevated DHC concentrations detected in 16EW02 are conducive to supporting the complete reductive dechlorination of chlorinated ethenes.

3.3.6 Mid-Plume Area, Intermediate Zone

At monitoring well 16IW26, inside the treatment area, elevated levels of DHC were detected during the Year 3 RA-O, ranging from 352,000 cells/mL in June 2022 to 204,000 cells/mL in January 2023 (**Table 2-8**). Elevated DHC concentrations detected in 16IW26, are conducive to support complete reductive dechlorination of chlorinated ethenes.

3.4 Screening for MNA Evaluation

In accordance with Section 4.5.3.2 of the RD (AECOM 2017), a scoring process was conducted using the *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater* (EPA 1998) to evaluate the potential for anaerobic biodegradation processes to reduce chlorinated ethenes as a mechanism of MNA. The list of 34 wells used in the scoring process was derived from Table 4-18 of the LHAAP-16 RD (AECOM 2017). The list of 34 wells was narrowed to 11 wells that had COC concentrations above cleanup levels and that were sampled for the additional geochemical parameters necessary to derive a meaningful score according to the EPA criteria. **Table 3-3** includes the most recent concentrations and the score obtained for each monitoring well. Eight out of eleven wells showed “limited evidence of anaerobic biodegradation” based on the EPA scoring criteria. The remaining three wells showed “inadequate evidence of anaerobic biodegradation” based on the scoring criteria.

Mann-Kendall analysis was conducted for the 11 wells for which the EPA scoring criteria were calculated, as well as 10 additional wells that contained one or more COCs above the MCL/PCL (**Appendix E**). Of the eight wells that showed limited evidence of biodegradation in the EPA scoring, three wells (16WW16, 16WW48, and 16WW57) showed an increasing trend for TCE. Monitoring well 16WW16 showed an increasing trend for perchlorate. Two wells (16WW36 and 16WW41) showed a stable trend for TCE and a stable trend for perchlorate at 16WW57. Two wells (16WW35 and 16WW55) showed a probable decreasing and decreasing trend for TCE and decreasing trends for perchlorate. The remaining well (16WW58) showed no trend for TCE. Of the three wells that showed inadequate evidence of biodegradation in the EPA scoring, two of the wells, 16WW22 and 16WW56, showed a

decreasing trend for TCE where 16WW26 showed a stable trend for TCE. None of the wells with inadequate evidence for biodegradation had a definable trend for perchlorate.

The MNA evaluation of the wells from Table 4-18 of the RD (AECOM 2017) indicates that there was limited or inadequate evidence for anaerobic biological degradation in the wells where scoring was performed and that increasing or probably increasing COC concentration trends were present in 7 of the 21 wells where COCs were present above the MCL/PCL. It is recommended that a contingency remedy be developed for the areas where the evaluation indicated limited or inadequate evidence for anaerobic degradation was present and/or where increasing COC trends were indicated by the Mann-Kendall analysis.

4.0 SUMMARY AND RECOMMENDATIONS

4.1 Summary

The LUCs for LHAAP-16 include a land use restriction prohibiting residential use, a requirement to maintain the integrity of any current or future remedial or monitoring systems, and a groundwater use restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing until COCs in the groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the third year RA-O was conducted on July 19, 2023. No noncompliance issues or concerns were not identified during the annual inspection except for pine trees noted on the cap which will be removed. No change in land use or groundwater use occurred at the site during the third annual RA-O monitoring period.

Mowing at LHAAP-16 was conducted on June 14, 2022, and January 18, 2023, during the third year of RA-O.

No damage to bollards, well pads, or protective casings was observed during the 2022/2023 well inspections and minimal encroachment of weeds or brush on the well pads was observed with the following exceptions which will be addressed during the Year 4 RA-O:

- 16EW04: During the 2023 well inspection, it was noted that the concrete slab needs filling.
- 16WW30-2301: During the 2023 well inspection, damage to the lid of the protective casing (i.e., cracked) and leaning bollards were observed.
- 16WW29: During the 2023 well inspection, the protective casing was observed as being off center, causing the lid to not close properly.
- 16WW32: During the 2023 well inspection, the 4-inch metal well pipe was observed to be set too far north, causing the lid to not close completely. The pipe will need to be cut down and the well resurveyed to properly protect the well.
- 16WW33: During the 2023 well inspection, it was noted that portions of the well need to be repainted.
- 16WW34: During the 2023 well inspection, it was noted that portions of the well need to be repainted.

VOCs, perchlorate data, and geochemical and microbial indicators were collected over the course of monitoring to evaluate the effectiveness of the ISB remedy. The first line of evidence evaluated reductions in VOCs and perchlorate concentrations. The second line of evidence evaluated geochemical indicators. The third line of evidence evaluated the microbial populations in the aquifer. The results of the evaluation and the conclusions are summarized below.

An assessment of the first line of evidence indicates that perchlorate and TCE concentrations continue to be reduced after ISB injections, though concentrations remain above cleanup levels in many areas. The monitoring wells located within the treatment areas show COC concentration reductions and geochemical and microbial conditions favorable for reductive dechlorination. The formation of daughter products (cis-1,2-DCE, VC, 1,1-DCE, and ethene) indicates that reductive dechlorination is occurring.

During the Year 1 RA-O, perchlorate concentrations in the intermediate groundwater decreased to below the PCL and in the Year 3 RA-O, perchlorate was detected but levels remain below those detected during the baseline sampling events. The first line of evidence supports the conclusion that the ISB remedy is effectively reducing concentrations within the treatment areas; however, concentrations have not decreased to below MCL/PCLs.

The qualitative assessment of geochemical indicators performed as the second line of evidence indicates that current geochemical conditions are supportive of reductive degradation processes within the treatment areas. Conditions are not conducive for reductive dechlorination downgradient or upgradient of the treatment areas, as expected. The presence of degradation products cis-1,2-DCE, and VC in areas with marginally conducive conditions suggests that limited biological degradation is occurring; however, the primary MNA processes reducing COC concentrations in areas downgradient of the treatment areas are likely to be abiotic as treated groundwater migrates downgradient. The following sections summarize the second line of evidence for the TOC and ORP performance objectives for each treatment area.

Landfill Biobarrier #1

As discussed in the summary for **Section 3.2.1**, the TOC levels continue to exceed the performance objective within Landfill Biobarrier #1 at 16IW09. The ORP values also met the performance objective of being below -50 mV within the treatment area. Although the groundwater is reducing, the microbial population level of DHC is below the performance objective of 10,000 cells/mL.

At well 16WW26, located farther downgradient of the treatment area, TOC concentrations averaged 2.18 mg/L during Year 3 RA-O and the ORP values do not meet the performance objective in Year 3 outside of the treatment area as expected as the injected carbon source is not designed to migrate far from the treatment zone. The ORP and TOC values meeting the performance objectives within the treatment area for multiple years of RA-O, indicate that no reinjection is needed/recommended based on the Year 3 monitoring data.

Landfill Biobarrier #2

As discussed in the summary for **Section 3.2.2**, the low DO concentrations and ORP levels near the performance objective within the treatment area well 16IW03 indicate that groundwater is favorable for reductive dechlorination which is supported by the elevated levels of DHC detected at this well. TOC was well over the performance objective at downgradient wells 16WW35 and 16WW36 during the Year 2 RA-O, when TOC remained above 2,500 mg/L in all four quarters. However, TOC concentrations

decreased in Year 3 RA-O to levels near the objective of 20 mg/L. ORP values were measured above the performance objective, indicating that the treatment area is becoming more aerobic. Based on the TOC values above performance criteria although increased ORP levels are detected, no reinjection is recommended based on the Year 3 monitoring data.

Landfill Biobarrier #3

As discussed in the summary for **Section 3.2.3**, the TOC continued to exceed the performance objective within Landfill Biobarrier #3 at 16IW10. The ORP values were also below the -50 mV performance objective during the Year 3 RA-O, and DHC concentrations within the treatment area are sufficient to expect reductive dechlorination. Outside of the treatment area, the ORP was below -50 mV in January 2023. Based on the reduction of COCs and ORP values meeting the performance objective, the biobarrier treatment is working as designed.

Bayou Biobarrier

As discussed in the summary for **Section 3.2.4**, the TOC level did not exceed the performance objective within the Bayou Biobarrier at 16IW20 during the Year 3 RA-O; however, the ORP values did meet the performance objective of being below -50 mV during Year 3. Also, at this well, the microbial population level of DHC is below the performance objective of 10,000 cells/mL. The Bayou Biobarrier is the only treatment area that received a carbon and ZVI amendment which has the abiotic component to create and sustain reducing conditions, which may be the reason the ORP is still meeting the performance objective. TOC levels did not meet the performance objective and the groundwater is currently flowing parallel to the southern portion of the biobarrier; therefore, the barrier may not be effectively intercepting contamination flowing towards the bayou. Additional injections south of the current biobarrier may be prudent to effectively capture contaminated groundwater in the vicinity of 16WW48 that is flowing towards the bayou and is not being captured by the current biobarrier configuration.

Mid-Plume Shallow Zone Treatment Area

As discussed in the summary for **Section 3.2.5**, the TOC levels within Mid-Plume Shallow Zone Treatment Area did not meet the criteria during the Year 3 RA-O at 16EW02 or 16EW03. The ORP values also did not meet the performance objective (< -50 mV) at either well. Although the groundwater is not reducing, the microbial population level of DHC was above the performance objective of 10,000 cells/mL. Based on the TOC and ORP values not meeting the performance objectives in the injection area, reinjection may be required based on the Year 3 monitoring data. The groundwater flow direction to the east of the shallow zone Mid-Plume Area is generally to the east-southeast and appears to be flowing cross-gradient to the southern portion of Bayou Biobarrier. If this condition continues, southward extension of the Bayou Biobarrier may be a prudent step to minimize contamination migrating towards the bayou, if COC concentrations remain high at 16WW48.

Mid-Plume Intermediate Zone Treatment Area

As discussed in the summary for **Section 3.2.6**, the TOC levels and ORP measurement exceeded the performance objectives at 16IW26, which is located in the treatment area. Also, the ORP levels during

January 2023 were all below the performance objective of -50 mV with the exception of two wells outside the treatment area (16WW49 and 16WW51), indicating that most wells were favorable for reductive dechlorination. The DHC concentrations detected in 16IW26 meet the performance objective and are expected to support complete reductive dechlorination of chlorinated ethenes. Based on the reduction of COCs, the TOC levels, ORP values and DHC concentrations meeting the performance objectives, the treatment is working as designed and a reinjection of carbon is not recommended at this time.

The evaluation of the ISB remedy at LHAAP-16 indicates that reductive degradation processes stimulated by the ISB injections are reducing VOC and perchlorate concentrations in groundwater in the treatment areas. COC concentrations are expected to decrease in the downgradient area as groundwater flows through the biobarrier/treatment area. The decrease in VOC and perchlorate concentrations upgradient and downgradient of the treatment areas is primarily due to abiotic processes including dispersion, dilution, sorption, and volatilization. Semiannual sampling will continue for the fourth year of RA-O monitoring in compliance with the RACR (Bhate 2021).

4.2 Recommendations

The following actions are recommended for completion.

- Add TOC analysis to Biobarrier #2 in treatment well 16IW03 to evaluate the carbon levels in the injection area.
- Install one new well in the intermediate zone between 16EW06 and 16EW07 to replace those locations monitoring the performance of the mid-plume intermediate zone ISB treatment area.
- On the east side of Harrison Bayou, elevated concentrations of the COCs have been detected at 16WW57 and 16WW58. Additional wells on the east side of the bayou may be necessary to delineate the intermediate zone contaminant plumes based on the upcoming more detailed evaluation of the interaction between the bayou and groundwater in the shallow and intermediate zones that will take place in the Conceptual Site Model Update.
- The groundwater gradient near the southern end of the Bayou Biobarrier is flowing to the east-southeast, nearly parallel to the barrier instead of crossing it. It is likely that the barrier is not adequately treating the groundwater flowing to the east-southeast from the mid-plume treatment area, and it is suggested that a southward extension of the biobarrier be considered to treat this flow if concentrations remain elevated at 16WW48 and 16WW30.
- Implement contingency remedial actions for MNA wells with inadequate/limited evidence of biodegradation and/or increasing statistical trends (**Section 3.3**).
- Injection well 16IW09, located in the Landfill Biobarrier #1, is the current performance well and VOCs have not been detected above the MCLs since the well was installed in October 2018, except for TCE only in October 2020. Therefore, 16IW09 has not been an

effective well for determining contaminant trends within the barrier. Recovery well 16RW03 is also located within the barrier near 16IW09 but was only used to evaluate design effectiveness and has not been sampled for VOCs. It is recommended to sample 16RW03 for VOCs during the July 2024 RA-O sampling event to determine if COCs are present and if it would be an appropriate replacement well for 16IW09 in future RA-O sampling event events.

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Tables

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16EW01	SHALLOW	3/9/2020	198.43	198.32	30.89	35.89	38.89	39.20	25.15	173.17	None
		7/16/2020	198.43	198.32	30.89	35.89	38.89	39.30	23.60	174.72	None
		10/20/2020	198.43	198.32	30.89	35.89	38.89	39.45	24.30	174.02	None
		1/25/2021	198.43	198.32	30.89	35.89	38.89	39.09	23.23	175.09	None
		4/21/2021	198.43	198.32	30.89	35.89	38.89	39.45	23.00	175.32	None
		7/13/2021	198.43	198.32	30.89	35.89	38.89	38.80	22.52	175.80	None
		10/20/2021	198.43	198.32	30.89	35.89	38.89	39.20	23.83	174.49	None
		1/13/2022	198.43	198.32	30.89	35.89	38.89	39.20	24.00	174.32	None
		7/5/2022	198.43	198.32	30.89	35.89	38.89	34.85	24.22	174.10	20.8
		1/19/2023	198.43	198.32	30.89	35.89	38.89	39.00	25.08	173.24	None
16EW02	SHALLOW	3/9/2020	196.44	196.19	21.75	26.75	29.75	29.70	21.65	174.54	None
		7/16/2020	196.44	196.19	21.75	26.75	29.75	29.30	21.37	174.82	None
		10/21/2020	196.44	196.19	21.75	26.75	29.75	29.70	21.80	174.39	None
		1/26/2021	196.44	196.19	21.75	26.75	29.75	29.52	21.00	175.19	None
		4/19/2021	196.44	196.19	21.75	26.75	29.75	29.79	20.70	175.49	None
		7/26/2021	196.44	196.19	21.75	26.75	29.75	29.60	20.39	175.80	None
		10/20/2021	196.44	196.19	21.75	26.75	29.75	29.65	21.77	174.42	None
		1/12/2022	196.44	196.19	21.75	26.75	29.75	29.65	21.92	174.27	None
		6/29/2022	196.44	196.19	21.75	26.75	29.75	29.59	21.95	174.24	None
		1/19/2023	196.44	196.19	21.75	26.75	29.75	29.65	22.70	173.49	None
16EW03	SHALLOW	3/25/2020	186.17	185.70	12.53	17.53	20.53	19.30	5.78	179.92	None
		7/28/2020	186.17	185.70	12.53	17.53	20.53	18.25	11.50	174.20	None
		10/22/2020	186.17	185.70	12.53	17.53	20.53	19.30	11.95	173.75	None
		2/2/2021	186.17	185.70	12.53	17.53	20.53	19.50	10.80	174.90	None
		4/21/2021	186.17	185.70	12.53	17.53	20.53	19.30	10.03	175.67	None
		7/22/2021	186.17	185.70	12.53	17.53	20.53	19.50	10.39	175.31	None
		10/20/2021	186.17	185.70	12.53	17.53	20.53	19.50	11.82	173.88	None
		1/27/2022	186.17	185.70	12.53	17.53	20.53	19.40	12.00	173.70	None
		6/29/2022	186.17	185.70	12.53	17.53	20.53	19.55	12.59	173.11	None
		1/19/2023	186.17	185.70	12.53	17.53	20.53	19.40	12.35	173.35	None
16EW04	SHALLOW	3/9/2020	180.71	180.66	13.95	18.95	21.95	19.70	6.00	174.66	None
		7/28/2020	180.71	180.66	13.95	18.95	21.95	19.35	6.55	174.11	None
		10/20/2020	180.71	180.66	13.95	18.95	21.95	19.20	7.10	173.56	None
		2/2/2021	180.71	180.66	13.95	18.95	21.95	19.35	6.00	174.66	None
		4/19/2021	180.71	180.66	13.95	18.95	21.95	19.15	5.00	175.66	None
		7/26/2021	180.71	180.66	13.95	18.95	21.95	19.31	5.62	175.04	None
		10/20/2021	180.71	180.66	13.95	18.95	21.95	19.25	7.60	173.06	None
		1/12/2022	180.71	180.66	13.95	18.95	21.95	19.30	7.53	173.13	None
		6/23/2022	180.71	180.66	13.95	18.95	21.95	19.25	7.38	173.28	None
		1/21/2023	180.71	180.66	13.95	18.95	21.95	19.22	7.10	173.56	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16EW05	INTERMEDIATE	3/30/2020	198.57	198.00	46.43	51.43	54.43	51.35	4.88	193.12	1.6
		7/16/2020	198.57	198.00	46.43	51.43	54.43	53.88	2.75	195.25	None
		7/28/2021	198.57	198.00	46.43	51.43	54.43	NM	5.22	192.78	NA
		10/21/2021	198.57	198.00	46.43	51.43	54.43	50.85	1.20	196.80	11.6
		1/27/2022	198.57	198.00	46.43	51.43	54.43	52.03	1.10	196.90	None
16EW06	INTERMEDIATE	3/25/2020	196.34	196.06	49.72	54.72	57.72	55.60	18.30	177.76	None
		7/16/2020	196.34	196.06	49.72	54.72	57.72	56.55	19.21	176.85	None
		10/21/2020	196.34	196.06	49.72	54.72	57.72	56.52	22.20	173.86	None
		2/2/2021	196.34	196.06	49.72	54.72	57.72	56.47	19.00	177.06	None
		4/22/2021	196.34	196.06	49.72	54.72	57.72	53.81	16.63	179.43	18.2
		7/27/2021	196.34	196.06	49.72	54.72	57.72	53.64	18.55	177.51	21.6
		10/21/2021	196.34	196.06	49.72	54.72	57.72	53.97	21.17	174.89	15.0
		1/27/2022	196.34	196.06	49.72	54.72	57.72	54.59	20.30	175.76	2.6
16EW07	INTERMEDIATE	3/25/2020	185.41	185.41	41.00	46.00	49.00	46.38	9.10	176.31	None
		7/28/2020	185.41	185.41	41.00	46.00	49.00	45.37	10.10	175.31	12.6
		10/22/2020	185.41	185.41	41.00	46.00	49.00	45.35	10.60	174.81	13.0
		2/2/2021	185.41	185.41	41.00	46.00	49.00	45.30	9.27	176.14	14.0
		4/15/2021	185.41	185.41	41.00	46.00	49.00	45.27	9.03	176.38	14.6
		7/27/2021	185.41	185.41	41.00	46.00	49.00	45.18	8.91	176.50	16.4
		10/21/2021	185.41	185.41	41.00	46.00	49.00	45.62	8.43	176.98	7.6
		1/25/2022	185.41	185.41	41.00	46.00	49.00	45.78	18.33	167.08	4.4
16EW08	INTERMEDIATE	3/25/2020	179.81	179.57	33.76	38.76	41.76	39.62	4.00	175.57	None
		7/28/2020	179.81	179.57	33.76	38.76	41.76	37.95	6.12	173.45	16.2
		10/20/2020	179.81	179.57	33.76	38.76	41.76	38.65	6.90	172.67	2.2
		2/2/2021	179.81	179.57	33.76	38.76	41.76	37.25	4.75	174.82	30.2
		4/19/2021	179.81	179.57	33.76	38.76	41.76	36.95	3.78	175.79	36.2
		7/26/2021	179.81	179.57	33.76	38.76	41.76	36.53	3.45	176.12	44.6
		10/20/2021	179.81	179.57	33.76	38.76	41.76	37.82	9.48	170.09	18.8
		1/12/2022	179.81	179.57	33.76	38.76	41.76	38.10	9.00	170.57	13.2
		6/23/2022	179.81	179.57	33.76	38.76	41.76	37.27	5.30	174.27	29.8
		1/21/2023	179.81	179.57	33.76	38.76	41.76	38.55	2.00	177.57	4.2
16IW03	SHALLOW	3/25/2020	NA	NA	NA	NA	NA	20.39	14.45	NA	NA
		7/28/2020	NA	NA	NA	NA	NA	20.37	14.35	NA	NA
		10/13/2020	NA	NA	NA	NA	NA	20.35	14.88	NA	NA
		1/26/2021	NA	NA	NA	NA	NA	25.85	14.22	NA	NA
		4/20/2021	NA	NA	NA	NA	NA	21.32	13.90	NA	NA
		7/22/2021	NA	NA	NA	NA	NA	22.46	14.37	NA	NA
		10/21/2021	NA	NA	NA	NA	NA	25.90	14.70	NA	NA
		1/27/2022	NA	NA	NA	NA	NA	25.79	15.17	NA	NA
		6/29/2022	NA	NA	NA	NA	NA	25.00	15.00	NA	NA
16IW03	SHALLOW	1/23/2023	NA	NA	NA	NA	NA	25.07	15.85	NA	NA
16IW04	SHALLOW	3/10/2020	NA	NA	NA	NA	NA	28.35	16.05	NA	NA

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16IW09	SHALLOW	3/25/2020	178.08	181.41	11.33	21.33	21.58	22.25	4.88	176.53	None
		7/16/2020	178.08	181.41	11.33	21.33	21.58	21.38	7.10	174.31	None
		10/13/2020	178.08	181.41	11.33	21.33	21.58	22.28	10.15	171.26	None
		1/26/2021	178.08	181.41	11.33	21.33	21.58	22.28	3.90	177.51	None
		4/22/2021	178.08	181.41	11.33	21.33	21.58	22.33	5.35	176.06	None
		7/14/2021	178.08	181.41	11.33	21.33	21.58	22.35	7.52	173.89	None
		10/20/2021	178.08	181.41	11.33	21.33	21.58	22.45	12.72	168.69	None
		1/25/2022	178.08	181.41	11.33	21.33	21.58	22.38	12.23	169.18	None
		6/23/2022	178.08	181.41	11.33	21.33	21.58	22.25	10.70	170.71	None
		1/19/2023	178.08	181.41	11.33	21.33	21.58	22.27	6.75	174.66	None
16IW10	SHALLOW	3/25/2020	192.69	195.90	18.21	28.21	28.71	28.50	21.60	174.30	None
		7/14/2020	192.69	195.90	18.21	28.21	28.71	28.45	21.40	174.50	None
		10/13/2020	192.69	195.90	18.21	28.21	28.71	28.47	21.77	174.13	None
		1/26/2021	192.69	195.90	18.21	28.21	28.71	28.44	21.12	174.78	None
		4/21/2021	192.69	195.90	18.21	28.21	28.71	28.47	20.65	175.25	None
		7/22/2021	192.69	195.90	18.21	28.21	28.71	28.45	20.35	175.55	None
		10/20/2021	192.69	195.90	18.21	28.21	28.71	28.42	21.25	174.65	None
		1/25/2022	192.69	195.90	18.21	28.21	28.71	28.42	21.87	174.03	None
		6/23/2022	192.69	195.90	18.21	28.21	28.71	28.42	21.68	174.22	None
		1/23/2023	192.69	195.90	18.21	28.21	28.71	28.50	22.70	173.20	None
16IW20	SHALLOW	3/9/2020	186.03	188.94	14.91	24.91	25.41	25.48	16.07	172.87	None
		7/21/2020	186.03	188.94	14.91	24.91	25.41	25.35	16.38	172.56	None
		10/21/2020	186.03	188.94	14.91	24.91	25.41	25.47	17.17	171.77	None
		1/27/2021	186.03	188.94	14.91	24.91	25.41	25.46	15.78	173.16	None
		4/21/2021	186.03	188.94	14.91	24.91	25.41	25.47	15.63	173.31	None
		7/22/2021	186.03	188.94	14.91	24.91	25.41	25.33	15.83	173.11	None
		10/21/2021	186.03	188.94	14.91	24.91	25.41	25.45	17.22	171.72	None
		1/25/2022	186.03	188.94	14.91	24.91	25.41	25.45	17.37	171.57	None
		6/23/2022	186.03	188.94	14.91	24.91	25.41	25.38	17.48	171.46	None
		1/19/2023	186.03	188.94	14.91	24.91	25.41	25.45	17.08	171.86	None
16IW26	INTERMEDIATE	6/29/2022	195.66	198.97	42.81	52.81	53.31	48.80	25.92	173.05	40.1
		1/23/2023	195.66	198.97	42.81	52.81	53.31	51.43	27.05	171.92	13.8
16PM02	SHALLOW	3/17/2020	188	191.10	18.10	28.10	31.10	28.42	16.20	174.90	None
		7/20/2020	188	191.10	18.10	28.10	31.10	28.40	16.22	174.88	None
		10/26/2020	188	191.10	18.10	28.10	31.10	28.40	16.65	174.45	None
		1/22/2021	188	191.10	18.10	28.10	31.10	28.39	15.54	175.56	None
		4/14/2021	188	191.10	18.10	28.10	31.10	28.40	15.71	175.39	None
		7/13/2021	188	191.10	18.10	28.10	31.10	28.40	14.83	176.27	None
		10/25/2021	188	191.10	18.10	28.10	31.10	28.38	16.00	175.10	None
		1/24/2022	188	191.10	18.10	28.10	31.10	28.39	16.11	174.99	None
		6/16/2022	188	191.10	18.10	28.10	31.10	28.42	15.83	175.27	None
		1/21/2023	188	191.10	18.10	28.10	31.10	28.31	16.98	174.12	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16PM03	SHALLOW	3/17/2020	187.5	190.40	17.90	27.40	27.90	28.48	16.20	174.20	None
		7/20/2020	187.5	190.40	17.90	27.40	27.90	28.48	15.05	175.35	None
		10/26/2020	187.5	190.40	17.90	27.40	27.90	28.45	15.95	174.45	None
		1/22/2021	187.5	190.40	17.90	27.40	27.90	28.41	15.00	175.40	None
		4/14/2021	187.5	190.40	17.90	27.40	27.90	28.40	15.03	175.37	None
		7/13/2021	187.5	190.40	17.90	27.40	27.90	28.42	14.05	176.35	None
		10/25/2021	187.5	190.40	17.90	27.40	27.90	28.41	15.35	175.05	None
		1/24/2022	187.5	190.40	17.90	27.40	27.90	28.43	15.55	174.85	None
		6/16/2022	187.5	190.40	17.90	27.40	27.90	28.42	15.35	175.05	None
16PM06	SHALLOW	3/10/2020	186.4	189.60	18.20	28.20	31.20	27.50	15.73	173.87	7.0
		7/20/2020	186.4	189.60	18.20	28.20	31.20	27.40	15.05	174.55	8.0
		10/26/2020	186.4	189.60	18.20	28.20	31.20	27.85	15.55	174.05	3.5
		2/2/2021	186.4	189.60	18.20	28.20	31.20	27.60	14.95	174.65	6.0
		4/13/2021	186.4	189.60	18.20	28.20	31.20	27.47	14.28	175.32	7.3
		7/13/2021	186.4	189.60	18.20	28.20	31.20	27.45	14.08	175.52	7.5
		10/26/2021	186.4	189.60	18.20	28.20	31.20	27.52	14.55	175.05	6.8
		1/24/2022	186.4	189.60	18.20	28.20	31.20	27.57	14.90	174.70	6.3
		6/27/2022	186.4	189.60	18.20	28.20	31.20	27.56	14.75	174.85	6.4
		1/21/2023	186.4	189.60	18.20	28.20	31.20	27.53	15.62	173.98	6.7
16PM09	SHALLOW	3/10/2020	185.5	188.30	16.80	26.80	27.80	27.18	13.92	174.38	None
		7/20/2020	185.5	188.30	16.80	26.80	27.80	27.20	13.38	174.92	None
		10/26/2020	185.5	188.30	16.80	26.80	27.80	27.10	14.05	174.25	None
		1/22/2021	185.5	188.30	16.80	26.80	27.80	26.97	12.73	175.57	None
		4/13/2021	185.5	188.30	16.80	26.80	27.80	27.11	13.27	175.03	None
		7/22/2021	185.5	188.30	16.80	26.80	27.80	27.10	12.72	175.58	None
		10/26/2021	185.5	188.30	16.80	26.80	27.80	27.12	13.20	175.10	None
		1/24/2022	185.5	188.30	16.80	26.80	27.80	27.08	13.37	174.93	None
		6/27/2022	185.5	188.30	16.80	26.80	27.80	27.08	13.42	174.88	None
		1/21/2023	185.5	188.30	16.80	26.80	27.80	27.04	14.12	174.18	None
16PM14	SHALLOW	3/10/2020	188.2	191.20	18.00	28.00	31.00	28.20	17.20	174.00	None
		7/20/2020	188.2	191.20	18.00	28.00	31.00	28.20	16.42	174.78	None
		10/26/2020	188.2	191.20	18.00	28.00	31.00	28.22	17.10	174.10	None
		2/2/2021	188.2	191.20	18.00	28.00	31.00	28.20	16.56	174.64	None
		4/13/2021	188.2	191.20	18.00	28.00	31.00	28.22	16.17	175.03	None
		7/22/2021	188.2	191.20	18.00	28.00	31.00	28.00	15.18	176.02	None
		10/26/2021	188.2	191.20	18.00	28.00	31.00	28.20	16.20	175.00	None
		1/24/2022	188.2	191.20	18.00	28.00	31.00	28.19	16.45	174.75	None
		6/27/2022	188.2	191.20	18.00	28.00	31.00	28.19	16.50	174.70	None
		1/21/2023	188.2	191.20	18.00	28.00	31.00	28.15	17.39	173.81	None
16RW01	SHALLOW	3/12/2020	186.56	189.77	18.21	28.21	28.51	28.21	16.03	173.74	None
		7/27/2020	186.56	189.77	18.21	28.21	28.51	28.38	16.18	173.59	None
		10/20/2020	186.56	189.77	18.21	28.21	28.51	28.21	16.85	172.92	None
		1/22/2021	186.56	189.77	18.21	28.21	28.51	28.37	15.76	174.01	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16RW01 (cont.)	SHALLOW	4/14/2021	186.56	189.77	18.21	28.21	28.51	28.21	15.32	174.45	None
		7/26/2021	186.56	189.77	18.21	28.21	28.51	28.38	15.04	174.73	None
		10/26/2021	186.56	189.77	18.21	28.21	28.51	28.18	16.92	172.85	0.3
		1/24/2022	186.56	189.77	18.21	28.21	28.51	28.37	17.00	172.77	None
		6/16/2022	186.56	189.77	18.21	28.21	28.51	28.35	17.02	172.75	None
		1/23/2023	186.56	189.77	18.21	28.21	28.51	28.33	17.64	172.13	None
16RW02	SHALLOW	3/12/2020	179.94	182.97	11.03	21.03	21.03	21.50	6.31	176.66	None
		7/21/2020	179.94	182.97	11.03	21.03	21.03	21.50	9.20	173.77	None
		10/22/2020	179.94	182.97	11.03	21.03	21.03	21.50	11.82	171.15	None
		1/22/2021	179.94	182.97	11.03	21.03	21.03	21.48	4.63	178.34	None
		4/14/2021	179.94	182.97	11.03	21.03	21.03	21.50	6.20	176.77	None
16RW02	SHALLOW	7/26/2021	179.94	182.97	11.03	21.03	21.03	21.52	8.95	174.02	None
		10/13/2021	179.94	182.97	11.03	21.03	21.03	21.49	13.00	169.97	None
		1/24/2022	179.94	182.97	11.03	21.03	21.03	21.47	13.16	169.81	None
16RW03	SHALLOW	3/9/2020	178.32	181.66	13.34	23.34	23.34	23.08	4.77	176.89	2.6
16RW04	SHALLOW	3/9/2020	188.04	190.94	16.90	26.90	27.20	27.65	17.50	173.44	None
		7/28/2020	188.04	190.94	16.90	26.90	27.20	27.63	17.42	173.52	None
		10/21/2020	188.04	190.94	16.90	26.90	27.20	27.62	18.32	172.62	None
		1/28/2021	188.04	190.94	16.90	26.90	27.20	27.62	17.03	173.91	None
		4/14/2021	188.04	190.94	16.90	26.90	27.20	27.62	16.33	174.61	None
		7/26/2021	188.04	190.94	16.90	26.90	27.20	27.63	16.59	174.35	None
		10/20/2021	188.04	190.94	16.90	26.90	27.20	27.62	18.62	172.32	None
		1/24/2022	188.04	190.94	16.90	26.90	27.20	27.62	18.35	172.59	None
		7/5/2022	188.04	190.94	16.90	26.90	27.20	27.61	18.77	172.17	None
		1/19/2023	188.04	190.94	16.90	26.90	27.20	27.60	19.32	171.62	None
16RW05	SHALLOW	3/12/2020	177.61	180.70	13.09	23.09	23.09	23.40	4.79	175.91	None
		7/16/2020	177.61	180.70	13.09	23.09	23.09	23.22	6.18	174.52	None
		10/22/2020	177.61	180.70	13.09	23.09	23.09	23.40	10.05	170.65	None
		1/28/2021	177.61	180.70	13.09	23.09	23.09	23.37	4.57	176.13	None
		4/19/2021	177.61	180.70	13.09	23.09	23.09	23.38	4.32	176.38	None
		7/14/2021	177.61	180.70	13.09	23.09	23.09	23.38	7.52	173.18	None
		10/18/2021	177.61	180.70	13.09	23.09	23.09	23.37	13.66	167.04	None
		1/24/2022	177.61	180.70	13.09	23.09	23.09	23.38	12.05	168.65	None
		6/27/2022	177.61	180.70	13.09	23.09	23.09	23.35	11.12	169.58	None
		1/23/2023	177.61	180.70	13.09	23.09	23.09	23.32	9.64	171.06	None
16RW06	SHALLOW	3/17/2020	194.35	197.37	18.52	28.52	29.02	29.25	23.30	174.07	None
		7/14/2020	194.35	197.37	18.52	28.52	29.02	29.25	22.72	174.65	None
		10/26/2020	194.35	197.37	18.52	28.52	29.02	23.95	23.15	174.22	45.7
		1/22/2021	194.35	197.37	18.52	28.52	29.02	29.23	22.65	174.72	None
		4/19/2021	194.35	197.37	18.52	28.52	29.02	29.24	22.10	175.27	None
		7/27/2021	194.35	197.37	18.52	28.52	29.02	29.25	21.73	175.64	None
		10/25/2021	194.35	197.37	18.52	28.52	29.02	29.23	23.93	173.44	None
		1/25/2022	194.35	197.37	18.52	28.52	29.02	28.25	23.28	174.09	2.7

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16RW06 (cont.)	SHALLOW	6/16/2022	194.35	197.37	18.52	28.52	29.02	29.23	22.75	174.62	None
		1/19/2023	194.35	197.37	18.52	28.52	29.02	29.21	24.28	173.09	None
16RW07	SHALLOW	3/17/2020	192.20	195.48	18.28	28.28	28.78	28.41	21.15	174.33	None
		7/14/2020	192.20	195.48	18.28	28.28	28.78	28.45	19.68	175.80	None
		10/26/2020	192.20	195.48	18.28	28.28	28.78	28.42	21.12	174.36	None
		1/22/2021	192.20	195.48	18.28	28.28	28.78	28.77	20.58	174.90	None
		4/19/2021	192.20	195.48	18.28	28.28	28.78	28.20	20.05	175.43	0.8
		7/27/2021	192.20	195.48	18.28	28.28	28.78	28.47	19.75	175.73	None
		10/28/2021	192.20	195.48	18.28	28.28	28.78	28.45	20.90	174.58	None
		1/25/2022	192.20	195.48	18.28	28.28	28.78	28.43	21.25	174.23	None
		6/16/2022	192.20	195.48	18.28	28.28	28.78	28.77	21.00	174.48	None
		1/19/2023	192.20	195.48	18.28	28.28	28.78	28.73	22.19	173.29	None
16RW08	SHALLOW	3/11/2020	193.62	196.37	19.25	29.25	29.75	30.45	22.22	174.15	None
16RW09	SHALLOW	3/11/2020	195.14	197.81	19.67	29.67	30.17	30.65	24.93	172.88	None
		7/14/2020	195.14	197.81	19.67	29.67	30.17	30.62	23.37	174.44	None
		10/26/2020	195.14	197.81	19.67	29.67	30.17	30.62	24.00	173.81	None
		2/2/2021	195.14	197.81	19.67	29.67	30.17	30.63	23.33	174.48	None
		4/20/2021	195.14	197.81	19.67	29.67	30.17	30.63	22.68	175.13	None
		7/27/2021	195.14	197.81	19.67	29.67	30.17	30.47	22.47	175.34	None
		10/26/2021	195.14	197.81	19.67	29.67	30.17	30.63	23.65	174.16	None
		1/26/2022	195.14	197.81	19.67	29.67	30.17	30.63	24.10	173.71	None
		7/5/2022	195.14	197.81	19.67	29.67	30.17	30.63	24.10	173.71	None
		1/25/2023	195.14	197.81	19.67	29.67	30.17	30.63	24.89	172.92	None
16RW10	SHALLOW	3/11/2020	192.27	195.25	17.98	27.98	28.48	28.22	14.83	180.42	None
		7/20/2020	192.27	195.25	17.98	27.98	28.48	28.20	20.62	174.63	None
		10/26/2020	192.27	195.25	17.98	27.98	28.48	28.20	22.23	173.02	None
		2/2/2021	192.27	195.25	17.98	27.98	28.48	28.20	20.65	174.60	None
		4/20/2021	192.27	195.25	17.98	27.98	28.48	28.18	20.09	175.16	None
		7/27/2021	192.27	195.25	17.98	27.98	28.48	28.20	19.86	175.39	None
		10/26/2021	192.27	195.25	17.98	27.98	28.48	28.17	20.94	174.31	None
		1/26/2022	192.27	195.25	17.98	27.98	28.48	28.18	21.80	173.45	None
		7/5/2022	192.27	195.25	17.98	27.98	28.48	28.28	21.38	173.87	None
		1/25/2023	192.27	195.25	17.98	27.98	28.48	28.15	22.17	173.08	None
16RW11	SHALLOW	3/17/2020	187.46	189.95	14.49	24.49	24.99	25.61	17.23	172.72	None
		7/21/2020	187.46	189.95	14.49	24.49	24.99	25.65	17.30	172.65	None
		10/21/2020	187.46	189.95	14.49	24.49	24.99	25.27	17.91	172.04	None
		2/3/2021	187.46	189.95	14.49	24.49	24.99	25.28	16.93	173.02	None
		4/21/2021	187.46	189.95	14.49	24.49	24.99	25.62	16.47	173.48	None
		7/22/2021	187.46	189.95	14.49	24.49	24.99	25.25	16.57	173.38	None
		10/21/2021	187.46	189.95	14.49	24.49	24.99	25.28	18.26	171.69	None
		1/26/2022	187.46	189.95	14.49	24.49	24.99	25.60	18.31	171.64	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16RW12	SHALLOW	3/10/2020	193.23	196.22	21.49	31.49	31.99	32.20	23.20	173.02	None
		3/11/2020	186.17	188.81	16.64	26.64	26.64	27.00	15.78	173.03	None
		7/21/2020	186.17	188.81	16.64	26.64	26.64	26.98	16.15	172.66	None
		10/21/2020	186.17	188.81	16.64	26.64	26.64	26.97	16.77	172.04	None
		2/3/2021	186.17	188.81	16.64	26.64	26.64	27.00	15.69	173.12	None
		4/21/2021	186.17	188.81	16.64	26.64	26.64	27.00	15.05	173.76	None
		7/28/2021	186.17	188.81	16.64	26.64	26.64	27.00	15.65	173.16	None
		10/21/2021	186.17	188.81	16.64	26.64	26.64	27.01	17.00	171.81	None
		1/26/2022	186.17	188.81	16.64	26.64	26.64	27.00	17.08	171.73	None
		6/16/2022	193.23	196.22	21.49	31.49	31.99	37.57	23.80	172.42	None
		1/20/2023	193.23	196.22	21.49	31.49	31.99	32.58	24.34	171.88	None
16WW06	INTERMEDIATE	7/6/2022	202.72	205.03	49.31	61.31	61.31	62.38	28.28	176.75	None
16WW12	SHALLOW	7/5/2022	186.17	188.81	16.64	26.64	26.64	27.00	17.40	171.41	None
		1/25/2023	186.17	188.81	16.64	26.64	26.64	26.97	16.63	172.18	None
16WW13	INTERMEDIATE	3/12/2020	175.74	178.47	16.73	26.73	26.73	22.90	3.67	174.80	38.3
		7/23/2020	175.74	178.47	16.73	26.73	26.73	22.90	5.70	172.77	38.3
		10/22/2020	175.74	178.47	16.73	26.73	26.73	25.90	7.00	171.47	8.3
		1/22/2021	175.74	178.47	16.73	26.73	26.73	22.87	2.86	175.61	38.6
		4/19/2021	175.74	178.47	16.73	26.73	26.73	24.85	3.03	175.44	18.8
		7/26/2021	175.74	178.47	16.73	26.73	26.73	24.90	5.10	173.37	18.3
		10/26/2021	175.74	178.47	16.73	26.73	26.73	23.90	8.92	169.55	28.3
		1/27/2022	175.74	178.47	16.73	26.73	26.73	24.88	8.03	170.44	18.5
		7/5/2022	175.74	178.47	16.73	26.73	26.73	23.00	8.43	170.04	37.3
		1/21/2023	175.74	178.47	16.73	26.73	26.73	24.90	4.42	174.05	18.3
16WW14	SHALLOW	3/24/2020	195.24	198.87	20.63	30.63	32.63	30.47	24.42	174.45	1.6
		7/20/2020	195.24	198.87	20.63	30.63	32.63	30.25	23.78	175.09	3.8
		10/19/2020	195.24	198.87	20.63	30.63	32.63	30.25	24.05	174.82	3.8
		1/22/2021	195.24	198.87	20.63	30.63	32.63	29.23	23.71	175.16	14.0
		4/12/2021	195.24	198.87	20.63	30.63	32.63	30.25	23.23	175.64	3.8
		7/12/2021	195.24	198.87	20.63	30.63	32.63	30.25	22.72	176.15	3.8
		10/25/2021	195.24	198.87	20.63	30.63	32.63	30.25	23.96	174.91	3.8
		1/10/2022	195.24	198.87	20.63	30.63	32.63	30.23	24.44	174.43	4.0
		6/20/2022	195.24	198.87	20.63	30.63	32.63	30.25	24.15	174.72	3.8
16WW15	LOWER DEEP	7/6/2022	195.74	198.75	300.01	310.01	310.01	310.44	23.75	175.00	None
16WW16	SHALLOW	3/11/2020	193.02	195.64	21.62	31.62	31.62	31.54	20.78	174.86	0.8
		7/14/2020	193.02	195.64	21.62	31.62	31.62	31.55	20.40	175.24	0.7
		10/8/2020	193.02	195.64	21.62	31.62	31.62	31.55	20.68	174.96	0.7
		1/20/2021	193.02	195.64	21.62	31.62	31.62	31.52	20.47	175.17	1.0
		4/15/2021	193.02	195.64	21.62	31.62	31.62	31.55	19.90	175.74	0.7
		7/20/2021	193.02	195.64	21.62	31.62	31.62	31.60	19.39	176.25	0.2
		10/13/2021	193.02	195.64	21.62	31.62	31.62	31.54	20.38	175.26	0.8
		1/11/2022	193.02	195.64	21.62	31.62	31.62	31.57	20.92	174.72	0.5
		6/30/2022	193.02	195.64	21.62	31.62	31.62	31.55	19.72	175.92	0.7
		1/19/2023	193.02	195.64	21.62	31.62	31.62	31.56	21.78	173.86	0.6

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW17	LOWER DEEP	7/6/2022	195.21	197.98	217.77	227.77	227.77	228.04	23.12	174.86	None
16WW18	LOWER DEEP	7/6/2022	180.91	185.41	276.50	286.50	287.50	285.35	10.28	175.13	11.5
16WW19	UPPER DEEP	7/6/2022	178.92	182.21	88.29	98.29	98.29	98.30	9.05	173.16	None
16WW20	UPPER DEEP	6/20/2022	195.95	199.17	103.22	113.22	113.22	113.71	24.08	175.09	None
16WW21	UPPER DEEP	3/16/2020	194.85	198.06	93.21	103.21	103.21	103.21	23.92	174.14	0.0
		7/15/2020	194.85	198.06	93.21	103.21	103.21	103.52	23.62	174.44	None
		10/14/2020	194.85	198.06	93.21	103.21	103.21	103.52	24.35	173.71	None
		2/3/2021	194.85	198.06	93.21	103.21	103.21	103.52	23.51	174.55	None
		4/15/2021	194.85	198.06	93.21	103.21	103.21	103.51	22.85	175.21	None
		7/20/2021	194.85	198.06	93.21	103.21	103.21	103.15	22.76	175.30	0.6
		10/19/2021	194.85	198.06	93.21	103.21	103.21	103.33	24.16	173.90	None
		1/13/2022	194.85	198.06	93.21	103.21	103.21	103.25	24.70	173.36	None
		7/6/2022	194.85	198.06	93.21	103.21	103.21	103.45	24.55	173.51	None
16WW22	SHALLOW	3/16/2020	197.19	200.13	23.94	33.94	33.94	34.30	26.50	173.63	None
		7/15/2020	197.19	200.13	23.94	33.94	33.94	34.30	25.90	174.23	None
		10/14/2020	197.19	200.13	23.94	33.94	33.94	34.30	26.65	173.48	None
		1/25/2021	197.19	200.13	23.94	33.94	33.94	34.28	25.94	174.19	None
		4/15/2021	197.19	200.13	23.94	33.94	33.94	34.30	25.51	174.62	None
		7/20/2021	197.19	200.13	23.94	33.94	33.94	34.30	25.40	174.73	None
		10/19/2021	197.19	200.13	23.94	33.94	33.94	34.30	26.63	173.50	None
		1/11/2022	197.19	200.13	23.94	33.94	33.94	34.32	27.00	173.13	None
		6/29/2022	197.19	200.13	23.94	33.94	33.94	34.30	27.02	173.11	None
		1/20/2023	197.19	200.13	23.94	33.94	33.94	34.31	27.71	172.42	None
16WW23	INTERMEDIATE	3/31/2020	174.78	177.98	27.20	37.20	37.20	39.17	3.95	174.03	None
		7/27/2020	174.78	177.98	27.20	37.20	37.20	37.17	35.58	142.40	0.3
		10/8/2020	174.78	177.98	27.20	37.20	37.20	37.15	6.45	171.53	0.5
		1/28/2021	174.78	177.98	27.20	37.20	37.20	37.15	4.10	173.88	0.5
		4/22/2021	174.78	177.98	27.20	37.20	37.20	37.17	3.92	174.06	0.3
		7/14/2021	174.78	177.98	27.20	37.20	37.20	37.15	5.29	172.69	0.5
		10/13/2021	174.78	177.98	27.20	37.20	37.20	37.63	7.63	170.35	None
		1/27/2022	174.78	177.98	27.20	37.20	37.20	37.15	7.16	170.82	0.5
		6/27/2022	174.78	177.98	27.20	37.20	37.20	37.15	7.13	170.85	0.5
		1/21/2023	174.78	177.98	27.20	37.20	37.20	37.13	5.66	172.32	0.7
16WW24	SHALLOW	3/31/2020	174.66	177.95	14.29	19.29	19.29	19.20	3.28	174.67	1.8
		7/27/2020	174.66	177.95	14.29	19.29	19.29	19.25	6.00	171.95	0.8
		10/8/2020	174.66	177.95	14.29	19.29	19.29	19.33	7.22	170.73	None
		1/28/2021	174.66	177.95	14.29	19.29	19.29	19.23	3.52	174.43	1.2
		4/22/2021	174.66	177.95	14.29	19.29	19.29	19.23	3.58	174.37	1.2
		7/14/2021	174.66	177.95	14.29	19.29	19.29	19.25	6.27	171.68	0.8
		10/13/2021	174.66	177.95	14.29	19.29	19.29	19.23	9.79	168.16	1.2
		1/27/2022	174.66	177.95	14.29	19.29	19.29	19.23	9.25	168.70	1.2
		6/27/2022	174.66	177.95	14.29	19.29	19.29	19.21	8.82	169.13	1.6
		1/21/2023	174.66	177.95	14.29	19.29	19.29	19.22	3.85	174.10	1.4

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW25	INTERMEDIATE	3/16/2020	185.52	188.77	42.25	52.25	52.25	52.50	15.20	173.57	None
		7/21/2020	185.52	188.77	42.25	52.25	52.25	52.52	16.75	172.02	None
		10/14/2020	185.52	188.77	42.25	52.25	52.25	52.52	16.38	172.39	None
		1/21/2021	185.52	188.77	42.25	52.25	52.25	52.51	14.50	174.27	None
		4/20/2021	185.52	188.77	42.25	52.25	52.25	52.52	14.36	174.41	None
		7/13/2021	185.52	188.77	42.25	52.25	52.25	52.52	15.45	173.32	None
		10/14/2021	185.52	188.77	42.25	52.25	52.25	52.52	17.75	171.02	None
		1/12/2022	185.52	188.77	42.25	52.25	52.25	52.55	17.44	171.33	None
		6/30/2022	185.52	188.77	42.25	52.25	52.25	52.50	17.37	171.40	None
		1/23/2023	185.52	188.77	42.25	52.25	52.25	52.31	16.04	172.73	None
16WW26	SHALLOW	3/9/2020	185.36	188.83	15.97	20.97	20.97	21.85	14.84	173.99	None
		7/21/2020	185.36	188.83	15.97	20.97	20.97	21.80	14.90	173.93	None
		10/14/2020	185.36	188.83	15.97	20.97	20.97	21.80	15.92	172.91	None
		1/21/2021	185.36	188.83	15.97	20.97	20.97	21.78	14.58	174.25	None
		4/20/2021	185.36	188.83	15.97	20.97	20.97	21.79	13.05	175.78	None
		7/13/2021	185.36	188.83	15.97	20.97	20.97	21.80	14.12	174.71	None
		10/14/2021	185.36	188.83	15.97	20.97	20.97	21.80	16.17	172.66	None
		1/12/2022	185.36	188.83	15.97	20.97	20.97	21.80	16.03	172.80	None
		6/30/2022	185.36	188.83	15.97	20.97	20.97	21.80	16.30	172.53	None
		1/23/2023	185.36	188.83	15.97	20.97	20.97	21.78	16.71	172.12	None
16WW27	INTERMEDIATE	3/12/2020	174.21	177.31	29.10	39.10	39.10	39.31	4.30	173.01	None
		7/23/2020	174.21	177.31	29.10	39.10	39.10	39.32	5.31	172.00	None
		10/22/2020	174.21	177.31	29.10	39.10	39.10	39.35	6.55	170.76	None
		1/28/2021	174.21	177.31	29.10	39.10	39.10	39.29	4.00	173.31	None
		4/22/2021	174.21	177.31	29.10	39.10	39.10	39.30	3.98	173.33	None
		7/28/2021	174.21	177.31	29.10	39.10	39.10	39.30	4.86	172.45	None
		10/18/2021	174.21	177.31	29.10	39.10	39.10	39.32	7.72	169.59	None
		1/25/2022	174.21	177.31	29.10	39.10	39.10	39.32	7.10	170.21	None
		6/27/2022	174.21	177.31	29.10	39.10	39.10	39.30	7.18	170.13	None
		1/21/2023	174.21	177.31	29.10	39.10	39.10	39.32	5.48	171.83	None
16WW28	INTERMEDIATE	6/27/2022	174.06	176.97	18.91	23.91	23.91	23.66	8.10	168.87	5.0
16WW29	INTERMEDIATE	3/30/2020	175.16	178.24	40.08	45.08	45.08	45.00	4.53	173.71	1.6
		7/15/2020	175.16	178.24	40.08	45.08	45.08	45.00	5.19	173.05	1.6
		10/14/2020	175.16	178.24	40.08	45.08	45.08	45.00	6.27	171.97	1.6
		1/21/2021	175.16	178.24	40.08	45.08	45.08	44.98	4.34	173.90	2.0
		4/20/2021	175.16	178.24	40.08	45.08	45.08	45.00	4.20	174.04	1.6
		7/20/2021	175.16	178.24	40.08	45.08	45.08	45.00	4.65	173.59	1.6
		10/14/2021	175.16	178.24	40.08	45.08	45.08	45.02	7.40	170.84	1.2
		1/12/2022	175.16	178.24	40.08	45.08	45.08	45.00	7.11	171.13	1.6
		6/30/2022	175.16	178.24	40.08	45.08	45.08	44.97	7.29	170.95	2.2
		1/23/2023	175.16	178.24	40.08	45.08	45.08	44.93	5.92	172.32	3.0

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW30	SHALLOW	3/30/2020	175.33	178.47	28.14	33.14	33.14	33.00	4.75	173.72	2.8
		7/15/2020	175.33	178.47	28.14	33.14	33.14	33.00	5.41	173.06	2.8
		10/14/2020	175.33	178.47	28.14	33.14	33.14	33.00	6.77	171.70	2.8
		1/21/2021	175.33	178.47	28.14	33.14	33.14	32.98	4.58	173.89	3.2
		4/20/2021	175.33	178.47	28.14	33.14	33.14	33.00	4.52	173.95	2.8
		7/20/2021	175.33	178.47	28.14	33.14	33.14	33.00	4.88	173.59	2.8
		10/14/2021	175.33	178.47	28.14	33.14	33.14	33.02	7.77	170.70	2.4
		1/12/2022	175.33	178.47	28.14	33.14	33.14	33.02	7.55	170.92	2.4
		6/30/2022	175.33	178.47	28.14	33.14	33.14	33.00	7.77	170.70	2.8
		1/23/2023	175.33	178.47	28.14	33.14	33.14	32.98	6.12	172.35	3.2
16WW31	INTERMEDIATE	3/12/2020	200.00	202.78	41.78	51.78	51.78	51.82	28.63	174.15	None
		7/27/2020	200.00	202.78	41.78	51.78	51.78	51.80	28.38	174.40	None
		10/19/2020	200.00	202.78	41.78	51.78	51.78	51.80	29.00	173.78	None
		1/19/2021	200.00	202.78	41.78	51.78	51.78	51.81	28.46	174.32	None
		4/12/2021	200.00	202.78	41.78	51.78	51.78	51.81	27.75	175.03	None
		7/12/2021	200.00	202.78	41.78	51.78	51.78	51.80	27.40	175.38	None
		10/18/2021	200.00	202.78	41.78	51.78	51.78	51.90	28.65	174.13	None
		1/11/2022	200.00	202.78	41.78	51.78	51.78	51.82	29.22	173.56	None
		6/20/2022	200.00	202.78	41.78	51.78	51.78	51.88	29.02	173.76	None
		1/25/2023	200.00	202.78	41.78	51.78	51.78	51.81	30.19	172.59	None
16WW32	SHALLOW	3/12/2020	199.85	202.86	25.01	35.01	35.01	35.00	28.65	174.21	0.1
		7/27/2020	199.85	202.86	25.01	35.01	35.01	35.00	23.38	179.48	0.1
		10/19/2020	199.85	202.86	25.01	35.01	35.01	35.01	29.02	173.84	0.0
		1/19/2021	199.85	202.86	25.01	35.01	35.01	34.98	28.58	174.28	0.3
		4/12/2021	199.85	202.86	25.01	35.01	35.01	35.01	27.81	175.05	0.0
		7/12/2021	199.85	202.86	25.01	35.01	35.01	35.00	27.43	175.43	0.1
		10/18/2021	199.85	202.86	25.01	35.01	35.01	35.00	28.44	174.42	0.1
		1/10/2022	199.85	202.86	25.01	35.01	35.01	35.01	29.29	173.57	0.0
		6/20/2022	199.85	202.86	25.01	35.01	35.01	35.00	29.09	173.77	0.1
		1/25/2023	199.85	202.86	25.01	35.01	35.01	35.02	30.24	172.62	None
16WW33	INTERMEDIATE	3/12/2020	199.92	203.09	42.17	52.17	52.17	52.00	28.81	174.28	1.7
		7/23/2020	199.92	203.09	42.17	52.17	52.17	52.00	28.27	174.82	1.7
		10/19/2020	199.92	203.09	42.17	52.17	52.17	51.95	28.95	174.14	2.2
		2/3/2021	199.92	203.09	42.17	52.17	52.17	52.00	28.25	174.84	1.7
		4/12/2021	199.92	203.09	42.17	52.17	52.17	51.97	27.85	175.24	2.0
		7/12/2021	199.92	203.09	42.17	52.17	52.17	51.98	27.42	175.67	1.9
		10/18/2021	199.92	203.09	42.17	52.17	52.17	51.96	28.50	174.59	2.1
		1/10/2022	199.92	203.09	42.17	52.17	52.17	52.02	29.05	174.04	1.5
		6/20/2022	199.92	203.09	42.17	52.17	52.17	51.92	28.89	174.20	2.5
		1/25/2023	199.92	203.09	42.17	52.17	52.17	51.98	30.09	173.00	1.9

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW34	SHALLOW	3/12/2020	200.27	203.08	29.81	34.81	34.81	34.90	28.72	174.36	None
		7/23/2020	200.27	203.08	29.81	34.81	34.81	34.95	28.18	174.90	None
		10/19/2020	200.27	203.08	29.81	34.81	34.81	34.89	28.80	174.28	None
		2/3/2021	200.27	203.08	29.81	34.81	34.81	34.88	28.25	174.83	None
		4/12/2021	200.27	203.08	29.81	34.81	34.81	34.86	27.80	175.28	None
		7/12/2021	200.27	203.08	29.81	34.81	34.81	34.89	27.22	175.86	None
		10/18/2021	200.27	203.08	29.81	34.81	34.81	34.95	28.45	174.63	None
		1/10/2022	200.27	203.08	29.81	34.81	34.81	34.90	29.03	174.05	None
		6/20/2022	200.27	203.08	29.81	34.81	34.81	34.86	28.81	174.27	None
		1/25/2023	200.27	203.08	29.81	34.81	34.81	34.81	30.03	173.05	0.0
16WW35	INTERMEDIATE	3/11/2020	188.15	191.23	36.58	46.58	46.58	46.55	16.85	174.38	0.3
		7/14/2020	188.15	191.23	36.58	46.58	46.58	46.55	16.55	174.68	0.3
		10/13/2020	188.15	191.23	36.58	46.58	46.58	46.55	16.95	174.28	0.3
		1/20/2021	188.15	191.23	36.58	46.58	46.58	46.53	16.53	174.70	0.5
		4/13/2021	188.15	191.23	36.58	46.58	46.58	46.54	16.00	175.23	0.4
		7/14/2021	188.15	191.23	36.58	46.58	46.58	46.55	15.59	175.64	0.3
		10/13/2021	188.15	191.23	36.58	46.58	46.58	46.55	16.55	174.68	0.3
		1/11/2022	188.15	191.23	36.58	46.58	46.58	46.55	17.05	174.18	0.3
		6/30/2022	188.15	191.23	36.58	46.58	46.58	46.55	17.05	174.18	0.3
		1/19/2023	188.15	191.23	36.58	46.58	46.58	46.49	17.94	173.29	0.9
16WW36	SHALLOW	3/11/2020	187.95	190.94	19.49	24.49	24.49	24.78	16.40	174.54	None
		7/14/2020	187.95	190.94	19.49	24.49	24.49	24.85	16.68	174.26	None
		10/13/2020	187.95	190.94	19.49	24.49	24.49	25.90	16.25	174.69	None
		1/20/2021	187.95	190.94	19.49	24.49	24.49	24.85	16.02	174.92	None
		4/13/2021	187.95	190.94	19.49	24.49	24.49	24.86	15.45	175.49	None
		7/14/2021	187.95	190.94	19.49	24.49	24.49	24.87	15.04	175.90	None
		10/13/2021	187.95	190.94	19.49	24.49	24.49	24.87	16.07	174.87	None
		1/11/2022	187.95	190.94	19.49	24.49	24.49	24.87	16.53	174.41	None
		6/30/2022	187.95	190.94	19.49	24.49	24.49	24.88	16.54	174.40	None
		1/25/2023	187.95	190.94	19.49	24.49	24.49	24.88	17.33	173.61	None
16WW37	INTERMEDIATE	3/17/2020	198.75	201.97	43.72	48.72	48.72	47.93	26.93	175.04	15.8
		7/23/2020	198.75	201.97	43.72	48.72	48.72	47.95	26.20	175.77	15.4
		10/19/2020	198.75	201.97	43.72	48.72	48.72	48.22	26.80	175.17	10.0
		1/20/2021	198.75	201.97	43.72	48.72	48.72	47.92	26.41	175.56	16.0
		4/12/2021	198.75	201.97	43.72	48.72	48.72	47.93	25.78	176.19	15.8
		7/12/2021	198.75	201.97	43.72	48.72	48.72	47.90	25.08	176.89	16.4
		10/25/2021	198.75	201.97	43.72	48.72	48.72	47.93	26.53	175.44	15.8
		1/10/2022	198.75	201.97	43.72	48.72	48.72	48.09	27.00	174.97	12.6
		6/20/2022	198.75	201.97	43.72	48.72	48.72	47.93	26.58	175.39	15.8
		1/20/2023	198.75	201.97	43.72	48.72	48.72	48.08	27.72	174.25	12.8

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW38	SHALLOW	3/17/2020	198.62	201.92	22.30	32.30	32.30	32.27	26.80	175.12	0.3
		7/23/2020	198.62	201.92	22.30	32.30	32.30	32.30	26.30	175.62	0.0
		10/19/2020	198.62	201.92	22.30	32.30	32.30	32.27	26.63	175.29	0.3
		1/20/2021	198.62	201.92	22.30	32.30	32.30	32.24	26.29	175.63	0.6
		4/12/2021	198.62	201.92	22.30	32.30	32.30	32.27	25.70	176.22	0.3
		7/12/2021	198.62	201.92	22.30	32.30	32.30	32.27	25.12	176.80	0.3
		10/25/2021	198.62	201.92	22.30	32.30	32.30	32.27	26.36	175.56	0.3
		1/10/2022	198.62	201.92	22.30	32.30	32.30	32.28	26.83	175.09	0.2
		6/20/2022	198.62	201.92	22.30	32.30	32.30	32.25	26.37	175.55	0.5
		1/20/2023	198.62	201.92	22.30	32.30	32.30	32.31	27.67	174.25	None
16WW39	SHALLOW	3/16/2020	189.17	192.17	18.00	28.00	29.50	29.27	19.10	173.07	None
		7/15/2020	189.17	192.17	18.00	28.00	29.50	29.41	18.77	173.40	None
		10/14/2020	189.17	192.17	18.00	28.00	29.50	29.40	19.45	172.72	None
		2/3/2021	189.17	192.17	18.00	28.00	29.50	29.28	18.62	173.55	None
		4/15/2021	189.17	192.17	18.00	28.00	29.50	29.27	18.30	173.87	None
		7/28/2021	189.17	192.17	18.00	28.00	29.50	29.40	18.33	173.84	None
		10/25/2021	189.17	192.17	18.00	28.00	29.50	29.40	19.60	172.57	None
		1/11/2022	189.17	192.17	18.00	28.00	29.50	29.40	19.75	172.42	None
		6/29/2022	189.17	192.17	18.00	28.00	29.50	29.38	19.60	172.57	None
		1/25/2023	189.17	192.17	18.00	28.00	29.50	29.41	19.92	172.25	None
16WW40	SHALLOW	3/10/2020	179.39	182.19	10.80	20.80	21.30	17.50	9.80	172.39	33.0
		7/21/2020	179.39	182.19	10.80	20.80	21.30	19.20	10.15	172.04	16.0
		10/21/2020	179.39	182.19	10.80	20.80	21.30	19.95	10.61	171.58	8.5
		2/3/2021	179.39	182.19	10.80	20.80	21.30	19.95	9.72	172.47	8.5
		4/21/2021	179.39	182.19	10.80	20.80	21.30	17.63	9.53	172.66	31.7
		7/27/2021	179.39	182.19	10.80	20.80	21.30	18.55	9.88	172.31	22.5
		10/21/2021	179.39	182.19	10.80	20.80	21.30	18.89	11.08	171.11	19.1
		1/26/2022	179.39	182.19	10.80	20.80	21.30	18.52	11.00	171.19	22.8
		7/5/2022	179.39	182.19	10.80	20.80	21.30	17.82	11.23	170.96	29.8
		1/21/2023	179.39	182.19	10.80	20.80	21.30	18.81	10.83	171.36	19.9
16WW41	INTERMEDIATE	3/16/2020	195.38	197.98	42.60	52.60	53.60	53.02	24.95	173.03	None
		7/15/2020	195.38	197.98	42.60	52.60	53.60	53.03	24.33	173.65	None
		10/14/2020	195.38	197.98	42.60	52.60	53.60	53.03	25.85	172.13	None
		1/25/2021	195.38	197.98	42.60	52.60	53.60	53.02	24.10	173.88	None
		4/15/2021	195.38	197.98	42.60	52.60	53.60	53.00	23.88	174.10	None
		7/20/2021	195.38	197.98	42.60	52.60	53.60	53.03	23.75	174.23	None
		10/19/2021	195.38	197.98	42.60	52.60	53.60	53.03	24.82	173.16	None
		1/13/2022	195.38	197.98	42.60	52.60	53.60	53.06	25.35	172.63	None
		6/29/2022	195.38	197.98	42.60	52.60	53.60	53.03	25.45	172.53	None
		1/19/2023	195.38	197.98	42.60	52.60	53.60	52.78	26.08	171.90	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW42	SHALLOW	3/10/2020	174.17	178.74	6.57	16.57	16.57	15.45	4.02	174.72	11.2
		7/23/2020	174.17	178.74	6.57	16.57	16.57	17.46	7.15	171.59	None
		10/22/2020	174.17	178.74	6.57	16.57	16.57	15.89	8.48	170.26	6.8
		1/28/2021	174.17	178.74	6.57	16.57	16.57	15.45	3.71	175.03	11.2
		4/19/2021	174.17	178.74	6.57	16.57	16.57	15.45	3.59	175.15	11.2
		7/26/2021	174.17	178.74	6.57	16.57	16.57	16.47	6.48	172.26	1.0
		10/26/2021	174.17	178.74	6.57	16.57	16.57	15.47	11.20	167.54	11.0
		1/27/2022	174.17	178.74	6.57	16.57	16.57	15.55	9.85	168.89	10.2
		7/5/2022	174.17	178.74	6.57	16.57	16.57	15.48	10.45	168.29	10.9
		1/21/2023	174.17	178.74	6.57	16.57	16.57	15.42	4.28	174.46	11.5
16WW43	SHALLOW	3/12/2020	174.54	177.13	4.59	14.59	14.59	15.48	4.50	172.63	None
		7/23/2020	174.54	177.13	4.59	14.59	14.59	15.38	6.40	170.73	None
		10/22/2020	174.54	177.13	4.59	14.59	14.59	15.47	7.71	169.42	None
		1/28/2021	174.54	177.13	4.59	14.59	14.59	15.45	4.60	172.53	None
		4/22/2021	174.54	177.13	4.59	14.59	14.59	15.48	4.77	172.36	None
		7/28/2021	174.54	177.13	4.59	14.59	14.59	15.47	5.80	171.33	None
		10/18/2021	174.54	177.13	4.59	14.59	14.59	15.45	9.62	167.51	None
		1/25/2022	174.54	177.13	4.59	14.59	14.59	15.47	8.77	168.36	None
		6/27/2022	174.54	177.13	4.59	14.59	14.59	15.47	9.02	168.11	None
		1/21/2023	174.54	177.13	4.59	14.59	14.59	14.58	4.18	172.95	0.1
16WW44	SHALLOW	3/17/2020	196.47	198.65	22.18	32.18	32.18	32.95	23.07	175.58	None
		7/20/2020	196.47	198.65	22.18	32.18	32.18	32.90	22.65	176.00	None
		10/19/2020	196.47	198.65	22.18	32.18	32.18	32.95	23.35	175.30	None
		1/22/2021	196.47	198.65	22.18	32.18	32.18	32.92	22.32	176.33	None
		4/12/2021	196.47	198.65	22.18	32.18	32.18	32.93	22.13	176.52	None
		7/12/2021	196.47	198.65	22.18	32.18	32.18	32.95	21.91	176.74	None
		10/25/2021	196.47	198.65	22.18	32.18	32.18	33.02	23.27	175.38	None
		1/10/2022	196.47	198.65	22.18	32.18	32.18	32.92	23.57	175.08	None
		7/5/2022	196.47	198.65	22.18	32.18	32.18	32.94	23.60	175.05	None
		1/21/2023	196.47	198.65	22.18	32.18	32.18	32.98	23.84	174.81	None
16WW46	SHALLOW	3/12/2020	183.55	185.84	12.29	22.29	23.29	22.00	12.43	173.41	2.9
		7/27/2020	183.55	185.84	12.29	22.29	23.29	22.08	13.00	172.84	2.1
		10/19/2020	183.55	185.84	12.29	22.29	23.29	22.05	13.60	172.24	2.4
		1/19/2021	183.55	185.84	12.29	22.29	23.29	22.00	12.57	173.27	2.9
		4/12/2021	183.55	185.84	12.29	22.29	23.29	22.03	12.25	173.59	2.6
		7/27/2021	183.55	185.84	12.29	22.29	23.29	22.18	12.21	173.63	1.1
		10/18/2021	183.55	185.84	12.29	22.29	23.29	22.00	13.62	172.22	2.9
		1/11/2022	183.55	185.84	12.29	22.29	23.29	22.02	13.92	171.92	2.7
		6/20/2022	183.55	185.84	12.29	22.29	23.29	22.02	13.82	172.02	2.7
		1/25/2023	183.55	185.84	12.29	22.29	23.29	22.18	14.26	171.58	1.1

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW48	SHALLOW	3/30/2020	181.46	184.41	12.95	22.95	22.95	22.56	11.04	173.37	3.9
		7/15/2020	181.46	184.41	12.95	22.95	22.95	22.80	11.62	172.79	1.5
		10/20/2020	181.46	184.41	12.95	22.95	22.95	22.55	12.24	172.17	4.0
		1/21/2021	181.46	184.41	12.95	22.95	22.95	22.56	10.87	173.54	3.9
		4/22/2021	181.46	184.41	12.95	22.95	22.95	22.58	10.32	174.09	3.7
		7/13/2021	181.46	184.41	12.95	22.95	22.95	22.62	11.03	173.38	3.3
		10/19/2021	181.46	184.41	12.95	22.95	22.95	22.55	12.72	171.69	4.0
		1/13/2022	181.46	184.41	12.95	22.95	22.95	22.58	12.53	171.88	3.7
		6/30/2022	181.46	184.41	12.95	22.95	22.95	22.55	12.82	171.59	4.0
		1/19/2023	181.46	184.41	12.95	22.95	22.95	22.47	12.45	171.96	4.8
16WW49	INTERMEDIATE	3/16/2020	187.66	190.69	45.03	55.03	55.03	54.73	17.52	173.17	3.0
		7/27/2020	187.66	190.69	45.03	55.03	55.03	54.73	17.52	173.17	3.0
		10/20/2020	187.66	190.69	45.03	55.03	55.03	54.80	18.25	172.44	2.3
		1/29/2021	187.66	190.69	45.03	55.03	55.03	54.70	17.03	173.66	3.3
		5/21/2021	187.66	190.69	45.03	55.03	55.03	54.77	16.75	173.94	2.6
		7/28/2021	187.66	190.69	45.03	55.03	55.03	54.71	17.02	173.67	3.2
		10/19/2021	187.66	190.69	45.03	55.03	55.03	54.70	18.63	172.06	3.3
		1/13/2022	187.66	190.69	45.03	55.03	55.03	54.73	18.71	171.98	3.0
		6/29/2022	187.66	190.69	45.03	55.03	55.03	54.71	18.73	171.96	3.2
		1/25/2023	187.66	190.69	45.03	55.03	55.03	54.89	18.55	172.14	1.4
16WW51	INTERMEDIATE	3/17/2020	180.13	183.26	34.13	44.13	44.63	44.57	10.45	172.81	None
		7/27/2020	180.13	183.26	34.13	44.13	44.63	44.60	11.15	172.11	None
		10/20/2020	180.13	183.26	34.13	44.13	44.63	44.53	12.10	171.16	None
		1/29/2021	180.13	183.26	34.13	44.13	44.63	44.53	9.97	173.29	None
		4/15/2021	180.13	183.26	34.13	44.13	44.63	44.55	10.00	173.26	None
		7/20/2021	180.13	183.26	34.13	44.13	44.63	44.53	11.19	172.07	None
		10/19/2021	180.13	183.26	34.13	44.13	44.63	44.55	12.85	170.41	None
		1/13/2022	180.13	183.26	34.13	44.13	44.63	44.55	12.60	170.66	None
		6/16/2022	180.13	183.26	34.13	44.13	44.63	44.54	12.05	171.21	None
		1/20/2023	180.13	183.26	34.13	44.13	44.63	44.43	11.32	171.94	None
16WW55	SHALLOW	3/25/2020	191.11	194.03	19.92	29.92	30.42	30.52	20.11	173.92	None
		7/14/2020	191.11	194.03	19.92	29.92	30.42	30.41	19.64	174.39	None
		10/13/2020	191.11	194.03	19.92	29.92	30.42	30.43	20.27	173.76	None
		1/20/2021	191.11	194.03	19.92	29.92	30.42	30.41	19.93	174.10	None
		4/20/2021	191.11	194.03	19.92	29.92	30.42	29.53	19.17	174.86	3.9
		7/13/2021	191.11	194.03	19.92	29.92	30.42	30.28	18.75	175.28	None
		10/14/2021	191.11	194.03	19.92	29.92	30.42	30.43	20.09	173.94	None
		1/12/2022	191.11	194.03	19.92	29.92	30.42	30.42	20.46	173.57	None
		6/23/2022	191.11	194.03	19.92	29.92	30.42	30.40	20.25	173.78	None
		1/19/2023	191.11	194.03	19.92	29.92	30.42	30.39	21.49	172.54	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BGS)	Measured Well Depth (ft TOC)	Depth to Water (ft TOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW56	SHALLOW	3/16/2020	195.35	198.61	24.26	34.26	34.56	37.07	25.66	172.95	None
		7/15/2020	195.35	198.61	24.26	34.26	34.56	34.08	25.40	173.21	1.8
		10/21/2020	195.35	198.61	24.26	34.26	34.56	34.05	26.20	172.41	2.1
		1/25/2021	195.35	198.61	24.26	34.26	34.56	34.05	25.09	173.52	2.1
		4/15/2021	195.35	198.61	24.26	34.26	34.56	34.08	25.00	173.61	1.8
		7/20/2021	195.35	198.61	24.26	34.26	34.56	34.08	24.60	174.01	1.8
		10/19/2021	195.35	198.61	24.26	34.26	34.56	34.08	26.25	172.36	1.8
		1/11/2022	195.35	198.61	24.26	34.26	34.56	34.05	26.43	172.18	2.1
		6/16/2022	195.35	198.61	24.26	34.26	34.56	34.07	26.27	172.34	1.9
		1/20/2023	195.35	198.61	24.26	34.26	34.56	34.08	26.71	171.90	1.8
16WW57	INTERMEDIATE	8/17/2020	173.12	177.06	29.94	39.94	41.94	39.95	4.95	172.11	None
		10/8/2020	173.12	177.06	29.94	39.94	41.94	39.94	5.35	171.71	0.0
		1/27/2021	173.12	177.06	29.94	39.94	41.94	39.94	3.78	173.28	0.0
		4/13/2021	173.12	177.06	29.94	39.94	41.94	39.93	4.18	172.88	0.1
		7/14/2021	173.12	177.06	29.94	39.94	41.94	39.91	4.27	172.79	0.3
		10/13/2021	173.12	177.06	29.94	39.94	41.94	39.92	5.75	171.31	0.2
		1/13/2022	173.12	177.06	29.94	39.94	41.94	39.92	5.68	171.38	0.2
		6/23/2022	173.12	177.06	29.94	39.94	41.94	39.90	5.80	171.26	0.4
		1/23/2023	173.12	177.06	29.94	39.94	41.94	39.87	5.72	171.34	0.7
16WW58	INTERMEDIATE	8/17/2020	173.32	177.24	31.92	41.92	43.92	42.80	6.97	170.27	None
		10/8/2020	173.32	177.24	31.92	41.92	43.92	42.82	6.78	170.46	None
		1/27/2021	173.32	177.24	31.92	41.92	43.92	42.81	4.41	172.83	None
		4/13/2021	173.32	177.24	31.92	41.92	43.92	42.82	5.65	171.59	None
		7/14/2021	173.32	177.24	31.92	41.92	43.92	42.80	6.14	171.10	None
		10/13/2021	173.32	177.24	31.92	41.92	43.92	42.82	6.10	171.14	None
		1/13/2022	173.32	177.24	31.92	41.92	43.92	42.80	7.83	169.41	None
		6/23/2022	173.32	177.24	31.92	41.92	43.92	42.80	7.58	169.66	None
		1/23/2023	173.32	177.24	31.92	41.92	43.92	42.80	6.33	170.91	None

Notes:
BGS - below ground surface
BTOC - below top of casing
ft - feet
MSL - mean sea level
NM - Not measured
NA - Not available
None - Measured well depths were deeper than the depth of the well screen.

Table 2-2
Year 3 RA-O Monitoring Network, LHAAP-16

Site Well ID	Well Description	Parameters
Landfill Biobarrier #1		
16IW09	Performance data within Landfill Biobarrier #1; Shallow Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, DHC, Anions, DO, pH, ORP
16RW01	Upgradient Well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, DO, pH, ORP
16RW04	Downgradient Well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, Dissolved Gases (MEE), DO, pH, ORP
16RW05	Downgradient Well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, Dissolved Gases (MEE), DO, pH, ORP
16WW26	Downgradient Well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, TOC, DO, pH, ORP
16WW42	Downgradient Well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, DO, pH, ORP
16WW13	MNA Evaluation Only; Downgradient of Landfill Biobarrier #1; Intermediate Zone	VOCs, P, DO, pH, ORP
16WW25	MNA Evaluation Only; Downgradient of Landfill Biobarrier #1; Intermediate Zone	VOCs, P, DO, pH, ORP
Landfill Biobarrier #2		
16IW03	Performance Data within Landfill Biobarrier #2; Shallow Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, DHC, Anions, DO, pH, ORP
16PM02	Upgradient Well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, DO, pH, ORP
16PM03	Upgradient Well for Landfill Biobarrier #2 Shallow Zone	VOCs, P, DO, pH, ORP
16PM06	Downgradient Well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, Dissolved Gases (MEE), DO, pH, ORP
16PM09	Downgradient Well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, DO, pH, ORP
16PM14	Downgradient Well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, DO, pH, ORP
16WW36	Downgradient Well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, TOC, DO, pH, ORP
16WW16	MNA Evaluation Only ; Upgradient of Landfill Biobarrier #2; Shallow Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP
16WW35	MNA Evaluation Only; Downgradient of Landfill Biobarrier #2; Intermediate Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP
Landfill Biobarrier #3		
16IW10	Performance Data within Landfill Biobarrier #3; Shallow Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, DHC, Anions, DO, pH, ORP
16RW06	Upgradient Well for Landfill Biobarrier #3; Shallow Zone	VOCs, P, DO, pH, ORP
16RW07	Upgradient Well for Landfill Biobarrier #3; Shallow Zone	VOCs, P, DO, pH, ORP
16RW09	Downgradient Well for Landfill Biobarrier #3; Shallow Zone	VOCs, P, Dissolved Gases (MEE), TOC, DO, pH, ORP
16RW10	Downgradient Well for Landfill Biobarrier #3; Shallow Zone	VOCs, P, Dissolved Gases (MEE), DO, pH, ORP
16WW55	MNA Evaluation Only; Downgradient to Landfill Biobarrier #3; Shallow Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP
16WW14	5 Year Review Only	Metals

Table 2-2
Year 3 RA-O Monitoring Network, LHAAP-16

Site Well ID	Well Description	Parameters
Bayou Biobarrier		
16IW20	Performance Data within the Bayou Biobarrier; Shallow Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, DHC, Anions, DO, pH, ORP
16RW12	Performance Data Downgradient the Bayou Biobarrier; Shallow Zone	VOCs, P, DO, pH, ORP
16WW12	Upgradient Well for Bayou Biobarrier; Shallow Zone	VOCs, P, DO, pH, ORP
16WW22	Upgradient Well for Bayou Biobarrier; Shallow Zone	VOCs, P, DO, pH, ORP
16WW39	Upgradient Well for Bayou Biobarrier; Shallow Zone	VOCs, P, DO, pH, ORP
16WW40	Downgradient Well for Bayou Biobarrier; Shallow Zone	VOCs, P , Dissolved Gases (MEE), TOC, DO, pH, ORP
16WW41	MNA Evaluation Only; Upgradient of Bayou Biobarrier; Intermediate Zone	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP
16WW56	MNA Evaluation Only; Downgradient to Bayou Biobarrier; Shallow Zone	VOCs, P, DO, pH, ORP
16WW21	5 Year Review Only	Metals
Mid-Plume Shallow Zone		
16EW01	Performance Data for Injection ISB Area - Shallow Zone Mid-Plume	VOCs, P, TOC, DO, pH, ORP
16EW02	Performance Data for Injection ISB Area - Shallow Zone Mid-Plume	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, DHC, Anions, DO, pH, ORP
16EW03	Performance Data for Injection ISB Area - Shallow Zone Mid-Plume	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP
16EW04	Performance Data for Injection ISB Area - Shallow Zone Mid-Plume	VOCs, P, DO, pH, ORP
16WW30	Performance Data for Downgradient - Shallow Zone Mid-Plume	VOCs, P, DO, pH, ORP
16WW48	Performance Data for Downgradient - Shallow Zone Mid-Plume	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, Anions, DO, pH, ORP
Mid-Plume Intermediate Zone		
16EW08	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, DO, pH, ORP
16IW26	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, DHC, Anions, DO, pH, ORP
16WW29	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, DO, pH, ORP
16WW49	Performance Data for Downgradient - Intermediate Zone Mid-Plume	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, Anions
16WW51	Performance Data for Downgradient - Intermediate Zone Mid-Plume	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, Anions
Outside the Treatment Areas		
16WW24	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP
16WW32	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP
16WW34	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP
16WW38	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP
16WW43	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP

Table 2-2
Year 3 RA-O Monitoring Network, LHAAP-16

Site Well ID	Well Description	Parameters
16WW44	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP
16WW46	MNA Evaluation Only; Shallow	VOCs, P, DO, pH, ORP
16WW58	MNA Evaluation Only; Intermediate	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP
16WW23	MNA Evaluation Only; Intermediate	VOCs, P, DO, pH, ORP
16WW27	MNA Evaluation Only; Intermediate	VOCs, P, DO, pH, ORP
16WW31	MNA Evaluation Only; Intermediate	VOCs, P, DO, pH, ORP
16WW33	MNA Evaluation Only; Intermediate	VOCs, P, DO, pH, ORP
16WW37	MNA Evaluation Only; Intermediate	VOCs, P, DO, pH, ORP
16WW57	MNA Evaluation Only; Intermediate	VOCs, P, Dissolved Gases (MEE), Carbon Dioxide, TOC, Anions, DO, pH, ORP

Notes:

MNA parameters for LHAAP-16 include: anions (nitrate and sulfate), ethene, ethane, and methane.

DHC - Dehalococcoides ethenogenes

DO - Dissolved oxygen

ID - identifier

MEE - Methane, Ethane, and Ethene

MNA - monitored natural attenuation

ORP - Oxidation-reduction potential

P - perchlorate

RA-O - Remedial Action Operation

TOC - total organic carbon

VOCs - volatile organic compounds

Table 2-3
Year 3 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

			Location Code	16IW09				16RW01				16RW04				16RW05			
			Sample ID	16IW09-220623		16IW09-230119		16RW01-220616		16RW01-230123		16RW04-220705		16RW04-230119		16RW05-220627		16RW05-230123	
			Sample Date	6/23/2022		1/19/2023		6/16/2022		1/23/2023		7/5/2022		1/19/2023		6/27/2022		1/23/2023	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
			Location Description	Shallow; Landfill Biobarrier #1 Area		Shallow; Landfill Biobarrier #1 Area		Shallow; Upgradient of Landfill Biobarrier #1		Shallow; Upgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #1	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																			
	Dehalococcoides	cells/mL	NV	< 2.5		2.1		NA		NA		NA		NA		NA		NA	
FIELD TESTS																			
	Dissolved oxygen	mg/L	NV	0.19		0.07		0.37		1		0.45		2.49		0.12		1	
	Oxidation Reduction Potential	mV	NV	-92		-111		325		258		211		153		-58		76	
	pH	STD UNIT	NV	6.62		6.72		4.68		5.08		5.11		5.52		6.96		6.66	
	Specific conductivity	mS/cm	NV	0.832		0.603		1.44		1.74		1.63		1.94		3.62		3.56	
	Temperature	C	NV	23.81		14.56		24.12		12.73		28.86		15.6		22.74		15.24	
	Total Purge	Gal	NV	3		3		3		5		3		3		3		5	
	Turbidity	NTU	NV	77.3		53.2		4.5		24		6.5		0		195		59	
	Water Level at Reading Time	Ft BTOC	NV	10.93		7.00		17.25		18.24		19.02		19.58		11.36		10.16	
GASES																			
	Carbon dioxide	µg/L	NV	200,000	J	150,000	J	NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	< 0.5	U	< 0.5	U	NA		NA		1.95		1.86	J	< 0.5	U	936	
	Ethylene	µg/L	NV	< 0.5	UJ	< 0.5	UJ	NA		NA		2.58	J	1.7	J	< 0.5	UJ	1,350	J
	Methane	µg/L	NV	8,060	J	9,720		NA		NA		314		101		7,020	J	4,540	
GEN CHEMISTRY																			
	Nitrate	mg/L	10	0.062	J	NA		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		< 0.5	U	NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	2.7		0.241	J	NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	128		103		NA		NA		NA		NA		NA		NA	
PERCHLORATE																			
	Perchlorate	µg/L	17	0.124		< 0.05	U	0.0675	J	< 0.05	U	< 0.05	U	< 0.05	U	0.0509	J	< 0.05	U
VOLATILES																			
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 5	U	< 10	U	< 5	U	< 1	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	< 2.5	U	< 10	U	2.6	J	3.5		< 0.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 2.5	U	< 10	U	< 2.5	U	< 1	U	< 0.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	3.8		1.9		87		73		130		160		0.61	J	2	
	Methylene chloride	µg/L	NV	< 2	U	< 1	U	< 10	U	< 10	U	5.1	J	< 1	U	< 2	U	< 1	U
	Trichloroethene	µg/L	5	< 0.5	U	1.6		2,100		2,000		2,500		3,300		< 0.5	U	6.1	
	Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	2.2	J	< 10	U	4.3	J	6.2		< 0.5	U	0.51	J

Table 2-3
Year 3 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

			Location Code	16WW13		16WW13		16WW25		16WW25		16WW26		16WW26		16WW42		16WW42	
			Sample ID	16WW13-220705		16WW13-230121		16WW25-220630		16WW25-230123		16WW26-220630		16WW26-230123		16WW42-220705		16WW42-230121	
			Sample Date	7/5/2022		1/21/2023		6/30/2022		1/23/2023		6/30/2022		1/23/2023		7/5/2022		1/21/2023	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
			Location Description	Intermediate; Downgradient of Landfill Biobarrier #1		Intermediate; Downgradient of Landfill Biobarrier #1		Intermediate; Downgradient of Landfill Biobarrier #1		Intermediate; Downgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #1		Shallow; Downgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																			
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																			
	Dissolved oxygen	mg/L	NV	1.07		0.07		0.11		0.4		0.45		0.7		0.4		0.02	
	Oxidation Reduction Potential	mV	NV	138		121		-51		40		183		196		99		215	
	pH	STD UNIT	NV	5.36		5.88		6.17		5.87		5.02		5		5.69		5.65	
	Specific conductivity	mS/cm	NV	3.77		4.21		7.94		4.38		0.966		0.877		5.31		0.256	
	Temperature	C	NV	28.26		16.76		22.4		20.15		21.85		17.79		26.38		15.18	
	Total Purge	Gal	NV	3		3		3		6		3		5		3		3	
	Turbidity	NTU	NV	97.1		12.1		55		10		70.1		28		NA		NA	
	Water Level at Reading Time	Ft BTOC	NV	8.66		4.65		17.61		16.28		16.51		17.34		10.69		4.49	
GASES																			
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																			
	Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		NA		NA		2.68		1.68		NA		NA	
PERCHLORATE																			
	Perchlorate	µg/L	17	< 0.05	U	< 0.05		< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	0.0572	
VOLATILES																			
	1,1,2-Trichloroethane	µg/L	NV	< 5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U	< 1	U
	1,1-Dichloroethene	µg/L	7	3.1	J	< 1	UJ	< 0.5	U	< 1	U	1.7		1.2		< 2.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 2.5	U	< 1	UJ	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 2.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	820		610	J	< 0.5	U	< 1	U	110		57		1,400		44	
	Methylene chloride	µg/L	NV	5.1	J	< 1	UJ	< 2	U	< 1	U	< 2	U	< 1	U	5.3	J	< 1	U
	Trichloroethene	µg/L	5	2,500		89	J	1.3		4.9		1,100		710		850		27	
	Vinyl chloride	µg/L	2	16		2.9	J	< 0.5	U	< 1	U	6.7		3.6		4.6	J	< 1	U

Table 2-3
Year 3 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

µg/L - micrograms per liter

B - The concentration reported was detected in the associated method blank, trip blank, or equipment blank within 5X/10X the blank concentration.

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallon

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-4
Year 3 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

			Location Code	16IW03						16PM02				16PM03				16PM06			
			Sample ID	16IW03-220629		16IW03-230123		16IW03-230123-FD		16PM02-220616		16PM02-230121		16PM03-220616		16PM03-230121		16PM06-220627		16PM06-230121	
			Sample Date	6/29/2022		1/23/2023		1/23/2023		6/16/2022		1/21/2023		6/16/2022		1/21/2023		6/27/2022		1/21/2023	
			Sample Purpose	REG		REG		FD		REG		REG		REG		REG		REG		REG	
			Location Description	Shallow, Injection Well, Within Landfill Biobarrier #2		Shallow, Injection Well, Within Landfill Biobarrier #2		Shallow, Injection Well, Within Landfill Biobarrier #2		Shallow, Performance Well, Upgradient of Landfill Biobarrier #2		Shallow, Performance Well, Upgradient of Landfill Biobarrier #2		Shallow, Performance Well, Upgradient of Landfill Biobarrier #2		Shallow, Performance Well, Upgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																					
	Dehalococcoides	cells/mL	NV	7,150		80,600		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																					
	Dissolved oxygen	mg/L	NV	0.18		0.06		NA		0.28		0.5		2.01		0.5		0.17		0.6	
	Oxidation Reduction Potential	mV	NV	-44		-26		NA		143		104		142		110		18		-18	
	pH	STD UNIT	NV	5.72		6		NA		5.25		5.73		5.94		6.4		5.71		6.05	
	Specific conductivity	mS/cm	NV	3.73		4.85		NA		1.24		1.73		4.22		4.44		4.35		4.84	
	Temperature	C	NV	20.33		15.85		NA		21.34		20.26		24.02		17.89		23.79		18.36	
	Total Purge	Gal	NV	3		3		NA		3		5		3		5		3		5	
	Turbidity	NTU	NV	22.1		146		NA		269		18		91		28		150		44	
	Water Level at Reading Time	Ft BTOC	NV	15.25		16.08		NA		16.04		17.41		15.54		16.73		14.94		15.91	
GASES																					
	Carbon dioxide	µg/L	NV	497,000	J	670,000	J	480,000	J	NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	< 0.5	J	< 0.5	U	< 0.5	U	NA		NA		NA		NA		< 0.5	U	71.1	
	Ethylene	µg/L	NV	1,410	J	816	J	1,590	J	NA		NA		NA		NA		173	J	548	J
	Methane	µg/L	NV	6,800	J	4,280		5,080		NA		NA		NA		NA		386	J	865	
GEN CHEMISTRY																					
	Nitrate	mg/L	10	< 0.1	U	3.54	J	2.29		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	< 0.5	U	2.3	J	2.59		NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	2230		1930		1660		NA		NA		NA		NA		NA		NA	
PERCHLORATE																					
	Perchlorate	µg/L	17	0.126		< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	253		285		< 0.05	U	0.036	J
VOLATILES																					
	1,1,2-Trichloroethane	µg/L	NV	< 25	U	< 50	U	< 50	U	< 25	U	< 250	U	< 10	U	< 50	U	< 25	U	< 250	U
	1,1-Dichloroethene	µg/L	7	44		48	J	< 50	U	40		< 250	U	23		< 50	U	73		< 250	U
	1,2-Dichloroethane	µg/L	5	< 12	U	< 50	U	< 50	U	16	J	< 250	U	21		< 50	U	33		< 250	U
	cis-1,2-Dichloroethene	µg/L	70	17,000		18,000		16,000		3,800		7,100		6,100		4,200		33,000		29,000	
	Methylene chloride	µg/L	NV	49	J	< 50	U	< 50	U	< 50	U	< 250	U	< 20	U	< 50	U	73		< 250	U
	Trichloroethene	µg/L	5	7,300		3,600	J	1,200	J	32,000		80,000		8,400		9,100		71,000		85,000	
	Vinyl chloride	µg/L	2	2,300		1,600		1,300		57		160	J	160		220		670		1,100	

Table 2-4
Year 3 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

			Location Code	16PM09				16PM14				16WW16						16WW35			
			Sample ID	16PM09-220627		16PM09-230121		16PM14-220627		16PM14-230121		16WW16-220630		16WW16-230119		16WW16-230119-		16WW35-220630		16WW35-230119	
			Sample Date	6/27/2022		1/21/2023		6/27/2022		1/21/2023		6/30/2022		1/19/2023		1/19/2023		6/30/2022		1/19/2023	
			Sample Purpose	REG		REG		REG		REG		REG		REG		FD		REG		REG	
			Location Description	Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow; Upgradient of Landfill Biobarrier #2		Shallow; Upgradient of Landfill Biobarrier #2		Shallow; Upgradient of Landfill Biobarrier #2		Intermediate; Downgradient of Landfill Biobarrier #2		Intermediate; Downgradient of Landfill Biobarrier #2	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																					
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																					
	Dissolved oxygen	mg/L	NV	0.45		0.6		0.86		0.4		0.78		0.9		NA		0.27		0.5	
	Oxidation Reduction Potential	mV	NV	130		121		48		NA		84		175		NA		87		167	
	pH	STD UNIT	NV	5.57		5.7		6.34		6.47		6.32		6.77		NA		6.73		6.65	
	Specific conductivity	mS/cm	NV	0.987		1.92		5.83		6.18		3.76		2.65		NA		16.4		12.7	
	Temperature	C	NV	25.43		18.39		24.7		17.84		19.75		19.54		NA		20.17		17.98	
	Total Purge	Gal	NV	3		5		3		5		3		5		NA		3		5	
	Turbidity	NTU	NV	175		90		11		8		17.2		5		NA		6.4		10	
	Water Level at Reading Time	Ft BTOC	NV	13.67		14.44		16.73		17.88		19.97		21.98		NA		17.27		18.24	
GASES																					
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		196,000	J	97,000	J	92,000	J	312,000	J	130,000	J
	Ethane	µg/L	NV	NA		NA		NA		NA		< 0.5	U	6.8		6.71		< 0.5	U	< 0.5	U
	Ethylene	µg/L	NV	NA		NA		NA		NA		16.8	J	12	J	11.2	J	11	J	7.75	J
	Methane	µg/L	NV	NA		NA		NA		NA		1,110		1,310		1,330		118		69.6	
GEN CHEMISTRY																					
	Nitrate	mg/L	10	NA		NA		NA		NA		0.207		NA		NA		0.268	J	NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		0.424	J	0.45	J	NA		< 0.5	UJ
	Sulfate	mg/L	NV	NA		NA		NA		NA		380		371		372		10,000		9,540	
	Total organic carbon	mg/L	NV	NA		NA		NA		NA		4.3		5.17		5.05		61.4		42.8	
PERCHLORATE																					
	Perchlorate	µg/L	17	0.0333	J	< 0.05	U	< 0.05	U	< 0.05	U	581		630		650		419		94.9	
VOLATILES																					
	1,1,2-Trichloroethane	µg/L	NV	< 5	U	< 25	U	< 10	U	< 50	U	< 25	U	< 100	U	< 100	U	< 10	U	< 100	UJ
	1,1-Dichloroethene	µg/L	7	24		41		26		< 50	U	52		87	J	91	J	65		150	
	1,2-Dichloroethane	µg/L	5	< 2.5	U	< 25	U	23		30	J	36		64	J	63	J	< 5	U	< 100	U
	cis-1,2-Dichloroethene	µg/L	70	470		700		5,900		5,300		19,000	J	24,000		25,000		570		8,800	
	Methylene chloride	µg/L	NV	5.8	J	< 25	U	29		< 50	U	< 50	U	< 100	U	< 100	U	21		< 100	UJ
	Trichloroethene	µg/L	5	1,200		2,100		5,700		5,400		40,000		63,000		63,000		7,800		17,000	
	Vinyl chloride	µg/L	2	26		26		180		170		310		520		500		83		120	

Table 2-4
Year 3 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

				Location Code	16WW36					
				Sample ID	16WW36-220630		16WW36-230125		16WW36-230125-FD	
				Sample Date	6/30/2022		1/25/2023		1/25/2023	
				Sample Purpose	REG		REG		FD	
				Location Description	Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2		Shallow, Performance Well, Downgradient of Landfill Biobarrier #2	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC									
	Dehalococcoides	cells/mL	NV	NA		NA		NA	
FIELD TESTS									
	Dissolved oxygen	mg/L	NV	0.26		0.04		NA	
	Oxidation Reduction Potential	mV	NV	118		39		NA	
	pH	STD UNIT	NV	6.3		6.67		NA	
	Specific conductivity	mS/cm	NV	10.1		10.3		NA	
	Temperature	C	NV	19.9		15.36		NA	
	Total Purge	Gal	NV	3		3		NA	
	Turbidity	NTU	NV	0		0		NA	
	Water Level at Reading Time	Ft BTOC	NV	16.76		17.56		NA	
GASES									
	Carbon dioxide	µg/L	NV	NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		NA	
	Methane	µg/L	NV	NA		NA		NA	
GEN CHEMISTRY									
	Nitrate	mg/L	10	NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA	
	Total organic carbon	mg/L	NV	23.4		18.9		19	
PERCHLORATE									
	Perchlorate	µg/L	17	< 0.25	U	< 0.05	U	< 0.05	U
VOLATILES									
	1,1,2-Trichloroethane	µg/L	NV	< 25	U	< 50	U	< 50	U
	1,1-Dichloroethene	µg/L	7	200		140		140	
	1,2-Dichloroethane	µg/L	5	21	J	< 50	U	< 50	U
	cis-1,2-Dichloroethene	µg/L	70	23,000		16,000		16,000	
	Methylene chloride	µg/L	NV	52		< 50	U	< 50	U
	Trichloroethene	µg/L	5	32,000		22,000		22,000	
	Vinyl chloride	µg/L	2	260		190		210	

Table 2-4
Year 3 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

µg/L - micrograms per liter

B - The concentration reported was detected in the associated method blank, trip blank, or equipment blank within 5X/10X the blank concentration.

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallons

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-5
Year 3 RA-O Analytical Results, Landfill Biobarrier #3, LHAAP-16

			Location Code	16IW10				16RW06				16RW07				16RW09			
			Sample ID	16IW10-220623		16IW10-230123		16RW06-220616		16RW06-230119		16RW07-220616		16RW07-230119		16RW09-220705		16RW09-220705-FD	
			Sample Date	6/23/2022		1/23/2023		6/16/2022		1/19/2023		6/16/2022		1/19/2023		7/5/2022		7/5/2022	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		FD	
			Location Description	Shallow; Landfill Biobarrier #3 Area		Shallow; Landfill Biobarrier #3 Area		Shallow; Upgradient of Landfill Biobarrier #3		Shallow; Upgradient of Landfill Biobarrier #3		Shallow; Upgradient of Landfill Biobarrier #3		Shallow; Upgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																			
	Dehalococcoides	cells/mL	NV	5,110		2,840		NA		NA		NA		NA		NA		NA	
FIELD TESTS																			
	Dissolved oxygen	mg/L	NV	0.26		0.03		1.00		0.70		0.79		0.5		0.52		NA	
	Oxidation Reduction Potential	mV	NV	-149		-148		-10		134		83		24		42		NA	
	pH	STD UNIT	NV	6.82		7.18		5.62		6.44		5.7		6.74		6.58		NA	
	Specific conductivity	mS/cm	NV	4.17		4.77		3.42		2.34		2.67		3.42		3.94		NA	
	Temperature	C	NV	23.51		13.89		22.28		19.82		20.82		18.82		22.07		NA	
	Total Purge	Gal	NV	3		3		3		5		3		6		3		NA	
	Turbidity	NTU	NV	137		140		1.5		2		0.8		3		1.6		NA	
	Water Level at Reading Time	Ft BTOC	NV	21.94		22.96		23.00		24.51		21.22		22.46		24.35		NA	
GASES																			
	Carbon dioxide	µg/L	NV	312,000	J	590,000		NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	< 0.5	U	< 0.5	U	NA		NA		NA		NA		3.03		3.01	
	Ethylene	µg/L	NV	< 0.5	UJ	< 0.5	UJ	NA		NA		NA		NA		16.5	J	17	J
	Methane	µg/L	NV	4,240	J	5,350		NA		NA		NA		NA		892		968	
GEN CHEMISTRY																			
	Nitrate	mg/L	10	0.147	J	< 0.25	U	NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	1.73		1.47	J	NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	139		122		NA		NA		NA		NA		1.96		2.05	
PERCHLORATE																			
	Perchlorate	µg/L	17	0.108		< 0.05	U	0.12		< 0.05	U	0.335		0.633		< 0.05	U	0.221	J
VOLATILES																			
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	0.75	J	< 1	U	3.8		14		12		12	
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
	cis-1,2-Dichloroethene	µg/L	70	2.7		1.9	J	6.4		15		24		130		130		130	
	Methylene chloride	µg/L	NV	< 2	U	< 1	UJ	< 2	U	< 1	U	< 2	U	< 1	U	< 2	U	< 2	U
	Trichloroethene	µg/L	5	2.1		1.6		73		160		780		2,200		1,900		1,900	
	Vinyl chloride	µg/L	2	1.3		4.2		2	J	5.1		10		100		94		99	

Table 2-5
Year 3 RA-O Analytical Results, Landfill Biobarrier #3, LHAAP-16

			Location Code	16RW09		16RW10		16RW10		16WW14		16WW55		16WW55	
			Sample ID	16RW09-230125		16RW10-220705		16RW10-230125		16WW14-220620		16WW55-220623		16WW55-230119	
			Sample Date	1/25/2023		7/5/2022		1/25/2023		6/20/2022		6/23/2022		1/19/2023	
			Sample Purpose	REG		REG		REG		REG		REG		REG	
			Location Description	Shallow; Downgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3		Shallow; Upgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3		Shallow; Downgradient of Landfill Biobarrier #3	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC															
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA	
FIELD TESTS															
	Dissolved oxygen	mg/L	NV	0.08		0.34		0.12		0.28		0.53		0.5	
	Oxidation Reduction Potential	mV	NV	-67		14		-15		47		88		131	
	pH	STD UNIT	NV	7.08		6.6		7.04		6.48		6.5		6.82	
	Specific conductivity	mS/cm	NV	5.07		4.97		5.41		4.06		4.41		4.58	
	Temperature	C	NV	12.88		21.32		14.77		20.21		28.44		18.36	
	Total Purge	Gal	NV	3		3		3		3		3		5	
	Turbidity	NTU	NV	7.3		2.2		0		38.1		8.5		4	
	Water Level at Reading Time	Ft BTOC	NV	25.16		21.63		22.41		24.39		20.49		21.66	
GASES															
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		135,000	J	89,000	J
	Ethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
	Ethylene	µg/L	NV	26.1	J	30.1	J	19.3	J	NA		12.6	J	20.6	J
	Methane	µg/L	NV	1,060	J	2,230		655	J	NA		460	J	1,100	
GEN CHEMISTRY															
	Nitrate	mg/L	10	NA		NA		NA		NA		0.151	J	NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		< 0.5	U
	Sulfate	mg/L	NV	NA		NA		NA		NA		694		846	
	Total organic carbon	mg/L	NV	4.1		NA		NA		NA		5.27		5.56	
PERCHLORATE															
	Perchlorate	µg/L	17	< 0.05	U	2.05		3.39		NA		147		55.5	
VOLATILES															
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 5	U	< 5	U	NA		< 5	U	< 1	U
	1,1-Dichloroethene	µg/L	7	4.8		20		33		NA		6.9		8.9	
	1,2-Dichloroethane	µg/L	5	< 1	U	4.8	J	3.1	J	NA		5		2.4	
	cis-1,2-Dichloroethene	µg/L	70	170		420		260		NA		480		500	
	Methylene chloride	µg/L	NV	< 1	U	< 10	U	< 5	U	NA		< 10	U	< 1	U
	Trichloroethene	µg/L	5	590		930		1,100		NA		2,400		2,100	
	Vinyl chloride	µg/L	2	71		190		180		NA		44		100	

Table 2-5
Year 3 RA-O Analytical Results, Landfill Biobarrier #3, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

µg/L - micrograms per liter

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallons

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-6
Year 3 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

			Location Code	16IW20		16IW20		16RW12		16RW12		16RW12		16WW12		16WW12		16WW21		16WW22		16WW22	
			Sample ID	16IW20-220623		16IW20-230119		16RW12-220616		16RW12-230120		16RW12-230120-FD		16WW12-220705		16WW12-230125		16WW21-220706		16WW22-220629		16WW22-230120	
			Sample Date	6/23/2022		1/19/2023		6/16/2022		1/20/2023		1/20/2023		7/5/2022		1/25/2023		7/6/2022		6/29/2022		1/20/2023	
			Sample Purpose	REG		REG		REG		REG		FD		REG		REG		REG		REG		REG	
			Location Description	Shallow; Bayou Biobarrier Area		Shallow; Bayou Biobarrier Area		Shallow; Downgradient of Bayou Biobarrier		Shallow; Downgradient of Bayou Biobarrier		Shallow; Downgradient of Bayou Biobarrier		Shallow; Upgradient of Bayou Biobarrier		Shallow; Upgradient of Bayou Biobarrier		Shallow; Performance Well; Downgradient of Mid-Plume ISB Area		Shallow; Upgradient of Bayou Biobarrier		Shallow; Upgradient of Bayou Biobarrier	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																							
	Dehalococcoides	cells/mL	NV	563		1,540		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																							
	Dissolved oxygen	mg/L	NV	0.2		0.04		0.51		0.5		NA		0.33		0.02		0.48		0.89		0.7	
	Oxidation Reduction Potential	mV	NV	-70		-104		116		54		NA		151		50		10		75		13	
	pH	STD UNIT	NV	6.65		6.9		5.79		6.38		NA		6.28		6.85		6.05		6.35		6.37	
	Specific conductivity	mS/cm	NV	3.71		4.19		3.27		3.62		NA		5.28		5.59		0.564		2.97		3.59	
	Temperature	C	NV	23.24		16.73		21.31		18.25		NA		27.38		13.63		22.88		19.88		18.21	
	Total Purge	Gal	NV	3		3		3		5		NA		3		3		3		3		5	
	Turbidity	NTU	NV	171		43.2		15.3		2		NA		15.3		2		6.4		71.1		61	
	Water Level at Reading Time	Ft BTOC	NV	17.73		17.30		24.07		24.88		NA		17.61		16.85		24.75		27.29		27.94	
GASES																							
	Carbon dioxide	µg/L	NV	144,000	J	130,000	J	NA		NA		NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	6.3		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA	
	Ethylene	µg/L	NV	25.7	J	33.6	J	NA		NA		NA		NA		NA		NA		NA		NA	
	Methane	µg/L	NV	7,790	J	6,270		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																							
	Nitrate	mg/L	10	0.106	J	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	112		190		NA		NA		NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	7.5		9		NA		NA		NA		NA		NA		NA		NA		NA	
PERCHLORATE																							
	Perchlorate	µg/L	17	0.0415	J	< 0.05	U	0.133		0.0598	J	0.0597	J	58.3		21.9		NA		0.0564	J	0.488	
VOLATILES																							
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U	< 5	U	NA		< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	< 0.5	U	0.86	J	0.84	J	4.4	J	4	J	NA		< 0.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	6.5		5		NA		< 0.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	0.52	J	7.8		30		37		37		100		160		NA		0.96	J	6.7	
	Methylene chloride	µg/L	NV	< 2	U	< 1	U	< 2	U	< 1	U	< 1	U	< 10	U	< 5	U	NA		< 2	U	< 1	U
	Trichloroethene	µg/L	5	1.6		2.5		52		130		130		2100		1400		NA		6.1		47	
	Vinyl chloride	µg/L	2	3.7		18		8.1		9.5		10		9.9		16		NA		< 0.5	U	0.94	J

Table 2-6
Year 3 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

			Location Code	16WW39				16WW40				16WW41						16WW56			
			Sample ID	16WW39-220629		16WW39-230125		16WW40-220705		16WW40-230121		16WW41-220629		16WW41-220629-FD		16WW41-230119		16WW56-220616		16WW56-230120	
			Sample Date	6/29/2022		1/25/2023		7/5/2022		1/21/2023		6/29/2022		6/29/2022		1/19/2023		6/16/2022		1/20/2023	
			Sample Purpose	REG		REG		REG		REG		REG		FD		REG		REG		REG	
			Location Description	Shallow; Upgradient of Bayou Biobarrier		Shallow; Upgradient of Bayou Biobarrier		Shallow; Downgradient of Bayou Biobarrier		Shallow; Downgradient of Bayou Biobarrier		Intermediate; Upgradient of Bayou Biobarrier		Intermediate; Upgradient of Bayou Biobarrier		Intermediate; Upgradient of Bayou Biobarrier		Shallow; Downgradient of Bayou Biobarrier		Shallow; Downgradient of Bayou Biobarrier	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																					
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																					
	Dissolved oxygen	mg/L	NV	0.35		0.8		0.62		0.04		2.36		NA		0.8		0.81		0.8	
	Oxidation Reduction Potential	mV	NV	88		146		40		34		50		NA		197		199		107	
	pH	STD UNIT	NV	6.39		6.36		6.47		6.7		6.57		NA		6.71		5.43		6.27	
	Specific conductivity	mS/cm	NV	4.79		5.4		4.95		5.29		13.5		NA		11.9		2.8		2.95	
	Temperature	C	NV	23.4		14.32		23.63		15.15		20.92		NA		17.38		21.5		18.61	
	Total Purge	Gal	NV	3		5		3		3		3		NA		5		3		5	
	Turbidity	NTU	NV	18.3		15		47.1		121		111		NA		12		4.4		0	
	Water Level at Reading Time	Ft BTOC	NV	19.82		20.41		11.46		11.05		25.63		NA		26.31		26.53		26.96	
GASES																					
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		462,000	J	418,000	J	170,000	J	NA		NA	
	Ethane	µg/L	NV	NA		NA		< 0.5	U	2.96	J	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA	
	Ethylene	µg/L	NV	NA		NA		< 0.5	UJ	5.34	J	34.5	J	33.5	J	32	J	NA		NA	
	Methane	µg/L	NV	NA		NA		2,510		909		23.5		23.3		12.2		NA		NA	
GEN CHEMISTRY																					
	Nitrate	mg/L	10	NA		NA		NA		NA		0.498	J	0.498	J	NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		< 0.5	U	NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		NA		7,610		7,970		9,880		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		4.67		5		43.8		46.3		48.4		NA		NA	
PERCHLORATE																					
	Perchlorate	µg/L	17	5.56		7.03		< 0.25	U	0.0305		85		64.6		11		0.0616	J	0.167	
VOLATILES																					
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 10	U	< 10	U	< 5	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	0.93	J	1.6		3.2		2.6		24		21		25		< 0.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	0.72	J	3.7		2.8		6.6	J	5.9	J	4.4	J	< 0.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	28		40		180	J	200		3,800		3,300		3,400		0.89	J	1.4	
	Methylene chloride	µg/L	NV	< 2	U	< 1	U	< 2	U	< 1	U	20	J	21		< 5	U	< 2	U	< 1	U
	Trichloroethene	µg/L	5	230		490		990		480		6,200		5,700		6,800		10		27	
	Vinyl chloride	µg/L	2	2.2		5.3		10		4.7		520		440		720		< 0.5	U	< 1	U

Tabe 2-6
Year 3 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

µg/L - micrograms per liter

B - The concentration reported was detected in the associated method blank, trip blank, or equipment blank within 5×/10× the blank concentration.

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallon

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-7
Year 3 RA-O Analytical Results, Mid-Plume Area, Shallow Zone, LHAAP-16

				Location Code	16EW01		16EW01		16EW02		16EW02		16EW02		16EW03		16EW03	
				Sample ID	16EW01-220705		16EW01-230119		16EW02-220629		16EW02-220629-FD		16EW02-230119		16EW03-220629		16EW03-230119	
				Sample Date	7/5/2022		1/19/2023		6/29/2022		6/29/2022		1/19/2023		6/29/2022		1/19/2023	
				Sample Purpose	REG		REG		REG		FD		REG		REG		REG	
				Location Description	Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area	
Parameter		Units	MCL/PCL/UTL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																		
	Dehalococcoides	cells/mL	NV		NA		NA		8,360		NA		21,000		NA		NA	
FIELD TESTS															NA		NA	
	Dissolved oxygen	mg/L	NV		0.38		0.1		0.51		NA		0.03		0.31		0.02	
	Oxidation Reduction Potential	mV	NV		-21		-25		-1		NA		-26		-148		12	
	pH	STD UNIT	NV		6.55		6.78		6.33		NA		6.6		6.59		6.9	
	Specific conductivity	mS/cm	NV		8.11		8.73		5.05		NA		6.45		5.19		6.14	
	Temperature	C	NV		22.7		18.07		19.81		NA		17.56		20.68		16.75	
	Total Purge	Gal	NV		3		3		3		NA		3		3		3	
	Turbidity	NTU	NV		14.4		8.2		3.3		NA		0		75.2		39	
	Water Level at Reading Time	Ft BTOC	NV		24.47		25.30		22.19		NA		22.94		12.82		12.56	
GASES																		
	Carbon dioxide	µg/L	NV		NA		NA		390,000	J	367,000	J	170,000	J	462,000	J	170,000	J
	Ethane	µg/L	NV		NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	Ethylene	µg/L	NV		NA		NA		467	J	428	J	436	J	783	J	354	J
	Methane	µg/L	NV		NA		NA		236		194		437		2,740		2,160	
GEN CHEMISTRY																		
	Nitrate	mg/L	10		NA		NA		0.0976	J	0.0978	J	NA		0.0984	J	NA	
	Nitrogen	mg/L	NV		NA		NA		NA		NA		< 0.5	UJ	NA		< 0.5	U
	Sulfate	mg/L	NV		NA		NA		1,820		1,770		2,770		1,520		2,270	
	Total organic carbon	mg/L	NV		18.5		17.3		10		9.67		10.9		15.8		15.7	
PERCHLORATE																		
	Perchlorate	µg/L	17		38.1		30.7		0.24	J	0.517	J	< 0.05	U	< 0.05	U	0.0379	J
VOLATILES																		
	1,1,2-Trichloroethane	µg/L	NV		< 10	U	< 5	U	< 25	U	< 25	U	120		< 5	U	< 1	U
	1,1-Dichloroethene	µg/L	7		27		28		99		91		2,800		< 2.5	U	6.6	
	1,2-Dichloroethane	µg/L	5		14	J	18		45		43		950		< 2.5	U	1.1	
	cis-1,2-Dichloroethene	µg/L	70		7,600		7,000		33,000		34,000		39,000		120		1,200	
	Methylene chloride	µg/L	NV		10	J	< 5	U	84		66		< 100	U	15		< 1	U
	Trichloroethene	µg/L	5		2,900		2,400		35,000		38,000		32,000		3.8	J	420	
	Vinyl chloride	µg/L	2		730		890		730		650		1,100		< 2.5	U	630	

Table 2-7
Year 3 RA-O Analytical Results, Mid-Plume Area, Shallow Zone, LHAAP-16

				Location Code	16EW04				16WW30				16WW48			
				Sample ID	16EW04-220623		16EW04-230121		16WW30-220630		16WW30-230123		16WW48-220630		16WW48-230119	
				Sample Date	6/23/2022		1/21/2023		6/30/2022		1/23/2023		6/30/2022		1/19/2023	
				Sample Purpose	REG		REG		REG		REG		REG		REG	
				Location Description	Shallow; Inside Mid-Plume ISB Area		Shallow; Inside Mid-Plume ISB Area		Shallow; Performance Well; Downgradient of Mid-Plume ISB Area		Shallow; Performance Well; Downgradient of Mid-Plume ISB Area		Shallow; Performance Well; Downgradient of Mid-Plume ISB Area		Shallow; Performance Well; Downgradient of Mid-Plume ISB Area	
Parameter		Units	MCL/PCL/UTL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																
	Dehalococcoides	cells/mL	NV		NA		NA		NA		NA		NA		NA	
FIELD TESTS					NA		NA		NA		NA		NA		NA	
	Dissolved oxygen	mg/L	NV		0.16		0.02		0.31		2.1		0.52		0.06	
	Oxidation Reduction Potential	mV	NV		23		39		-52		93		139		119	
	pH	STD UNIT	NV		5.8		6.19		6.12		6.49		6.28		6.65	
	Specific conductivity	mS/cm	NV		5.36		6.63		1.94		1.87		6.6		7.87	
	Temperature	C	NV		23.7		14.17		20.97		16.91		22.3		12.72	
	Total Purge	Gal	NV		3		3		3		5		3		3	
	Turbidity	NTU	NV		54		71.3		236		31		7.4		0	
	Water Level at Reading Time	Ft BTOC	NV		7.60		7.31		7.98		6.38		13.06		12.69	
GASES																
	Carbon dioxide	µg/L	NV		NA		NA		NA		NA		385,000	J	170,000	J
	Ethane	µg/L	NV		NA		NA		NA		NA		< 0.5	U	< 0.5	U
	Ethylene	µg/L	NV		NA		NA		NA		NA		41.8	J	15.6	J
	Methane	µg/L	NV		NA		NA		NA		NA		27.2		25.8	
GEN CHEMISTRY																
	Nitrate	mg/L	10		NA		NA		NA		NA		0.0934	J	NA	
	Nitrogen	mg/L	NV		NA		NA		NA		NA		NA		< 0.5	U
	Sulfate	mg/L	NV		NA		NA		NA		NA		2,460		2,380	
	Total organic carbon	mg/L	NV		NA		NA		NA		NA		NA		NA	
PERCHLORATE																
	Perchlorate	µg/L	17		< 0.05	U	< 0.05		0.176	J	< 0.05	U	7.87		2.35	
VOLATILES																
	1,1,2-Trichloroethane	µg/L	NV		< 10	U	< 100	U	< 1	U	< 1	U	< 25	U	< 100	U
	1,1-Dichloroethene	µg/L	7		12		< 100	U	< 0.5	U	< 1	U	53		60	J
	1,2-Dichloroethane	µg/L	5		6.1	J	< 100	U	< 0.5	U	< 1	U	39		50	J
	cis-1,2-Dichloroethene	µg/L	70		2,700		6,300		3.3		3.3		22,000		23,000	
	Methylene chloride	µg/L	NV		12	J	< 100	U	< 2	U	< 1	U	< 50	U	< 100	U
	Trichloroethene	µg/L	5		9,800		28,000		45		120		20,000		13,000	
	Vinyl chloride	µg/L	2		44		180		< 0.5	U	< 1	U	410		180	

Table 2-7
Year 3 RA-O Analytical Results, Mid-Plume Area, Shallow Zone, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

µg/L - micrograms per liter

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallon

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-8
Year 3 RA-O Analytical Results, Mid-Plume Area, Intermediate Zone, LHAAP-16

			Location Code	16EW08				16IW26				16WW29					
			Sample ID	16EW08-220623		16EW08-230121		16IW26-220629		16IW26-230123		16WW29-220630		16WW29-220630-FD		16WW29-230123	
			Sample Date	6/23/2022		1/21/2023		6/29/2022		1/23/2023		6/30/2022		6/30/2022		1/23/2023	
			Sample Purpose	REG		REG		REG		REG		REG		FD		REG	
			Location Description	Intermediate; Inside Mid-plume ISB Area		Intermediate; Inside Mid-plume ISB Area		Intermediate; Inside Mid-plume ISB Area		Intermediate; Inside Mid-plume ISB Area		Intermediate; Inside Mid-Plume ISB Area		Intermediate; Inside Mid-Plume ISB Area		Intermediate; Inside Mid-Plume ISB Area	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																	
	Dehalococcoides	cells/mL	NV	NA		NA		352,000		204,000		NA		NA		NA	
FIELD TESTS																	
	Dissolved oxygen	mg/L	NV	0.16		0.03		0.05		0.1		0.12		NA		0.4	
	Oxidation Reduction Potential	mV	NV	-31		-70		-183		-150		-83		NA		-56	
	pH	STD UNIT	NV	5.66		6.57		7.07		7.4		6.28		NA		6.27	
	Specific conductivity	mS/cm	NV	0.63		0.37		6.02		6.46		3.86		NA		3.54	
	Temperature	C	NV	29		14.46		19.86		16.08		21.82		NA		17.86	
	Total Purge	Gal	NV	3		3		3		3		3		NA		5	
	Turbidity	NTU	NV	93		114		453		236		67.2		NA		12	
	Water Level at Reading Time	Ft BTOC	NV	5.50		2.25		26.18		27.29		7.49		NA		6.11	
GASES																	
	Carbon dioxide	µg/L	NV	NA		NA		465,000	J	490,000		NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		< 0.5	J	< 0.5	U	NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		34.8	J	52.3	J	NA		NA		NA	
	Methane	µg/L	NV	NA		NA		3,730	J	5,780		NA		NA		NA	
GEN CHEMISTRY																	
	Nitrate	mg/L	10	NA		NA		0.0655	J	< 0.25	U	NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		1.96		3.5		NA		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		85.8		110		NA		NA		NA	
PERCHLORATE																	
	Perchlorate	µg/L	17	< 0.05	U	< 0.05		0.053	J	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U
VOLATILES																	
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 5	U	< 5	U	< 1	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	< 2.5	U	< 5	U	< 0.5	U	< 0.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 2.5	U	< 5	U	< 0.5	U	< 0.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	4.2		0.91	J	< 2.5	U	< 5	U	< 0.5	U	< 0.5	U	< 1	U
	Methylene chloride	µg/L	NV	< 2	U	< 1	U	15		< 5	U	< 2	U	< 2	U	< 1	U
	Trichloroethene	µg/L	5	2.2		2.2		3.6	J	< 5	U	1.7		1.8		2.8	
	Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	< 2.5	U	2	J	< 0.5	U	< 0.5	U	< 1	U

Table 2-8
Year 3 RA-O Analytical Results, Mid-Plume Area, Intermediate Zone, LHAAP-16

			Location Code	16WW49				16WW51			
			Sample ID	16WW49-220629		16WW49-230125		16WW51-220616		16WW51-230120	
			Sample Date	6/29/2022		1/25/2023		6/16/2022		1/20/2023	
			Sample Purpose	REG		REG		REG		REG	
			Location Description	Intermediate; Inside Mid-Plume ISB Area		Intermediate; Inside Mid-Plume ISB Area		Intermediate; Inside Mid-Plume ISB Area		Intermediate; Inside Mid-Plume ISB Area	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC											
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA	
FIELD TESTS											
	Dissolved oxygen	mg/L	NV	0.46		0.13		0.47		0.9	
	Oxidation Reduction Potential	mV	NV	27		8		-16		-41	
	pH	STD UNIT	NV	5.91		6.65		5.98		6.22	
	Specific conductivity	mS/cm	NV	2.47		2.73		3.53		4.16	
	Temperature	C	NV	21.64		16.31		19.77		16.06	
	Total Purge	Gal	NV	3		3		3		5	
	Turbidity	NTU	NV	35.1		23		110		26	
	Water Level at Reading Time	Ft BTOC	NV	18.96		18.79		12.20		11.91	
GASES											
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		NA		NA	
	Methane	µg/L	NV	NA		NA		NA		NA	
GEN CHEMISTRY											
	Nitrate	mg/L	10	NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		NA		NA	
PERCHLORATE											
	Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U
VOLATILES											
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 5	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	2.6	J	9.5	
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 2.5	U	1.5	
	cis-1,2-Dichloroethene	µg/L	70	50		41		170		900	
	Methylene chloride	µg/L	NV	< 2	U	< 1	U	< 10	U	< 1	U
	Trichloroethene	µg/L	5	46		73		2,000		5,900	
	Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	2.7	J	17	

Table 2-8
Year 3 RA-O Analytical Results, Mid-Plume Area, Intermediate Zone, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

The analytical data for these locations are not reported here, as the dilution and alternate method used make them unsuitable for comparison to the pre-remedy samples.

[a] General chemistry samples from 16EW05, 16EW06 were collected. The sample matrix was very viscous during select sampling events and described by the lab as oil and grease. The samples were analyzed as solids with high dilution instead of liquids by the laboratory as a liquid due to the consistency.

B - The concentration reported was detected in the associated method blank, trip blank, or equipment blank within 5×/10× the blank concentration.

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.

µg/L - micrograms per liter

C - degrees Celsius

cells/mL - cells per milliliter

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallon

ID - identifier

ISB - in situ bioremediation

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolt

NA - not analyzed

NTU - nephelometric turbidity unit

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

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

RA-O - remedial action operation

Reg - regular sample

SU - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-9
Year 3 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			Location Code	16WW23						16WW24						16WW27			
			Sample ID	16WW23-220627		16WW23-230121		16WW23-230121-FD		16WW24-220627		16WW24-220627-FD		16WW24-230121		16WW27-220627		16WW27-230121	
			Sample Date	6/27/2022		1/21/2023		1/21/2023		6/27/2022		6/27/2022		1/21/2023		6/27/2022		1/21/2023	
			Sample Purpose	REG		REG		FD		REG		FD		REG		REG		REG	
			Location Description	Intermediate Zone		Intermediate Zone		Intermediate Zone		Shallow Zone		Shallow Zone		Shallow Zone		Intermediate Zone		Intermediate Zone	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																			
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																			
	Dissolved oxygen	mg/L	NV	0.51		0.08		NA		0.53		NA		0.04		0.17		0.09	
	Oxidation Reduction Potential	mV	NV	-48		-44		NA		264		NA		447		-84		-77	
	pH	STD UNIT	NV	6.18		6.4		NA		4.02		NA		3.74		6.19		6.46	
	Specific conductivity	mS/cm	NV	3.42		3.92		NA		2.85		NA		2.43		4.31		4.56	
	Temperature	C	NV	20.19		15.34		NA		20.67		NA		15.43		21		14.09	
	Turbidity	NTU	NV	88		95		NA		0.5		NA		0		15.1		52.1	
GASES																			
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																			
	Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA	
PERCHLORATE																			
	Perchlorate	µg/L	17	< 0.05	U	< 0.05		< 0.05		< 0.05	U	NA		< 0.05		< 0.05	U	< 0.05	
VOLATILES																			
	1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	NA		< 1	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	< 1	U	< 0.5	U	NA		< 1	U	< 0.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 1	U	< 0.5	U	NA		< 1	U	< 0.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 1	U	< 1	U	< 0.5	U	NA		< 1	U	< 0.5	U	< 1	U
	Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 2	U	NA		< 1	U	< 2	U	< 1	U
	Trichloroethene	µg/L	5	< 0.5	U	< 1	U	0.64	J	< 0.5	U	NA		< 1	U	< 0.5	U	1.9	
	Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	< 1	U	< 0.5	UJ	NA		< 1	U	< 0.5	U	< 1	U

Table 2-9
Year 3 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			Location Code	16WW31				16WW32				16WW33				16WW34					
			Sample ID	16WW31-220620		16WW31-230125		16WW32-220620		16WW32-230125		16WW33-220620		16WW33-230125		16WW34-220620		16WW34-220620-FD		16WW34-230125	
			Sample Date	6/20/2022		1/25/2023		6/20/2022		1/25/2023		6/20/2022		1/25/2023		6/20/2022		6/20/2022		1/25/2023	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		FD		REG	
			Location Description	Intermediate Zone		Intermediate Zone		Shallow Zone		Shallow Zone		Intermediate Zone		Intermediate Zone		Shallow Zone		Shallow Zone		Shallow Zone	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																					
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																					
	Dissolved oxygen	mg/L	NV	0.4		0.5		2.06		1		0.34		0.4		0.78		NA		0.6	
	Oxidation Reduction Potential	mV	NV	127		128		100		18		158		88		101		NA		10	
	pH	STD UNIT	NV	6.52		6.17		6.59		6.44		6.22		6.33		6.26		NA		6.19	
	Specific conductivity	mS/cm	NV	0.807		0.941		1.26		1.23		1.89		2.09		1.04		NA		1.28	
	Temperature	C	NV	21.6		13.1		22.39		10.18		19.93		16.68		21.25		NA		14.38	
	Turbidity	NTU	NV	6.3		48		110		134		13.3		55		16.2		NA		196	
GASES																					
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																					
	Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
PERCHLORATE																					
	Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	0.0429	J	< 0.05	U	< 0.05	U
VOLATILES																					
	1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U
	cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U
	Methylene chloride	µg/L	5	< 2	U	< 1	U	< 2	U	< 1	U	< 2	U	< 1	U	< 2	U	< 2	U	< 1	U
	Trichloroethene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	0.82	J	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U
	Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U

Table 2-9
Year 3 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			Location Code	16WW37				16WW38						16WW43				16WW44			
			Sample ID	16WW37-220620		16WW37-230120		16WW38-220620		16WW38-230120		16WW38-230120-FD		16WW43-220627		16WW43-230121		16WW44-220705		16WW44-220705-FD	
			Sample Date	6/20/2022		1/20/2023		6/20/2022		1/20/2023		1/20/2023		6/27/2022		1/21/2023		7/25/2022		7/25/2022	
			Sample Purpose	REG		REG		REG		REG		FD		REG		REG		REG		FD	
			Location Description	Intermediate Zone		Intermediate Zone		Shallow Zone		Shallow Zone		Shallow Zone		Shallow Zone		Shallow Zone		Shallow Zone		Shallow Zone	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																					
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																					
	Dissolved oxygen	mg/L	NV	0.7		1		0.49		1.1				0.6		0.07		0.51			
	Oxidation Reduction Potential	mV	NV	130		79		29		-48				21		31		135			
	pH	STD UNIT	NV	5.9		6.32		6.43		6.04				5.83		6.73		5.58			
	Specific conductivity	mS/cm	NV	4.24		4.31		1.27		2.21				0.594		0.294		0.165			
	Temperature	C	NV	20.01		17.64		20.27		18.16				22.53		14.71		21			
	Turbidity	NTU	NV	57		35		14.2		24				16		25.3		83			
GASES																					
	Carbon dioxide	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																					
	Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
	Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
PERCHLORATE																					
	Perchlorate	µg/L	17	25.1		11.3		0.0381	J	2.14	J	1.38	J	< 0.05	U	0.105		< 0.05	U	< 0.05	U
VOLATILES																					
	1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 5	U	< 20	U	< 20	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1-Dichloroethene	µg/L	7	1.3		1.2		20		19	J	14	J	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 2.5	U	< 20	U	< 20	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
	cis-1,2-Dichloroethene	µg/L	70	14		12		710		460		390		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
	Methylene chloride	µg/L	5	< 2	U	< 1	U	8.4	J	< 20	U	< 20	U	< 2	U	< 1	U	< 2	U	< 2	U
	Trichloroethene	µg/L	5	200		200		4,200		3,700		3,300		< 0.5	U	0.63	J	< 0.5	U	< 0.5	U
	Vinyl chloride	µg/L	2	6.3		7.1		130		110		99		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U

Table 2-9
Year 3 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			Location Code	16WW44		16WW46				16WW57				16WW58			
			Sample ID	16WW44-230121		16WW46-220620		16WW46-230125		16WW57-220623		16WW57-230123		16WW58-220623		16WW58-230123	
			Sample Date	1/21/2023		6/20/2022		1/25/2023		6/23/2022		1/23/2023		6/23/2022		1/23/2023	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG	
			Location Description	Shallow Zone		Shallow Zone		Shallow Zone		Intermediate Zone		Intermediate Zone		Intermediate Zone		Intermediate Zone	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
DHC																	
	Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																	
	Dissolved oxygen	mg/L	NV	0.7		0.11		0.03		1.32		0.08		0.5		0.05	
	Oxidation Reduction Potential	mV	NV	34		-23		11		-30		-24		-107		-88	
	pH	STD UNIT	NV	5.71		6.67		7.11		5.98		6.37		6.39		6.52	
	Specific conductivity	mS/cm	NV	0.229		2.69		1.76		5.75		6.51		2.64		3.65	
	Temperature	C	NV	17.8		20.42		12.23		21.29		14.84		21.76		13.75	
	Turbidity	NTU	NV	18		30.2		118		61.3		271		48.3		269	
GASES																	
	Carbon dioxide	µg/L	NV	NA		NA		NA		327,000	J	170,000		167,000	J	120,000	
	Ethane	µg/L	NV	NA		NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	Ethylene	µg/L	NV	NA		NA		NA		1.36	J	1.1	J	1.64	J	< 0.5	UJ
	Methane	µg/L	NV	NA		NA		NA		1.75	J	3.35		9.12	J	7.47	
GEN CHEMISTRY																	
	Nitrate	mg/L	10	NA		NA		NA		0.238	J	< 0.25	U	0.106	J	< 0.25	U
	Nitrogen	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
	Sulfate	mg/L	NV	NA		NA		NA		2540		3140		473		758	
	Total organic carbon	mg/L	NV	NA		NA		NA		17.9		19.9		5.58		6.48	
PERCHLORATE																	
	Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	U	0.138		< 0.05	U	< 0.05	U	0.0371	J
VOLATILES																	
	1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U	< 10	U	< 50	U
	1,1-Dichloroethene	µg/L	7	< 1	U	< 0.5	U	< 1	U	1.6		< 5	U	< 5	U	< 50	U
	1,2-Dichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 5	U	< 5	U	< 50	U
	cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 0.5	U	< 1	U	1.6		< 5	U	95		200	
	Methylene chloride	µg/L	5	< 1	U	< 2	U	< 1	U	< 2	U	< 5	U	13	J	< 50	U
	Trichloroethene	µg/L	5	2.2		< 0.5	U	0.71	J	120		160		2,600		7,000	
	Vinyl chloride	µg/L	2	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 5	U	< 5	U	< 50	U

Table 2-9
Year 3 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

µg/L - micrograms per liter

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallons

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NS - not sampled

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-10
LHAAP-16 Monitoring Network for Year 4

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	Anions [b] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [c]	TOC (SW9060)	DHC (qPCR)	Metals
Landfill Biobarrier #1 (RAWP Table 4-4)														
16IW09	Performance data within the biobarrier	X	X	X	X	X	X	X	X	X	X	X	X	
16RW01	Upgradient well for monitoring influent concentrations	X	X	X	X	X								
16RW04	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X		X	X	X				
16RW05	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X		X	X	X				
16WW26	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X						X		
16WW42	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X								
Landfill Biobarrier #2 (RAWP Table 4-5)														
16IW03	Performance data within the biobarrier	X	X	X	X	X	X	X	X	X	X	X	X	
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								

Table 2-10
LHAAP-16 Monitoring Network for Year 4

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	Anions [b] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [c]	TOC (SW9060)	DHC (qPCR)	Metals
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						X		
Landfill Biobarrier #3 (RAWP Table 4-6)														
16IW10	Performance data within the biobarrier	X	X	X	X	X	X	X	X	X	X	X	X	
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				
Bayou Biobarrier (RAWP Table 4-7)														
16IW20	Performance data within the biobarrier	X	X	X	X	X	X	X	X	X	X	X	X	
16RW12	Performance data downgradient the biobarrier	X	X	X	X	X								
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								

Table 2-10
LHAAP-16 Monitoring Network for Year 4

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	Anions [b] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [c]	TOC (SW9060)	DHC (qPCR)	Metals
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						X		
16EW02	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X	X	X	X	X	X	X	X	
16EW03	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X	X	X	X	X	X	X		
16EW04	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X								
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	
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	X	X	X	X	X			
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								

Table 2-10
LHAAP-16 Monitoring Network for Year 4

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	Anions [b] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [c]	TOC (SW9060)	DHC (qPCR)	Metals
Surface Water Sampling														
16SW01	Surface water	X	X											X
16SW02	Surface water	X	X											X
16SW03	Surface water	X	X											X
MNA and LTM "Other Wells" (RAWP Table 4-9)														
16WW13	Intermediate	X	X	X	X	X								
16WW16	Shallow	X	X	X	X	X	X	X	X	X	X	X		
16WW23	Intermediate	X	X	X	X	X								
16WW24	Shallow	X	X	X	X	X								
16WW25	Intermediate	X	X	X	X	X								
16WW27	Intermediate	X	X	X	X	X								
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	X	X	X	X	X	X		
16WW37	Intermediate	X	X	X	X	X								
16WW38	Shallow	X	X	X	X	X								
16WW41	Intermediate	X	X	X	X	X	X	X	X	X	X	X		
16WW43	Shallow	X	X	X	X	X								
16WW44	Shallow	X	X	X	X	X								
16WW46	Shallow	X	X	X	X	X								
16WW55	Shallow	X	X	X	X	X	X	X	X	X	X	X		
16WW56	Shallow	X	X	X	X	X								
16WW57	Shallow	X	X	X	X	X	X	X	X	X	X	X		
16WW58	Shallow	X	X	X	X	X	X	X	X	X	X	X		

Table 2-10
LHAAP-16 Monitoring Network for Year 4

Notes:

Metals - arsenic, chromium, manganese, nickel, and thallium.

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

[b] Anions include nitrate and sulfate.

[c] 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.

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

Bhate - Bhate Environmental Associates, Inc.

DCA - dichloroethane

DCE - dichloroethene

DHC - Dehalococcoides

DO - dissolved oxygen

EPA - U.S. Environmental Protection Agency

ISB - in situ bioremediation

MNA - monitored natural attenuation

ORP - oxygen reduction potential

qPCR - quantitative polymerase chain reaction

RAWP - Remedial Action Work Plan

TCA - trichloroethane

TCE - trichloroethene

TOC - total organic carbon

VC - vinyl chloride

VOCs - volatile organic compounds

Table 2-11
Five Year Review Monitoring for Metals, LHAAP-16

Cleanup Levels	Arsenic	Chromium	Manganese [a]	Nickel	Thallium [b]
	10	100	1100/7820	490	2
Shallow Wells					
16WW12		X			X
16WW14		X			X
16WW16			X		X
16WW22				X	X
16WW24		X	X		X
16WW26			X		X
16WW30			X		X
16WW32					X
16WW34		X		X	X
16WW36			X		X
16WW38		X			X
16WW39	X	X	X	X	X
16WW40	X	X	X	X	X
16WW42	X	X	X	X	X
16WW43	X	X	X	X	X
16WW44	X	X	X	X	X
16WW46	X	X	X	X	X
Intermediate Wells					
16WW06					X
16WW13			X		X
16WW23			X		X
16WW25	X		X		X
16WW27			X		X
16WW28			X		X
16WW29			X		X
16WW31		X			X
16WW33			X		X
16WW35	X		X		X
16WW37			X		X
16WW41	X	X	X	X	X
Upper Deep Wells					
16WW19					X
16WW20					X
16WW21					X
Lower Deep Wells					
16WW15					X
16WW17					X
16WW18					X

Notes:

[a] TCEQ Protective Concentration Limit of 1,100 µg/L and background of 7,820 µg/L.

[b] Historically, thallium was not detected; however, the detection limits were above the cleanup level.

µg/L - micrograms per liter

Table 2-12
Year 3 RA-O FYR Analytical Results for Metals, LHAAP-16

			Location Code	16WW06		16WW12		16WW13		16WW14		16WW15		16WW16		16WW17		16WW18	
			Sample ID	16WW06-220706		16WW12-220705		16WW13-220705		16WW14-220620		16WW15-220706		16WW16-220630		16WW17-220706		16WW18-220706	
			Sample Date	7/6/2022		7/5/2022		7/5/2022		6/20/2022		7/6/2022		6/30/2022		7/6/2022		7/6/2022	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
			Location Description	Intermediate Zone		Shallow Zone		Intermediate Zone		Shallow Zone		Lower Deep Zone		Shallow Zone		Lower Deep Zone		Lower Deep Zone	
Parameter		Units	MCL/PCL/UTL	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	0.63		0.33		1.07		0.28		0.39		0.78		0.35		0.88	
	Oxidation Reduction Potential	mV	NV	-8		151		138		47		16		84		9		-105	
	pH	STD UNITS	NV	6.19		6.28		5.36		6.48		8.29		6.32		8.73		7.2	
	Specific conductivity	mS/cm	NV	1.75		5.28		3.77		4.06		0.89		3.76		1.05		0.777	
	Temperature	C	NV	21.38		27.38		28.26		20.21		22.73		19.75		22.47		22.37	
	Turbidity	NTU	NV	23		43.1		97.1		38.1		5.6		17.2		5		3.5	
METALS																			
	Arsenic	mg/L	0.01	NA		NA		NA		NA		NA		NA		NA		NA	
	Chromium	mg/L	0.1	NA		0.578		NA		0.285		NA		NA		NA		NA	
	Manganese	mg/L	7.8	NA		NA		12.6		NA		NA		1.39		NA		NA	
	Nickel	mg/L	0.49	NA		NA		NA		NA		NA		NA		NA		NA	
	Thallium	mg/L	0.002	< 0.0005	U	< 0.0005	U	< 0.001	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U

Table 2-12
Year 3 RA-O FYR Analytical Results for Metals, LHAAP-16

		Location Code	16WW19		16WW20		16WW21		16WW22		16WW23		16WW24					
		Sample ID	16WW19-220706		16WW20-220620		16WW21-220706		16WW22-220629		16WW23-220627		16WW24-220627		16WW24-220627-FD		16WW24-230121	
		Sample Date	7/6/2022		6/20/2022		7/6/2022		6/29/2022		6/27/2022		6/27/2022		6/27/2022		1/21/2023	
		Sample Purpose	REG		REG		REG		REG		REG		REG		FD		REG	
		Location Description	Upper Deep Zone		Upper Deep Zone		Upper Deep Zone		Shallow Zone		Intermediate Zone		Shallow Zone		Shallow Zone		Shallow Zone	
Parameter		Units	MCL/PCL/UTL	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	0.61		0.87		0.48		0.89		0.51		0.53		NA		0.04	
	Oxidation Reduction Potential	mV	NV	-1		-7		10		75		-48		264		NA		447	
	pH	STD UNITS	NV	9.17		10.09		6.05		6.35		6.18		4.02		NA		3.74	
	Specific conductivity	mS/cm	NV	0.61		0.334		0.564		2.97		3.42		2.85		NA		2.43	
	Temperature	C	NV	21.13		20.33		22.88		19.88		20.19		20.67		NA		15.43	
	Turbidity	NTU	NV	132		2.3		6.4		71.1		88		0.5		NA		0	
METALS																			
	Arsenic	mg/L	0.01	NA		NA		NA		NA		NA		NA		NA		NA	
	Chromium	mg/L	0.1	NA		NA		NA		NA		NA		0.386		0.334		NA	
	Manganese	mg/L	7.8	NA		NA		NA		NA		19.7		NA		NA		6.2	
	Nickel	mg/L	0.49	NA		NA		NA		0.331		NA		NA		NA		NA	
	Thallium	mg/L	0.002	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	NA	

Table 2-12
Year 3 RA-O FYR Analytical Results for Metals, LHAAP-16

			Location Code	16WW25		16WW26		16WW27		16WW28		16WW29		16WW30		16WW31		16WW32	
			Sample ID	16WW25-220630		16WW26-220630		16WW27-220627		16WW28-220627		16WW29-220630		16WW30-220630		16WW31-220620		16WW32-220620	
			Sample Date	6/30/2022		6/30/2022		6/27/2022		6/27/2022		6/30/2022		6/30/2022		6/20/2022		6/20/2022	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
			Location Description	Intermediate Zone		Shallow Zone		Intermediate Zone		Intermediate Zone		Intermediate Zone		Shallow Zone		Intermediate Zone		Shallow Zone	
Parameter		Units	MCL/PCL/UTL	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	0.11		0.45		0.17		0.29		0.12		0.31		0.4		2.06	
	Oxidation Reduction Potential	mV	NV	-51		183		-84		20		-83		-52		127		100	
	pH	STD UNITS	NV	6.17		5.02		6.19		5.7		6.28		6.12		6.52		6.59	
	Specific conductivity	mS/cm	NV	7.94		0.966		4.31		2.59		3.86		1.94		0.807		1.26	
	Temperature	C	NV	22.4		21.85		21		19.77		21.82		20.97		21.6		22.39	
	Turbidity	NTU	NV	55		70.1		15.1		186		67.2		236		6.3		110	
METALS																			
	Arsenic	mg/L	0.01	< 0.0125	U	NA		NA		NA		NA		NA		NA		NA	
	Chromium	mg/L	0.1	NA		NA		NA		NA		NA		NA		0.0592		NA	
	Manganese	mg/L	7.8	11.5		1.19	B	18		8.56		7.36	B	0.844		NA		NA	
	Nickel	mg/L	0.49	NA		NA		NA		NA		NA		NA		NA		NA	
	Thallium	mg/L	0.002	< 0.005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U

Table 2-12
Year 3 RA-O FYR Analytical Results for Metals, LHAAP-16

			Location Code	16WW33		16WW34		16WW35		16WW36		16WW37		16WW38		16WW39		16WW40	
			Sample ID	16WW33-220620		16WW34-220620		16WW35-220630		16WW36-220630		16WW37-220620		16WW38-220620		16WW39-220629		16WW40-220705	
			Sample Date	6/20/2022		6/20/2022		6/30/2022		6/30/2022		6/20/2022		6/20/2022		6/29/2022		7/5/2022	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
			Location Description	Intermediate Zone		Shallow Zone		Intermediate Zone		Shallow Zone		Intermediate Zone		Shallow Zone		Shallow Zone		Shallow Zone	
Parameter		Units	MCL/PCL/UTL	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	0.34		0.78		0.27		0.26		0.7		0.49		0.35		0.62	
	Oxidation Reduction Potential	mV	NV	158		101		87		118		130		29		88		40	
	pH	STD UNITS	NV	6.22		6.26		6.73		6.3		5.9		6.43		6.39		6.47	
	Specific conductivity	mS/cm	NV	1.89		1.04		16.4		10.1		4.24		1.27		4.79		4.95	
	Temperature	C	NV	19.93		21.25		20.17		19.9		20.01		20.27		23.4		23.63	
	Turbidity	NTU	NV	13.3		16.2		6.4		0		57		14.2		18.3		47.1	
METALS																			
	Arsenic	mg/L	0.01	NA		NA		< 0.0125	U	NA		NA		NA		0.000805	J	0.011	
	Chromium	mg/L	0.1	NA		0.155	J	NA		NA		NA		0.177		0.0007	J	0.00154	J
	Manganese	mg/L	7.8	0.535		NA		7.88	B	13.6		5.09		NA		0.125	B	2.3	
	Nickel	mg/L	0.49	NA		1.42		NA		NA		NA		NA		0.0106		0.0247	
	Thallium	mg/L	0.002	< 0.0005	U	< 0.0005	U	< 0.005	U	< 0.005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U

Table 2-12
Year 3 RA-O FYR Analytical Results for Metals, LHAAP-16

				Location Code	16WW41		16WW42		16WW43		16WW44		16WW46	
				Sample ID	16WW41-220629		16WW42-220705		16WW43-220627		16WW44-220705		16WW46-220620	
				Sample Date	6/29/2022		7/5/2022		6/27/2022		7/25/2022		6/20/2022	
				Sample Purpose	REG		REG		REG		REG		REG	
				Location Description	Intermediate Zone		Shallow Zone		Shallow Zone		Shallow Zone		Shallow Zone	
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	2.36		0.4		0.6		0.51		0.11	
	Oxidation Reduction Potential	mV	NV	50		99		21		135		-23	
	pH	STD UNITS	NV	6.57		5.69		5.83		5.58		6.67	
	Specific conductivity	mS/cm	NV	13.5		5.31		0.594		0.165		2.69	
	Temperature	C	NV	20.92		26.38		22.53		21		20.42	
	Turbidity	NTU	NV	111		49.1		16		83		30.2	
METALS													
	Arsenic	mg/L	0.01	< 0.00125	U	0.00161	J	0.00868		0.0132		0.00649	
	Chromium	mg/L	0.1	0.28		0.000703	J	0.00108	J	0.000469	J	0.0049	J
	Manganese	mg/L	7.8	1.14		32		0.689		0.0571		0.475	
	Nickel	mg/L	0.49	2.1		0.0886		0.0127		0.00284	J	0.00389	J
	Thallium	mg/L	0.002	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U

Table 2-12
Year 3 RA-O FYR Analytical Results, LHAAP-16

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

16WW24 - The lab incorrectly analyzed magnesium in June 2022 instead of manganese. Manganese was resampled in January 2023

µg/L - micrograms per liter

B - The concentration reported was detected in the associated method blank, trip blank, or equipment blank within 5×/10× the blank concentration.

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

cells/mL - cells per milliliter

deg. C - degrees Celsius

FD - field duplicate

Ft BTOC - feet below top of casing

Gal - gallon

ID - identifier

L - liters

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NTU - nephelometric turbidity unit

NV - no value

PCL - protective concentration level

RA-O - remedial action operation

Reg - regular sample

STD UNIT - standard unit

UTL - upper tolerance limit; the manganese cleanup value is a background 95% UTL

Val Qual - validation qualifier

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16EW01	02/10/2010	770	68.1
	02/16/2011	729	36.4
	12/04/2012	1050	380 J
	02/05/2014	245	8470
	02/19/2015	217	12800
	02/25/2016	206	7250
	02/07/2018	130	3600
	02/26/2019	51 J	3700
	03/09/2020	28	3700
	07/16/2020	28.4	4700
	10/20/2020	27.5	5400
	01/25/2021	180 J	4100
	04/21/2021	41.9	3500
	07/13/2021	29	990
	10/20/2021	40.3	970
	01/13/2022	61	1800
	07/05/2022	38.1	2900
	01/19/2023	30.7	2400
16EW02	02/10/2010	38	102000
	02/16/2011	29.3	68000
	12/04/2012	151	33400
	02/05/2014	2.28	34900
	02/19/2015	0.482	57800
	02/25/2016	2.64	47100
	02/07/2018	5	19000
	10/09/2018	< 2 U	24000
	02/26/2019	< 2 U	34000
	09/18/2019	< 2 U	42000
	03/09/2020	25	17000
	07/16/2020	16.2	37000
	10/21/2020	< 0.05 U	26000
	01/26/2021	< 0.5 U	38000
	04/19/2021	0.53	23000
	07/26/2021	0.984 J	25000
	10/20/2021	2.53	23000
	01/12/2022	1.6	19000
	06/29/2022	0.24 J	35000
	01/19/2023	< 0.05 U	32000
16EW03	02/10/2010	< 3	44900
	02/16/2011	6.54	30500
	12/04/2012	0.139 J	31400
	02/05/2014	1.83	5800
	02/19/2015	0.554	3190
	02/25/2016	< 0.2 U	29600
	02/07/2018	< 4 U	24000
	02/26/2019	< 2 U	7400
	03/25/2020	< 10 U	170
16EW03	07/28/2020	2.09	60
	10/22/2020	< 0.1 U	130
	02/02/2021	< 0.5 UJ	290

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16EW03 (cont.)	04/21/2021	< 0.05 U	250
	07/22/2021	< 0.5 U	77
	10/20/2021	< 0.2 U	54
	01/27/2022	< 0.2 U	84
	06/29/2022	< 0.5 U	3.8 J
	01/19/2023	0.0379 J	420
16EW04	02/10/2010	< 1.5	758
	02/16/2011	0.518	11000
	12/04/2012	0.165 J	53500
	02/05/2014	12.7	31000
	02/19/2015	2.97	24400
	02/25/2016	0.229 J	40200
	02/07/2018	< 4 U	67
	02/26/2019	< 2 U	900
	03/09/2020	< 2 U	3400
	07/28/2020	1.42	15000
	10/20/2020	< 0.05 U	520 J-
	02/02/2021	< 0.5 UJ	17000
	04/19/2021	< 0.05 U	9500
	07/26/2021	< 0.5 U	3100
	10/20/2021	< 0.2 U	5100
	01/12/2022	< 0.2 U	3400
	06/23/2022	< 0.5 U	9800
	01/21/2023	< 0.5	28000
16EW05	02/10/2010	4.4	15.1
	02/16/2011	252	501
	12/04/2012	529	7130
	02/05/2014	334	7410
	02/19/2015	67	570
	02/25/2016	410	4010
	02/07/2018	130	100 J
	02/26/2019	230	1700
	03/30/2020	< 20 U	< 50 UJ
	07/16/2020	0.16 J	< 100 U
	10/21/2021	0.164 J	< 5000 UJ
	01/27/2022	0.16 J	< 2500 U
16EW06	02/10/2010	30	2580
	02/16/2011	123	8330
	12/04/2012	76.4	6370
	02/05/2014	190	2710
	02/19/2015	75.5	6740
	02/25/2016	0.389 J	2360
	02/07/2018	< 4 U	660
	10/09/2018	< 2 U	5500
	02/26/2019	< 2 U	250
	09/18/2019	42	6500
	03/25/2020	< 10 U	< 50 U
	07/16/2020	< 0.75 U	40 J
	10/21/2020	< 0.75 U	< 250 U
	02/02/2021	< 0.75 U	< 250 U
	04/22/2021	< 7.5 U	< 500 U

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16EW06 (cont.)	07/27/2021	NA	5000
	10/21/2021	< 0.2 UJ	3000 J
	01/27/2022	< 1 U	< 2400 U
16EW07	02/10/2010	< 3	184
	02/16/2011	1.85	356
	12/04/2012	< 0.2 U	304
	02/05/2014	< 0.2 U	573
	02/19/2015	< 0.2 U	859
	02/25/2016	< 0.2 U	386
	02/07/2018	< 4 U	130
	02/26/2019	< 2 U	81
	03/25/2020	< 10 U	100
	07/28/2020	4.68 J	5000 J-
	10/22/2020	< 0.75 U	490 J
	02/02/2021	< 0.75 U	< 250 U
	04/15/2021	0.375 J	< 500 U
	07/27/2021	< 0.75 U	< 500 UJ
	10/21/2021	0.22 J	< 5000 UJ
	01/25/2022	< 2 U	< 5000 U
16EW08	02/10/2010	< 1.2	39.8
	02/16/2011	0.116	196
	12/04/2012	< 0.2 U	122
	02/05/2014	0.823	53.9
	02/19/2015	< 0.2 U	59.9
	02/25/2016	< 0.2 U	35.8
	02/07/2018	< 4 U	460
	02/26/2019	< 2 U	170
	03/31/2020	< 20 U	52 J
	07/28/2020	0.0836 J	< 25 U
	10/20/2020	< 0.05 U	1.6
	02/02/2021	< 0.05 UJ	3.1
	04/19/2021	< 0.05 U	2.6
	07/26/2021	< 0.05 U	1.8
	10/20/2021	< 0.2 U	3.3 J
	01/12/2022	< 0.2 U	3.4
	06/23/2022	< 0.05 U	2.2
	01/21/2023	< 0.05	2.2
16IW03	03/25/2020	< 2 U	8000
	07/28/2020	1.85	13000
	10/13/2020	0.0876 J	10000
	01/26/2021	< 0.5 U	8800
	04/20/2021	0.754 J	8900
	07/22/2021	< 0.5 U	8100
	10/21/2021	< 0.2 U	9000 J
	01/27/2022	< 1 U	5600
	06/29/2022	0.126	7300
	01/23/2023	< 0.05 U	3600 J
16IW09	03/25/2020	< 2 UJ	< 5 UJ
	07/16/2020	0.184 J	< 25 U
	10/13/2020	0.0381 J	5.8
	01/26/2021	< 0.25 U	1

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16IW09 (cont.)	04/22/2021	< 0.05 U	0.62 J
	07/14/2021	< 1 U	3.8
	10/20/2021	< 0.2 U	0.99 J
	01/25/2022	0.16 J	< 0.5 U
16IW10	03/25/2020	< 2 U	200
	07/14/2020	< 0.5 U	190
	10/13/2020	< 0.1 U	46
	01/26/2021	< 0.5 U	31
	04/21/2021	< 0.1 U	5.4
	07/22/2021	< 0.1 U	13
	10/20/2021	< 0.2 U	< 5 U
	01/25/2022	0.13 J	0.91 J
	06/23/2022	0.108	2.1
	01/23/2023	< 0.05 U	1.6
16IW20	03/09/2020	< 2 U	850
	07/21/2020	0.562 J	280
	10/21/2020	< 0.05 U	130
	01/27/2021	< 0.5 UJ	13
	04/21/2021	< 0.05 U	5.7
	07/22/2021	< 0.5 U	7.6
	10/21/2021	< 0.2 U	1.2 J
	01/25/2022	< 0.2 U	0.96 J
	06/23/2022	0.0415 J	1.6
	01/19/2023	< 0.05 U	2.5
16IW26	06/29/2022	0.053 J	3.6 J
	01/23/2023	< 0.05 U	< 5 U
16PM02	03/17/2020	< 2 U	21000
	07/20/2020	0.0686 J	31000
	10/26/2020	< 0.05 U	65000
	01/22/2021	< 0.05 UJ	23000
	04/14/2021	0.0372 J	15000
	07/13/2021	< 2.5 U	17000
	10/25/2021	< 0.2 U	16000
	01/24/2022	< 0.2 U	31000
	06/16/2022	< 0.05 U	32000
	01/21/2023	< 0.05 U	80000
16PM03	03/17/2020	400	9700
	07/20/2020	245	9100
	10/26/2020	360	12000
	01/22/2021	330 J	9800
	04/14/2021	193	8800
	07/13/2021	118	8400
	10/25/2021	220	6300
	01/24/2022	278	6800
	06/16/2022	253	8400
	01/21/2023	285	9100
16PM06	03/10/2020	< 2 U	44000
	07/20/2020	< 0.5 U	58000
	10/26/2020	< 0.05 U	85000
	02/02/2021	< 0.5 UJ	49000 J
	04/13/2021	< 0.5 U	77000

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16PM06 (cont.)	07/13/2021	0.0474 J	57000
	10/26/2021	< 0.2 U	19000
	01/24/2022	< 0.2 U	28000
	06/27/2022	< 0.05 U	71000
	01/21/2023	0.036 J	85000
16PM09	03/10/2020	< 2 U	680
	07/20/2020	< 0.05 U	1400
	10/26/2020	0.0253 J	2000
	01/22/2021	< 0.05 UJ	1300
	04/13/2021	0.0355 J	640
	07/22/2021	< 0.05 U	370
	10/26/2021	< 0.2 U	770
	01/24/2022	< 0.2 U	1300
	06/27/2022	0.0333 J	1200
	01/21/2023	< 0.05 U	2100
16PM14	03/10/2020	< 2 U	4900
	07/20/2020	0.435 J	5100
	10/26/2020	< 0.1 U	5400
	02/02/2021	0.648 J	3800
	04/13/2021	0.259 J	4300
	07/22/2021	< 0.5 U	3700
	10/26/2021	< 0.2 U	2200
	01/24/2022	< 0.2 U	2300
	06/27/2022	< 0.05 U	5700
	01/21/2023	< 0.05 U	5400
16RW01	03/12/2020	< 2 U	3300
	07/27/2020	1.63	4200
	10/20/2020	< 0.05 U	4000
	01/22/2021	< 0.05 UJ	2900
	04/14/2021	0.0618 J	3000
	07/26/2021	< 0.5 U	2300
	10/26/2021	< 0.2 U	2200
	01/24/2022	0.053 J	1200
	06/16/2022	0.0675 J	2100
	01/23/2023	< 0.05 U	2000
16RW02	03/12/2020	< 2 U	2.3
	07/21/2020	< 0.05 U	4.8
	10/22/2020	< 0.05 U	6.7
	01/22/2021	< 0.05 UJ	1.9
	04/14/2021	0.0612 J	3.1
	07/26/2021	0.0255 J	2.1
	10/13/2021	< 0.2 U	2.7
	01/24/2022	< 0.2 U	2.7
16RW04	03/09/2020	< 2 U	3000
	07/28/2020	2.08	3500
	10/21/2020	< 0.05 U	3400
	01/28/2021	0.328 J	2800
	04/14/2021	< 0.05 U	1100
	07/26/2021	< 0.5 U	1200
	10/20/2021	< 0.2 U	1600
	01/24/2022	< 0.2 U	970

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16RW04	07/05/2022	< 0.05 U	2500
(cont.)	01/19/2023	< 0.05 U	3300
16RW05	03/12/2020	< 2 U	3
	07/16/2020	1.77	< 5 U
	10/22/2020	< 0.05 U	0.89 J
	01/29/2021	< 0.5 U	< 0.5 U
	04/19/2021	< 0.1 U	0.52 J
	07/14/2021	< 2 U	1.1
	10/18/2021	< 0.2 U	< 0.5 U
	01/24/2022	< 0.2 U	0.81 J
	06/27/2022	0.0509 J	< 0.5 U
	01/23/2023	< 0.05 U	6.1
16RW06	03/17/2020	< 2 U	86
	07/14/2020	< 0.5 U	77 J+
	10/26/2020	< 0.1 U	110
	01/22/2021	< 0.25 UJ	95
	04/19/2021	< 0.5 U	60
	07/27/2021	< 1 U	64 J
	10/25/2021	< 0.2 U	34
	01/25/2022	0.089 J	37
	06/16/2022	0.12	73
	01/19/2023	< 0.05 U	160
16RW07	03/17/2020	4.9	1900
	07/14/2020	2.45	2100
	10/26/2020	0.391	1100
	01/22/2021	0.638 J	2000
	04/19/2021	1	900
	07/27/2021	< 0.5 U	760 J
	10/25/2021	0.262 J	700
	01/25/2022	0.27	540
	06/16/2022	0.335	780
	01/19/2023	0.633	2200
16RW09	03/11/2020	< 2 U	1300
	07/14/2020	0.491 J	1300
	10/26/2020	0.12 J	980
	02/02/2021	0.459 J	690
	04/20/2021	0.241	810
	07/14/2021	< 2 U	1.1
	07/27/2021	< 1 U	1400
	10/26/2021	< 0.2 U	610
	01/26/2022	< 0.2 U	730
	07/05/2022	< 0.05 U	1900
	01/25/2023	< 0.05 U	590
16RW10	03/11/2020	150	4800
	07/20/2020	62.7	1800
	10/26/2020	8.11	2000
	02/02/2021	125 J	5300
	04/20/2021	36.5	2400
	07/27/2021	18.7	2000
	10/26/2021	27.8	950
	01/26/2022	4.1	1300

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16RW10	07/05/2022	2.05	930
(cont.)	01/25/2023	3.39	1100
16RW11	03/17/2020	< 2 U	20
	07/21/2020	< 0.05 U	8.9 J-
	10/21/2020	< 0.05 U	3.7
	02/03/2021	< 0.25 UJ	2.2
	04/21/2021	0.0617 J	2
	07/22/2021	< 0.5 U	2.3
	10/21/2021	< 0.2 U	1.3 J
	01/26/2022	< 0.2 U	1.1
16RW12	06/16/2022	0.133	52
	01/20/2023	0.0598 J	130
16SW01	10/11/2018	< 2 U	< 0.5 U
	10/11/2018	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/28/2020	< 0.05 U	< 0.5 U
	10/26/2020	< 0.05 U	< 0.5 U
	01/27/2021	< 0.05 U	< 0.5 U
	04/19/2021	< 0.25 U	< 0.5 U
	07/26/2021	< 0.05 U	< 0.5 U
	01/26/2022	0.18 J	< 0.5 U
16SW02	10/11/2018	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/28/2020	< 0.05 U	< 0.5 U
	10/26/2020	< 0.05 U	< 0.5 U
	01/27/2021	< 0.05 U	< 0.5 U
	04/19/2021	< 0.25 U	< 0.5 U
	07/26/2021	< 0.05 U	< 0.5 U
	01/26/2022	0.17 J	< 0.5 U
16SW03	10/11/2018	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/28/2020	< 0.05 U	< 0.5 U
	10/26/2020	< 0.05 U	< 0.5 U
	01/27/2021	< 0.05 U	< 0.5 U
	04/19/2021	< 0.25 U	< 0.5 U
	07/26/2021	< 0.05 U	< 0.5 U
	01/26/2022	0.18 J	< 0.5 U
16WW12	05/23/2013	248	3290
	10/12/2018	12	4100
	09/18/2019	120	2100
	03/11/2020	53	1700
	07/21/2020	61.5	2800
	10/21/2020	18.5	1500
	02/03/2021	24.1 J	1100
	04/21/2021	42.1	2100
	07/28/2021	16	1700
	10/21/2021	23.2	1000 J
	01/26/2022	30.5	1100
	07/05/2022	58.3	2100
	01/25/2023	21.9	1400
16WW13	05/21/2013	< 0.2 U	50.4

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW13 (cont.)	10/12/2018	< 2 U	4400
	09/18/2019	< 2 U	630
	03/12/2020	< 2 U	7.5
	07/23/2020	0.134	190
	10/22/2020	< 0.05 U	1100
	01/22/2021	< 0.05 UJ	97
	04/19/2021	0.292	22
	07/26/2021	< 0.5 U	1500
	10/26/2021	< 0.2 U	2800
	01/27/2022	< 1 U	2300
	07/05/2022	< 0.05 U	2500
	01/21/2023	< 0.05	89 J
16WW14	05/21/2013	1.32	72.1
	10/10/2018	< 2 U	42
	09/16/2019	< 2 U	25
	03/17/2020	< 2 U	33
	07/20/2020	0.544 J	42
	10/19/2020	< 0.05 U	25
	01/22/2021	< 0.05 UJ	18
	04/12/2021	< 0.05 U	17
	07/12/2021	0.21	8.4
	10/25/2021	< 0.2 U	12
	01/10/2022	0.21	17
16WW16	05/22/2013	443	22000
	10/10/2018	420	21000
	09/16/2019	460	13000
	03/11/2020	510	27000
	07/14/2020	442	28000
	10/08/2020	480	32000
	01/20/2021	309	5700
	04/15/2021	288	28000
	07/20/2021	408	30000
	10/13/2021	555	34000
	01/11/2022	561	29000
	06/30/2022	581	40000
	01/19/2023	630	63000
16WW21	10/12/2018	< 2 U	< 0.5 U
	03/16/2020	< 2 U	1.3
	07/15/2020	0.25	0.55 J
	10/14/2020	< 0.05 U	1.5
	02/03/2021	< 0.05 UJ	< 0.5 U
	04/15/2021	< 0.05 U	1.1
	07/20/2021	< 0.5 U	1
	10/19/2021	< 0.2 U	0.56 J
	01/13/2022	< 0.2 U	0.95 J
16WW22	05/21/2013	65.4	323
	10/10/2018	5.5	150
	09/17/2019	< 2 U	34
	03/16/2020	< 2 U	52
	07/15/2020	0.442 J	24
	10/14/2020	< 0.05 U	7.8

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW22 (cont.)	01/25/2021	0.246 J	30
	04/15/2021	0.471	12
	07/20/2021	0.148	13
	10/19/2021	0.486	7.6
	01/11/2022	0.4	13
	06/29/2022	0.0564 J	6.1
	01/20/2023	0.488	47
16WW23	05/20/2013	< 0.2 U	< 0.5 U
	10/12/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/31/2020	< 20 U	< 0.5 U
	07/27/2020	< 0.05 U	< 0.5 U
	10/08/2020	< 0.05 U	< 0.5 U
	01/28/2021	0.346 J	< 0.5 U
	04/22/2021	< 0.05 U	< 0.5 U
	07/14/2021	< 2 U	< 0.5 U
	10/13/2021	< 0.2 UJ	1.8
	01/27/2022	< 1 U	< 0.5 U
	06/27/2022	< 0.05 U	< 0.5 U
	01/21/2023	< 0.05	< 1 U
16WW24	05/20/2013	< 0.2 U	< 0.5 U
	10/09/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/27/2020	2.38	< 0.5 U
	10/08/2020	< 0.05 U	< 0.5 U
	01/28/2021	< 0.5 U	< 0.5 U
	04/22/2021	< 0.05 U	< 0.5 U
	07/14/2021	< 0.5 U	< 0.5 U
	10/13/2021	< 0.2 U	1.2
	01/27/2022	< 0.2 U	< 0.5 U
	06/27/2022	< 0.05 U	< 0.5 U
	01/21/2023	< 0.05	< 1 U
16WW25	05/22/2013	< 0.2 U	< 0.5 U
	10/09/2018	< 2 U	< 0.5 U
	09/19/2019	< 2 U	< 0.5 U
	03/16/2020	< 2 U	0.85 J
	07/21/2020	0.512 J	0.58 J
	10/14/2020	0.077 J	< 0.5 U
	01/21/2021	< 0.5 U	< 0.5 U
	04/20/2021	< 0.25 U	< 0.5 U
	07/13/2021	< 1 U	< 0.5 U
	10/14/2021	< 0.2 U	< 0.5 U
	01/12/2022	< 0.2 U	< 0.5 U
	06/30/2022	< 0.05 U	1.3
	01/23/2023	< 0.05 U	4.9
16WW26	05/23/2013	0.262 J	4580
	10/09/2018	< 2 U	2400
	09/17/2019	< 2 U	380
	09/18/2019	< 2 U	440
	03/09/2020	< 2 U	900

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW26 (cont.)	07/21/2020	0.025 J	490
	10/14/2020	< 0.05 U	850
	01/21/2021	< 0.05 U	1000
	04/20/2021	< 0.05 U	130
	07/13/2021	< 1 U	26
	10/14/2021	< 0.2 U	500
	01/12/2022	< 0.2 U	440
	06/30/2022	< 0.05 U	1100
	01/23/2023	< 0.05 U	710
16WW27	05/20/2013	< 0.2 U	< 0.5 U
	10/12/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/12/2020	< 2 U	1.1
	07/23/2020	< 0.5 U	< 0.5 U
	10/22/2020	< 0.05 U	1.2
	01/28/2021	< 0.5 U	< 0.5 U
	04/22/2021	< 0.05 U	< 0.5 U
	07/28/2021	< 0.25 U	< 0.5 U
	10/18/2021	< 0.2 U	< 0.5 U
	01/25/2022	< 0.2 U	< 0.5 U
	06/27/2022	< 0.05 U	< 0.5 U
	01/21/2023	< 0.05	1.9
16WW29	05/21/2013	< 0.2 U	1.07
	10/15/2018	< 2	3.3
	09/18/2019	< 2 U	2.7
	03/30/2020	< 2 U	< 0.5 U
	07/15/2020	< 0.5 U	< 0.5 U
	10/14/2020	< 0.05 U	< 0.5 U
	01/21/2021	< 0.05 U	0.99 J
	04/20/2021	< 0.05 U	< 0.5 U
	07/20/2021	< 0.25 U	< 0.5 U
	10/14/2021	< 0.2 U	0.64 J
	01/12/2022	< 0.2 U	< 0.5 U
	06/30/2022	< 0.05 U	1.7
	01/23/2023	< 0.05 U	2.8
16WW30	05/23/2013	< 0.2 U	203
	10/12/2018	< 2 U	1.8
	09/18/2019	< 2 U	360
	03/30/2020	< 2 U	14
	07/15/2020	0.309 J	3.5
	10/14/2020	< 0.05 U	5.7
	01/21/2021	< 0.05 U	2.2
	04/20/2021	< 0.05 U	11
	07/20/2021	< 0.05 U	12
	10/14/2021	< 0.2 UJ	32
	01/12/2022	< 0.2 U	31
	06/30/2022	0.176 J	45
	01/23/2023	< 0.05 U	120
16WW31	05/22/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/12/2020	< 2 U	1.1

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW31 (cont.)	07/27/2020	1.31	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	01/19/2021	< 0.05 U	< 0.5 U
	04/12/2021	< 0.05 U	< 0.5 U
	07/12/2021	< 2.5 U	< 0.5 U
	10/18/2021	< 0.2 U	< 0.5 U
	01/11/2022	< 0.2 U	< 0.5 U
	06/20/2022	< 0.05 U	< 0.5 U
	01/25/2023	< 0.05 U	< 1 U
16WW32	05/21/2013	< 0.2 U	< 0.5 U
	10/11/2018	< 2	< 0.5 U
	03/12/2020	< 2 U	9.9
	07/27/2020	< 0.05 U	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	01/19/2021	< 0.05 U	< 0.5 U
	04/12/2021	< 0.05 U	< 0.5 U
	07/12/2021	< 5 U	< 0.5 U
	10/18/2021	< 0.2 U	< 0.5 U
	01/10/2022	0.089 J	< 0.5 U
	06/20/2022	< 0.05 U	< 0.5 U
	01/25/2023	< 0.05 U	0.82 J
16WW33	05/18/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/12/2020	< 2 U	79
	07/23/2020	< 0.5 U	< 0.5 U
	10/19/2020	0.0259 J	< 0.5 U
	02/03/2021	< 0.05 UJ	< 0.5 U
	04/12/2021	< 0.05 U	< 0.5 U
	07/12/2021	< 5 U	< 0.5 U
	10/18/2021	< 0.2 U	< 0.5 U
	01/10/2022	0.12 J	< 0.5 U
	06/20/2022	< 0.05 U	< 0.5 U
	01/25/2023	< 0.05 U	< 1 U
16WW34	05/20/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/12/2020	< 2 U	130
	07/23/2020	< 0.5 U	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	02/03/2021	< 0.05 UJ	< 0.5 U
	04/12/2021	< 0.05 U	< 0.5 U
	07/12/2021	< 2.5 U	< 0.5 U
	10/18/2021	< 0.2 U	< 0.5 U
	01/10/2022	0.14 J	0.51 J
	06/20/2022	0.0429 J	< 0.5 U
	01/25/2023	< 0.05 U	< 1 U
16WW35	05/22/2013	310	4830
	10/10/2018	420	21000
	09/18/2019	410	13000
	03/11/2020	560	11000
	07/14/2020	451	9500
	10/13/2020	565	11000

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW35 (cont.)	01/20/2021	< 0.5 U	13000
	04/13/2021	367	9300
	07/14/2021	352	8100
	10/13/2021	366	9700
	01/11/2022	342	11000
	06/30/2022	419	7800
	01/19/2023	94.9	17000
16WW36	05/22/2013	< 0.2 U	4220
	10/09/2018	< 2 U	22000
	09/16/2019	< 2 U	15000
	03/11/2020	< 2 U	18000
	07/14/2020	< 0.5 U	25000
	10/13/2020	0.167	22000
	01/20/2021	< 0.05 U	1500
	04/13/2021	1.26	10000
	07/14/2021	0.438 J	15000
	10/13/2021	0.291 J	8100
	01/11/2022	0.098 J	8100
	06/30/2022	< 0.25 U	32000
	01/25/2023	< 0.05 U	22000
16WW37	05/18/2013	10.4	305 J
	10/10/2018	< 2 U	84
	03/17/2020	< 2 U	110
	07/23/2020	< 0.5 U	87
	10/19/2020	0.393	120
	01/20/2021	0.786	99
	04/12/2021	1.6	110
	07/12/2021	2.74	89
	10/25/2021	168	190
	01/10/2022	55.3	180
	06/20/2022	25.1	200
	01/20/2023	11.3	200
16WW38	05/18/2013	< 0.2 U	745 J
	10/10/2018	< 2 U	4400
	03/17/2020	< 2 U	3000
	07/23/2020	< 0.5 U	2400
	10/19/2020	< 0.05 U	3800
	01/20/2021	< 0.05 U	2300
	04/12/2021	< 0.05 U	2100
	07/12/2021	< 2.5 U	2000
	10/25/2021	< 0.2 U	1200
	01/10/2022	0.17 J	1200
	06/20/2022	0.0381 J	4200
	01/20/2023	2.14 J	3700
16WW39	10/10/2018	120	3900
	09/17/2019	130	1200
	03/16/2020	62	1100
	07/15/2020	15.1	560
	10/14/2020	1.08	350
	02/03/2021	3.64 J	300
	04/15/2021	7.87	330

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW39 (cont.)	07/28/2021	6.76	230
	10/25/2021	9.07	210 J
	01/11/2022	4	120
	06/29/2022	5.56	230
	01/25/2023	7.03	490
16WW40	05/23/2013	0.208 J	1060
	10/12/2018	< 2 U	660
	09/17/2019	< 2 U	740
	03/10/2020	< 2 U	1500
	07/21/2020	0.898 J	1700
	10/21/2020	0.24	1700
	02/03/2021	1.31 J	1500
	04/21/2021	0.88	1000
	07/27/2021	0.693 J	1900
	10/21/2021	0.622	1000 J
	01/26/2022	0.55	540
	07/05/2022	< 0.25 U	990
	01/21/2023	0.0305	480
16WW41	05/22/2013	292	6550
	10/09/2018	60	9800
	09/17/2019	< 2 U	3900
	03/16/2020	310	6400
	07/15/2020	155	6200
	10/14/2020	81.2	5400
	01/25/2021	3.71 J	5400
	04/15/2021	212	6200
	07/20/2021	107	5400
	10/19/2021	66.5	1900
	01/13/2022	59.1	3800
	06/29/2022	85	6200
	01/19/2023	11	6800
16WW42	05/21/2013	< 0.2 U	1.31
	10/12/2018	< 2 U	6
	09/16/2019	< 2 U	29
	03/10/2020	< 2 U	3.3
	07/23/2020	< 0.05 U	1.3
	10/22/2020	< 0.05 U	3.2
	01/28/2021	< 0.05 U	0.59 J
	04/19/2021	< 0.05 U	0.97 J
	07/26/2021	< 0.05 U	1.1
	10/26/2021	< 0.2 U	180
	01/27/2022	< 1 U	190
	07/05/2022	< 0.05 U	850
	01/21/2023	0.0572	27
16WW43	05/20/2013	< 0.2 U	< 0.5 U
	10/09/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/12/2020	< 2 U	0.61 J
	07/23/2020	0.0428 J	< 0.5 U
	10/22/2020	< 0.05 U	0.94 J
	01/28/2021	0.0777 J	< 0.5 U

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW43 (cont.)	04/22/2021	< 0.25 U	< 0.5 U
	07/28/2021	< 0.05 U	< 0.5 U
	10/18/2021	< 0.2 U	< 0.5 U
	01/25/2022	< 0.2 U	< 0.5 U
	06/27/2022	< 0.05 U	< 0.5 U
	01/21/2023	0.105	0.63 J
16WW44	05/20/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/17/2020	< 2 U	< 0.5 U
	07/20/2020	< 0.05 U	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	01/22/2021	< 0.05 UJ	< 0.5 U
	04/12/2021	0.134	< 0.5 U
	07/12/2021	1.35	< 0.5 U
	10/25/2021	< 0.2 U	< 0.5 U
	01/10/2022	3.2	0.5 J
	07/25/2022	< 0.05 U	< 0.5 U
	01/21/2023	< 0.05 U	2.2
16WW45	05/21/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
16WW46	05/21/2013	< 0.2 U	0.647 J
	10/12/2018	< 2 U	3
	03/12/2020	< 2 U	2.7
	07/27/2020	4.07	0.57 J
	10/19/2020	< 0.05 U	0.66 J
	01/19/2021	< 0.05 U	< 0.5 U
	04/12/2021	< 0.5 U	< 0.5 U
	07/27/2021	< 1 U	0.63 J
	10/18/2021	< 0.2 U	< 0.5 U
	01/11/2022	0.098 J	0.82 J
	06/20/2022	< 0.05 U	< 0.5 U
	01/25/2023	< 0.05 U	0.71 J
16WW48	10/18/2018	14	8800
	09/18/2019	< 2 U	3700
	03/30/2020	120	7100
	07/15/2020	157	9000
	10/20/2020	167	14000 J+
	01/21/2021	122	13000
	04/22/2021	94.7	15000
	07/13/2021	53.7	13000
	10/19/2021	37.9	15000
	01/13/2022	14.8	13000
	06/30/2022	7.87	20000
	01/19/2023	2.35	13000
16WW49	09/19/2019	< 2 U	260
	03/16/2020	< 2 U	8.3
	07/27/2020	2.41	36
	10/20/2020	< 0.05 U	4.8
	01/29/2021	< 0.5 U	2.5
	04/22/2021	< 0.05 U	11
	07/28/2021	0.0291 J	19

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW49 (cont.)	10/19/2021	< 0.2 U	30
	01/13/2022	< 0.2 U	46
	06/29/2022	< 0.05 U	46
	01/25/2023	< 0.05 U	73
16WW51	02/06/2019	NA	68
	09/18/2019	< 2 U	90
	03/17/2020	< 2 U	830
	07/27/2020	2.86	1300
	10/20/2020	< 0.05 U	1700
	01/29/2021	< 0.5 U	1000
	04/15/2021	0.306	560
	07/20/2021	< 0.05 U	1800
	10/19/2021	< 0.2 U	2500
	01/13/2022	< 0.2 U	3200
	06/16/2022	< 0.05 U	2000
	01/20/2023	< 0.05 U	5900
16WW55	10/15/2018	400	5900
	09/17/2019	480	3200
	03/25/2020	360	4300
	07/14/2020	263	4500
	10/13/2020	287	4400
	01/20/2021	259	2900
	04/20/2021	198	2200
	07/13/2021	125	1900
	10/14/2021	363	2900
	01/12/2022	297	2500
	06/23/2022	147	2400
	01/19/2023	55.5	2100
16WW56	02/06/2019	NA	40
	09/17/2019	< 2 U	27
	03/16/2020	< 2 U	520
	07/15/2020	< 0.5 U	9.3
	10/21/2020	0.309	270
	01/25/2021	< 0.1 UJ	29
	04/15/2021	0.0783 J	14
	07/20/2021	< 0.05 U	12
	10/19/2021	< 0.2 U	6.2
	01/11/2022	0.13 J	7
	06/16/2022	0.0616 J	10
	01/20/2023	0.167	27
16WW57	08/15/2019	< 2 U	25
	09/18/2019	< 2 U	24
	08/17/2020	0.454 J	69 J+
	10/08/2020	< 0.05 U	72
	01/27/2021	< 0.5 UJ	65 J
	04/13/2021	0.171 J	57
	07/14/2021	< 0.5 U	60
	10/13/2021	< 0.2 UJ	75
	01/13/2022	0.099 J	85
	06/23/2022	0.138	120
	01/23/2023	< 0.05 U	160

Table 3-1
Historical Data

Well ID	Parameter Date	Perchlorate µg/L Result	Trichloroethene µg/L Result
16WW58	08/15/2019	< 2 U	2700
	09/18/2019	< 2 U	4300
	08/17/2020	< 0.5 U	3400
	10/08/2020	< 0.05 U	4400
	01/27/2021	< 0.25 U	2700
	04/13/2021	0.0348 J	1100
	07/14/2021	< 1 U	1000
	10/13/2021	< 0.2 UJ	3300
	01/13/2022	< 0.2 U	5500
	06/23/2022	< 0.05 U	2600
	01/23/2023	0.0371 J	7000

Notes:

µg/L denotes micrograms per liter.

J denotes the analyte was positively identified; the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

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

U denotes not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

UJ denotes the analyte was analyzed for, but not detected above the established reporting limit. However, review and evaluation of supporting QC data have indicated that the "non-detect" may be inaccurate or imprecise. The non-detect result should be estimated.

< denotes less than the value

ID denotes identifier.

NA denotes not available.

TCE denotes trichloroethene.

QC denotes quality control.

Table 3-2
RA-O Mann-Kendall Trend Summary, LHAAP-16

Monitoring Well	Area	1,1-DCE	1,2-DCA	cis-1,2-DCE	TCE	VC	Perchlorate
16RW04	Landfill Biobarrier 1	NA	NA	Stable	Stable	No Trend	NA
16IW03	Landfill Biobarrier 2	No Trend	**Increasing**	Probably Increasing	**Decreasing**	No Trend	NA
16PM06	Landfill Biobarrier 2	Stable	Stable	**Decreasing**	No Trend	**Decreasing**	NA
16IW10	Landfill Biobarrier 3	NA	NA	NA	NA	Probably Decreasing	NA
16RW10	Landfill Biobarrier 3	Stable	NA	Stable	**Decreasing**	No Trend	NA
16IW20	Bayou Barrier	NA	NA	NA	NA	No Trend	NA
16WW40	Bayou Barrier	NA	NA	Stable	Stable	No Trend	NA
16EW02	Mid Plume Shallow	No Trend	Probably Increasing	Probably Increasing	Stable	Probably Increasing	NA
16EW03	Mid Plume Shallow	NA	NA	**Decreasing**	No Trend	Stable	NA
16WW48	Mid Plume Shallow	**Increasing**	**Increasing**	**Increasing**	**Increasing**	**Increasing**	NA
16WW49	Mid Plume Intermediate	NA	NA	NA	Probably Increasing	NA	NA
16WW51	Mid Plume Intermediate	**Increasing**	**Increasing**	Probably Increasing	**Increasing**	NA	NA

Notes:

Bold indicates statistically significant increasing or decreasing trend

DCA - dichloroethane

DCE - dichloroethene

MCL - maximum contaminant level

PCL - protective concentration level

NA - Not analyzed due to concentrations below the MCL or PCL.

RA-O - remedial action operation

TCE - trichloroethene

VC - vinyl chloride

Table 3-3
EPA Screening for Anaerobic Biodegradation Processes

			Location Code	16WW16			16WW22			16WW26			16WW35			16WW36			16WW41			16WW48			16WW55			16WW56			16WW57			16WW58		
			Sample ID	16WW16-230119			16WW22-230120			16WW26-230123			16WW35-230119			16WW36-230125			16WW41-230119			16WW48-230119			16WW55-230119			16WW56-230120			16WW57-230123			16WW58-230123		
			Sample Date	1/19/2023			1/20/2023			1/23/2023			1/19/2023			1/25/2023			1/19/2023			1/19/2023			1/19/2023			1/20/2023			1/23/2023			1/23/2023		
			Sample Purpose	REG			REG			REG			REG			REG			REG			REG			REG			REG			REG			REG		
Parameter	Units	Score if Parameter Exceeds	Score if Parameter is Less than	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score	Result	VQ	Score
Dissolved oxygen	mg/L	5	0.5	0.9			0.7			0.7			0.5			0.04		3	0.8			0.06		3	0.5			0.8			0.08		3	0.05		3
Nitrate	mg/L	NV	1																											< 0.25	U		< 0.25	U	
Sulfate	mg/L	NV	20	371									9,540						9,880			2,380			846						3140			758		
Methane	µg/L	500	500	1,310		3							69.6		3				12.2		3	25.8		0	1,100		3				3.35		3	7.47		3
Oxidation Reduction Potential	mV	NV	50	175			13		1	196			167			39		1	197			119			131			107			-24		1	-88		1
pH	Std. Units	NV	NV	6.77			6.37			5			6.65			6.67			6.71			6.65			6.82			6.27			6.37			6.52		
Total organic carbon	mg/L	20	NV	5.17						1.68			42.8		2	18.9			48.4		2				5.56						19.9			6.48		
Temperature	deg. C	NV	NV	19.54			18.21			17.79			17.98			15.36			17.38			12.72			18.36			18.61			14.84			13.75		
Trichloroethene	µg/L	0	NV	63,000		0	47		0	710		0	17,000		0	22,000		0	6,800		0	13,000		0	2,100		0	27		0	160		0	7,000		0
cis-1,2-Dichloroethene	µg/L	0	NV	24,000		2	6.7		2	57		2	8,800		2	16,000		2	3,400		2	23,000		2	500		2	1.4		2	< 5	U		200		2
Vinyl chloride	µg/L	0	NV	520		2	0.94	J	2	3.6		2	120		2	190		2	720		2	180		2	100		2	< 1	U		< 5	U		< 50	U	
Ethylene	µg/L	10	NV	12	J	2							7.75	J	0				32	J	2	15.6	J		20.6	J	2				1.1	J	0	< 0.5	UJ	0
Ethane	µg/L	10	NV	6.8									< 0.5	U					< 0.5	U		< 0.5	U		< 0.5	U					< 0.5	U		< 0.5	U	
			Sum of Screening Scores	9			5			4			9			8			11			7			9			2			7			9		
			Scoring Interpretation	Limited Evidence for Anaerobic Biodegradation			Inadequate Evidence for Anaerobic Biodegradation			Inadequate Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation			Inadequate Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation			Limited Evidence for Anaerobic Biodegradation		
			Mann-Kendall Analysis	Increasing trend for TCE Increasing trend for perchlorate			Decreasing trend for TCE No trend for perchlorate			Stable trend for TCE No trend for perchlorate			Probably decreasing trend for TCE Decreasing trend for perchlorate			Stable trend for TCE No trend for perchlorate			Stable trend for TCE Stable trend for perchlorate			Increasing trend for TCE No trend for perchlorate			Decreasing trend for TCE No trend for perchlorate			Decreasing trend for TCE No trend for perchlorate			Increasing trend for TCE No trend for perchlorate			No trend for TCE No trend for perchlorate		

Notes:

Highlighted cells indicate concentrations greater than concentration range provided in Table 2-3 of EPA document.

Bolded results indicates concentration below the concentration range provided in Table 2-3 of the EPA document.

Reference Document for Scoring Process: *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater* .

0 to 5 - Inadequate evidence for anaerobic biodegradation of chlorinated organics.

6 to 14 - Limited evidence for anaerobic biodegradation of chlorinated organics.

15 to 20 - Adequate evidence for anaerobic biodegradation of chlorinated organics.

> 20 - Strong evidence for anaerobic biodegradation of chlorinated organics.

µg/L - micrograms per liter

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

deg. C - degrees Celsius

EPA - Environmental Protection Agency

ID - identifier

mg/L- milligrams per liter

mV - millivolts

NV - no value

REG - regular sample

Std. Units - standard pH units

TCE - trichloroethene

VQ - validation qualifier

Figures

Marion County

Upshur County

Harrison County

Gregg County

Panola County

Caddo County

Longhorn Army Ammunition Plant

Marshall

Lake O the Pines

Clinton Lake

Caddo Lake

WOODLAWN OIL FIELD

LONGWOOD OIL AND GAS FIELD

TEXAS OIL FIELD

North Business Park

Eastman Chemical

Potters Creek

HARRISON

UPSHUR

PANOLA

TEXAS

LOUISIANA

49 154 259 390 80 59 20 281 300 63 31 43 149 79 1 530 538 169

Harrison County

Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

43 State Highway

59 US Highway

20 Interstate Highway

LHAAP Boundary

N

0 2 4 Miles

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Figure 1-1

LHAAP Location Map
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2024

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Year3\LHAAP16Year3v2.aprx

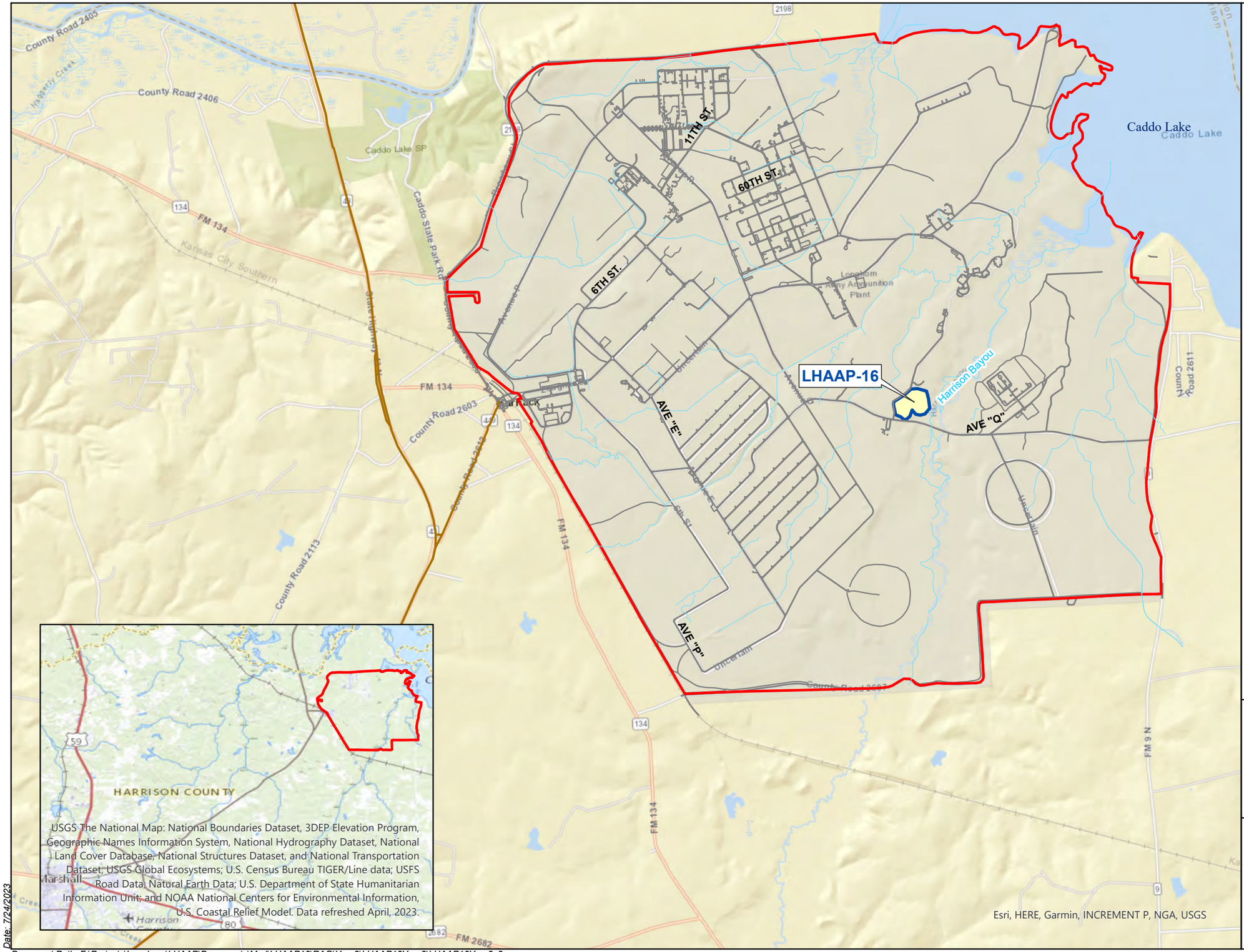

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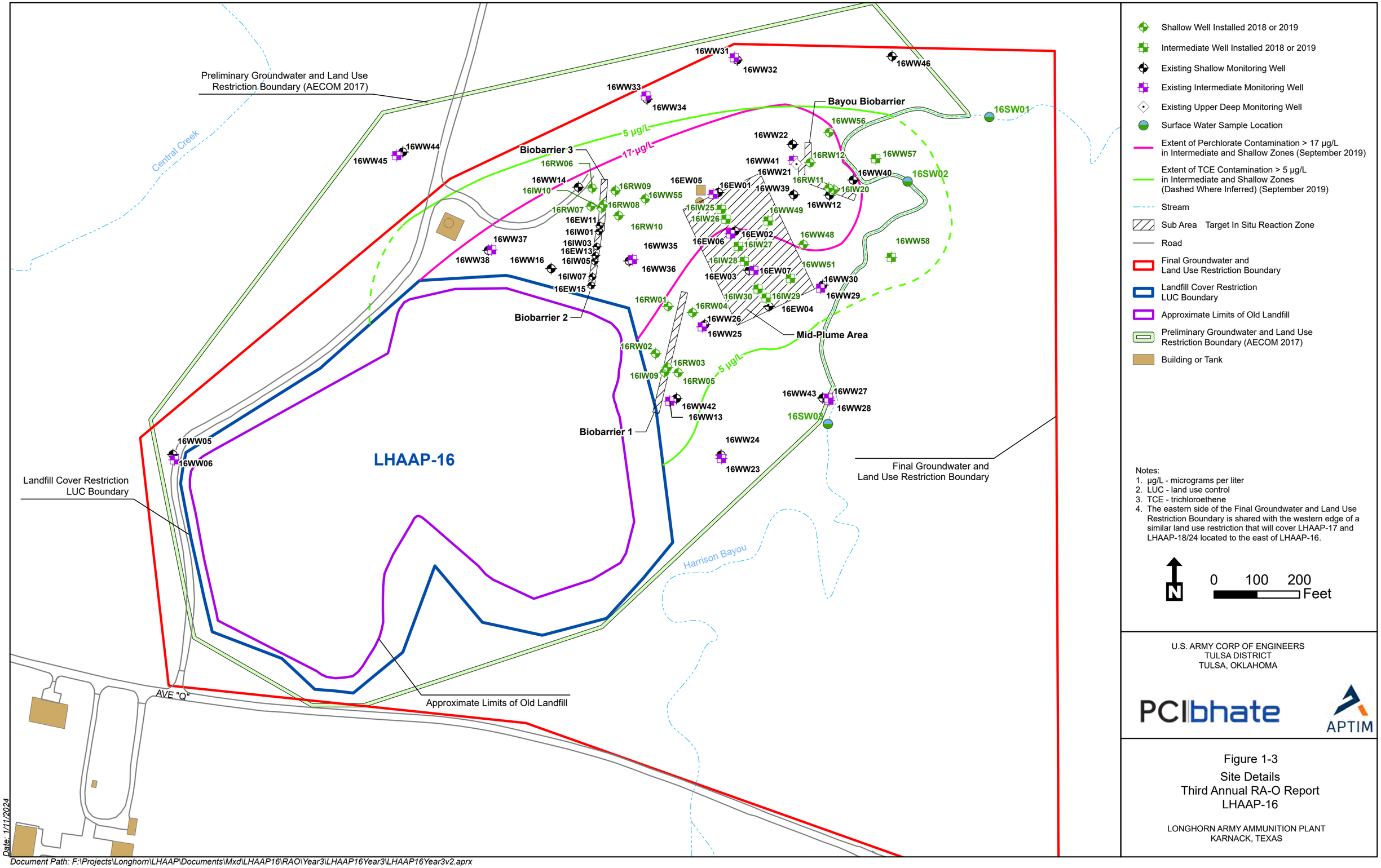
Figure 1-2

LHAAP Site Location Map
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/24/2023

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Year3\LHAAP16Year3v2.aprx



- Shallow Well Installed 2018 or 2019
- Intermediate Well Installed 2018 or 2019
- Existing Shallow Monitoring Well
- Existing Intermediate Monitoring Well
- Existing Upper Deep Monitoring Well
- Surface Water Sample Location
- Extent of Perchlorate Contamination > 17 µg/L in Intermediate and Shallow Zones (September 2019)
- Extent of TCE Contamination > 5 µg/L in Intermediate and Shallow Zones (Dashed Where Inferred) (September 2019)
- Stream
- Sub Area — Target In Situ Reaction Zone
- Road
- Final Groundwater and Land Use Restriction Boundary
- Landfill Cover Restriction LUC Boundary
- Approximate Limits of Old Landfill
- Preliminary Groundwater and Land Use Restriction Boundary (AECOM 2017)
- Building or Tank

Notes:
1. µg/L - micrograms per liter
2. LUC - land use control
3. TCE - trichloroethene
4. The eastern side of the Final Groundwater and Land Use Restriction Boundary is shared with the western edge of a similar land use restriction that will cover LHAAP-17 and LHAAP-18/24 located to the east of LHAAP-16.

N

0 100 200 Feet

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Figure 1-3
Site Details
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2024

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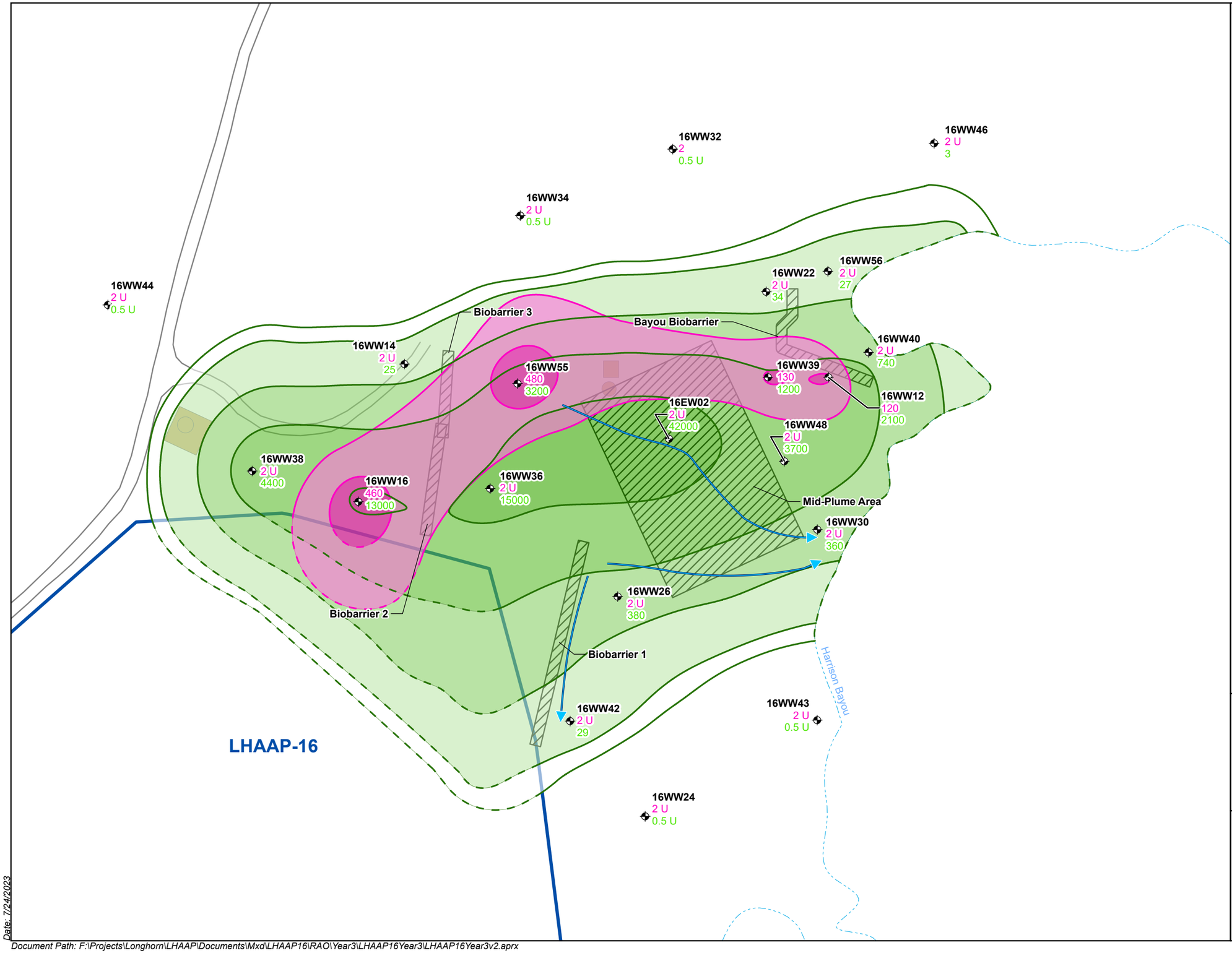

Existing Shallow Monitoring Well
Groundwater Flow Direction
Sub Area
Stream
Road
LHAAP-16 Landfill Fence
Building or Tank

Perchlorate Plume (µg/L)
17 - 100
>100

Trichloroethene (TCE) Plume (µg/L)
5 - 10
10 - 100
100 - 1,000
1,000 - 10,000
>10,000

Notes:
1. Perchlorate MCL/PCL = 17 µg/L
TCE MCL/PCL = 5 µg/L
2. Qualifiers:
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.
3. µg/L = micrograms per liter

N
0 65 130
Feet

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Figure 1-4

Shallow Zone TCE and Perchlorate Plumes
Pre-remedy (2018/2019)
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/24/2023

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Existing Intermediate Monitoring Well
Groundwater Flow Direction
Sub Area
Stream
Road
LHAAP-16 Landfill Fence
Building or Tank

Perchlorate Plume (µg/L)
17 - 100
>100

Trichloroethene (TCE) Plume (µg/L)
5 - 10
10 - 100
100 - 1,000
1,000 - 10,000
>10,000

Notes:
1. Perchlorate MCL/PCL = 17 µg/L
TCE MCL/PCL = 5 µg/L
2. Qualifiers:
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.
3. µg/L = micrograms per liter

N
0 65 130
Feet

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Figure 1-5

Intermediate Zone TCE and Perchlorate Plumes
Pre-remedy (2018/2019)
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/24/2023

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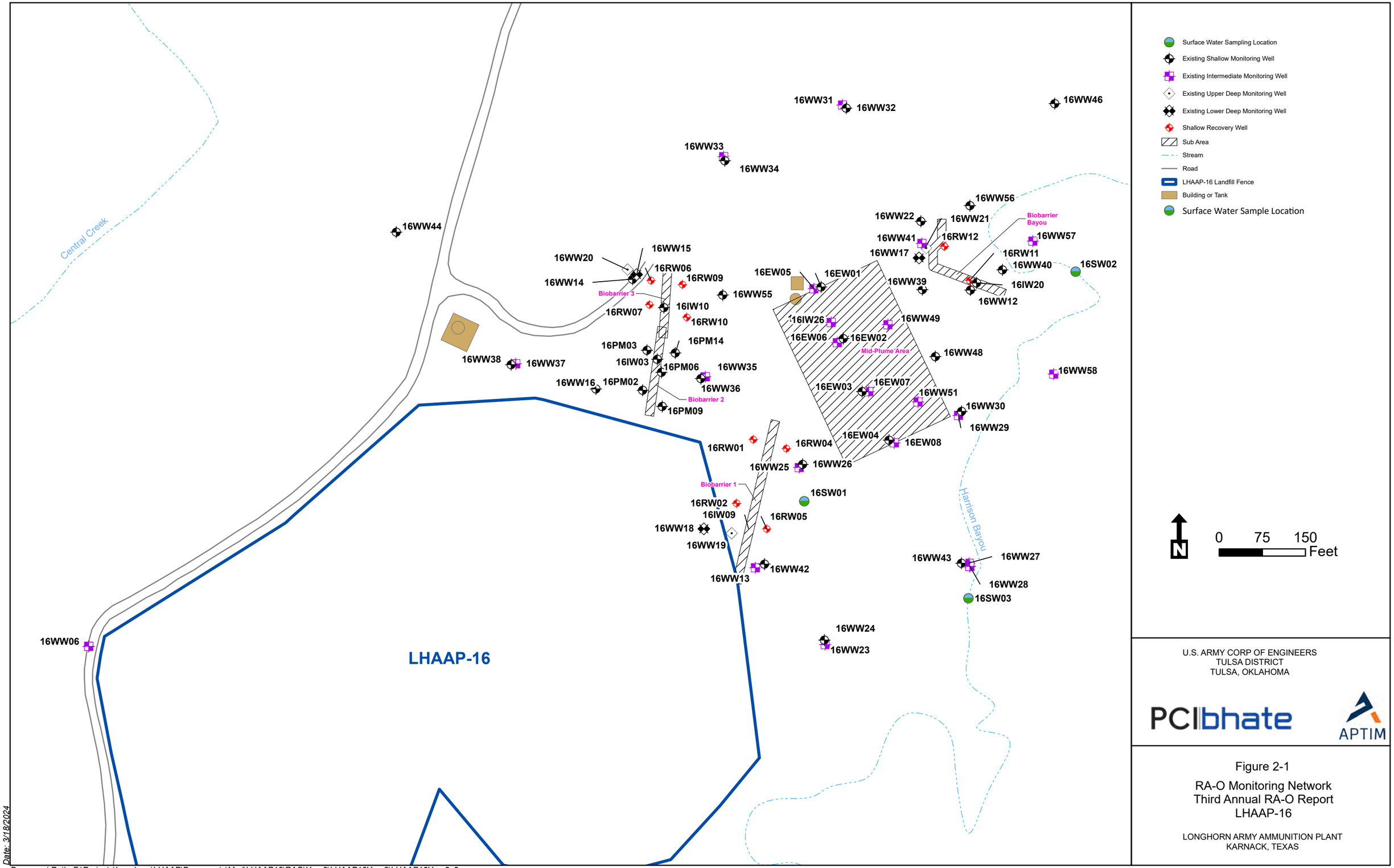

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Figure 2-1

RA-O Monitoring Network
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/18/2024

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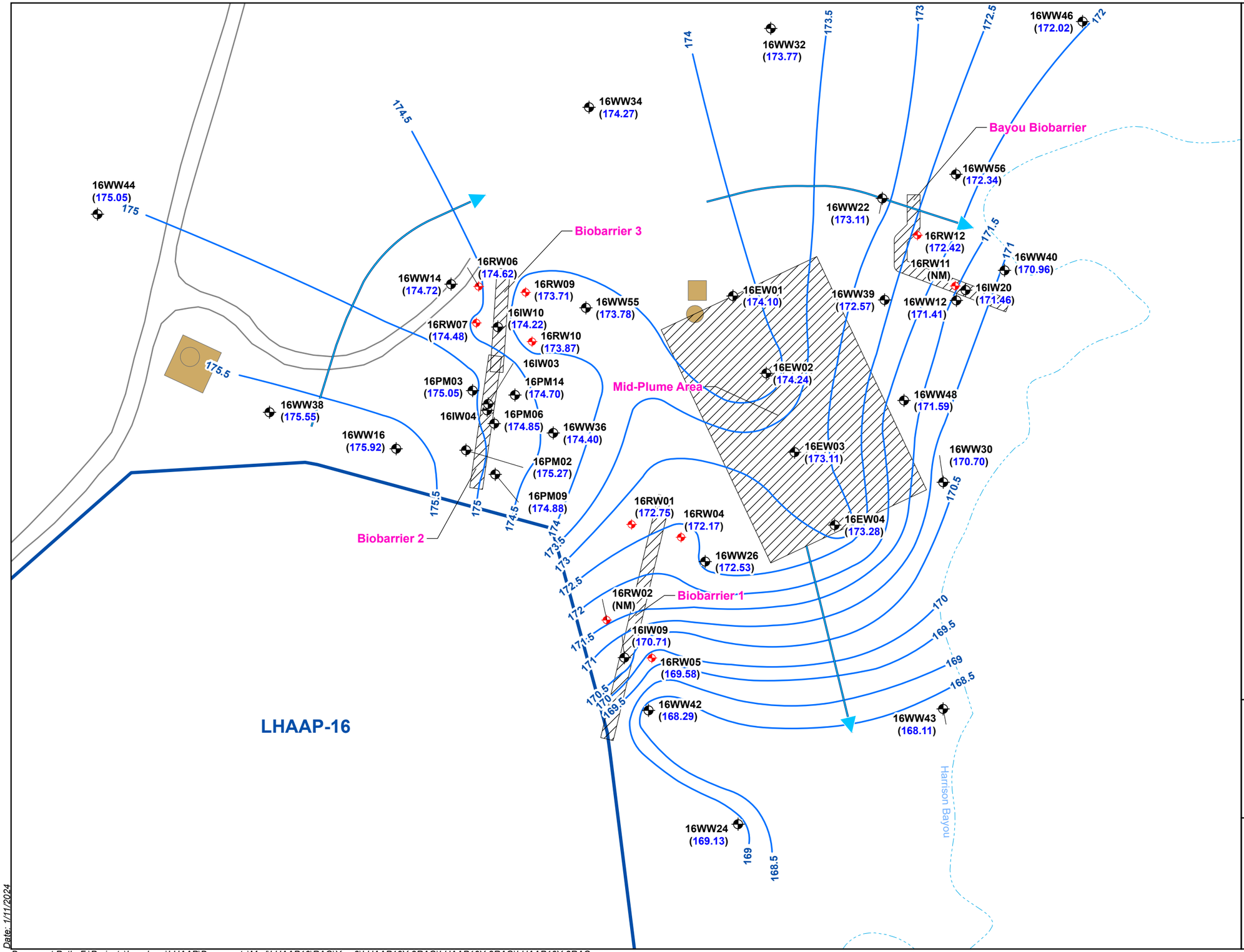

- Existing Shallow Monitoring Well
- Shallow Recovery Well
- Groundwater Flow Direction
- Groundwater Contour
- Stream
- Road
- LHAAP-16 Landfill Fence
- Building or Tank
- Sub Area

Notes:
1. Groundwater elevation in feet above mean sea level.
2. Survey information not available for monitoring wells 16IW03 and 16IW04, therefore they were not used in the potentiometric map.
3. NM denotes not measured.

N

0 55 110 Feet

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Figure 2-2
Shallow Zone Potentiometric Surface Map Year 3, June/July 2022
Third Annual RA-O Report
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2024

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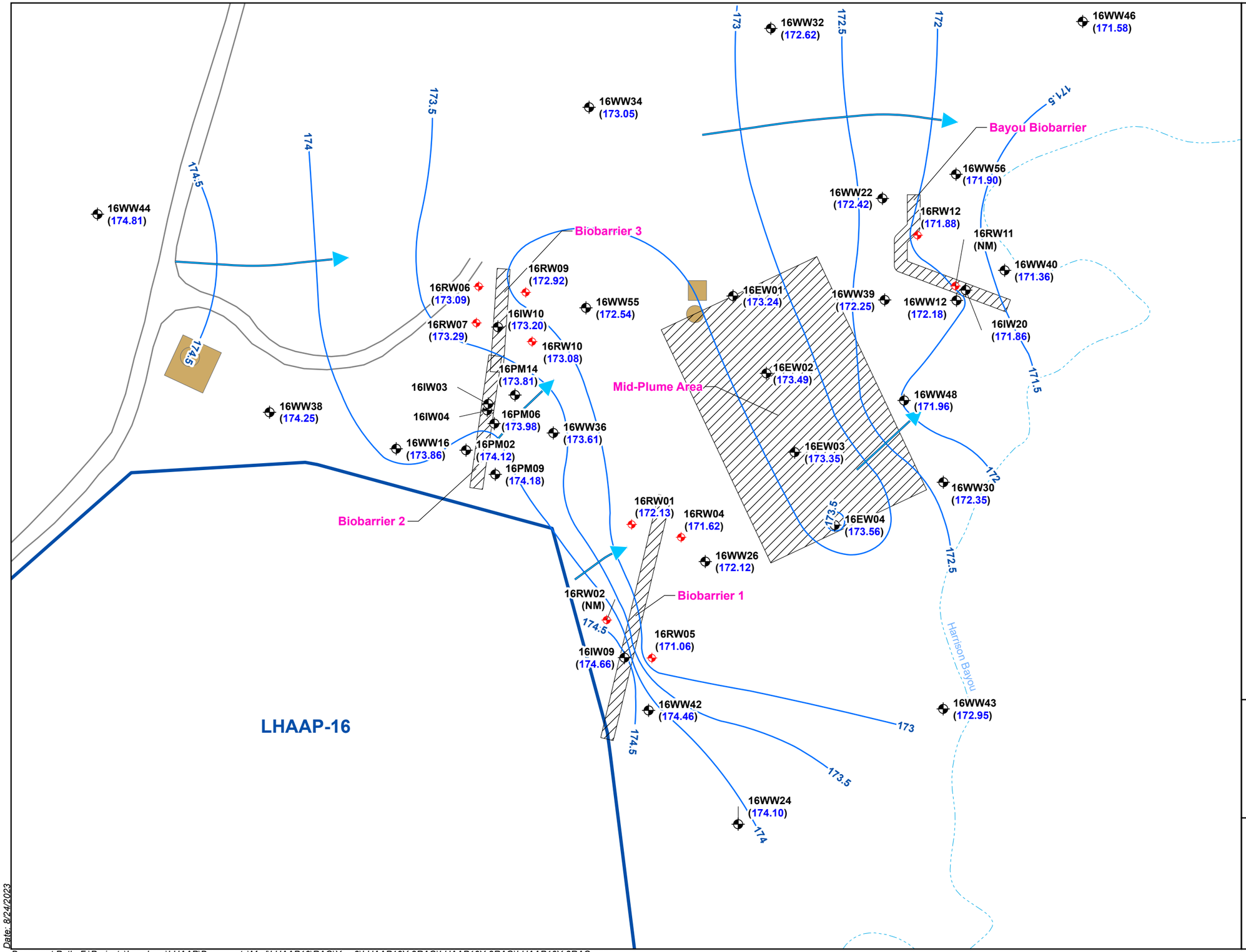

Existing Shallow Monitoring Well
Shallow Recovery Well
Groundwater Flow Direction
Groundwater Contour
Road
LHAAP-16 Landfill Fence
Building or Tank
Sub Area

Notes:
1. Groundwater elevation in feet above mean sea level.
2. Survey information not available for monitoring wells 16IW03 and 16IW04, therefore they were not used in the potentiometric map.
3. NM denotes not measured.

N
0 55 110
Feet

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Figure 2-3
Shallow Zone Potentiometric Surface Map Year 3, January 2023
Third Annual RA-O Report
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 8/24/2023

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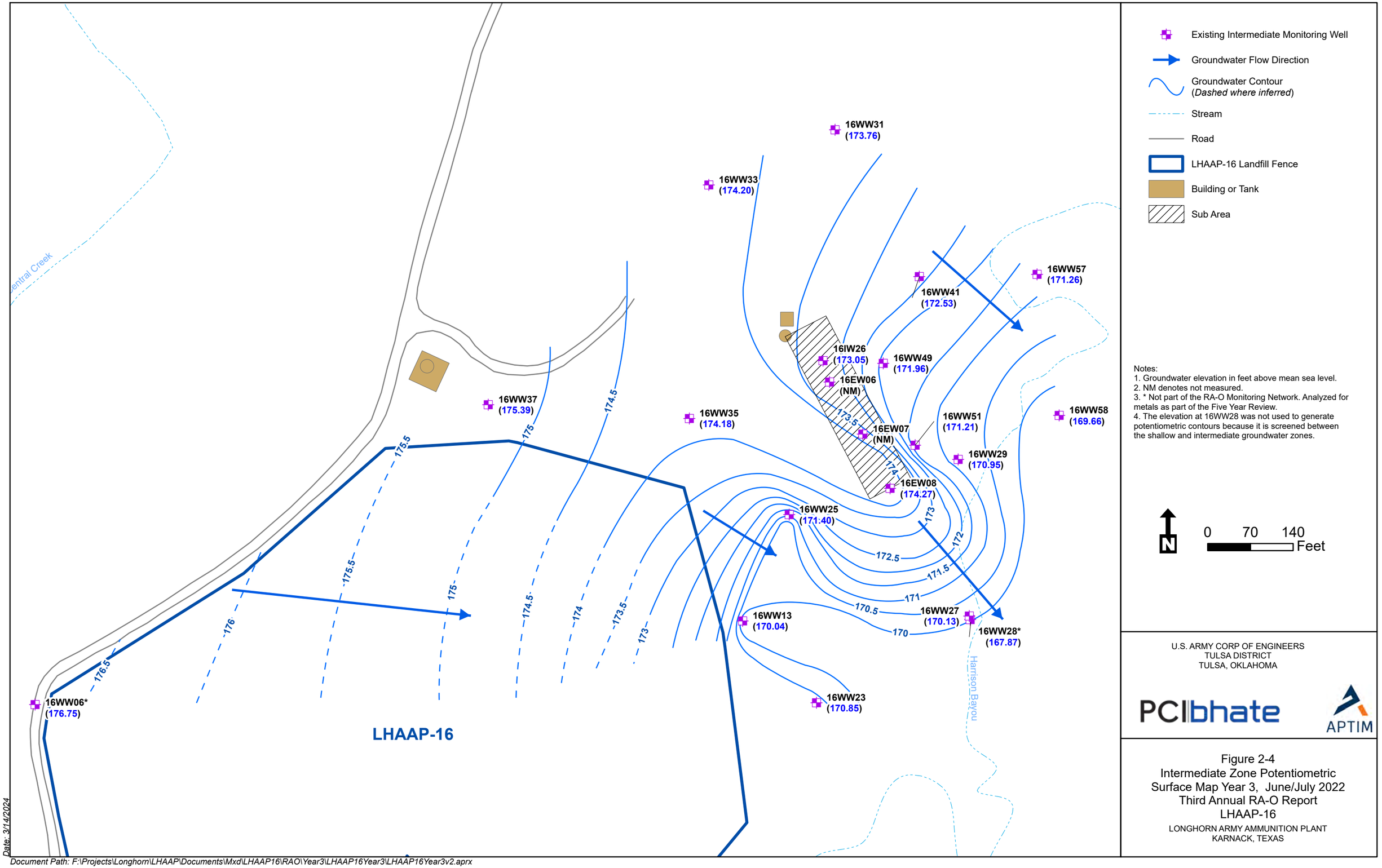

Notes:
1. Groundwater elevation in feet above mean sea level.
2. NM denotes not measured.
3. * Not part of the RA-O Monitoring Network. Analyzed for metals as part of the Five Year Review.
4. The elevation at 16WW28 was not used to generate potentiometric contours because it is screened between the shallow and intermediate groundwater zones.

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Figure 2-4
Intermediate Zone Potentiometric Surface Map Year 3, June/July 2022
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/14/2024

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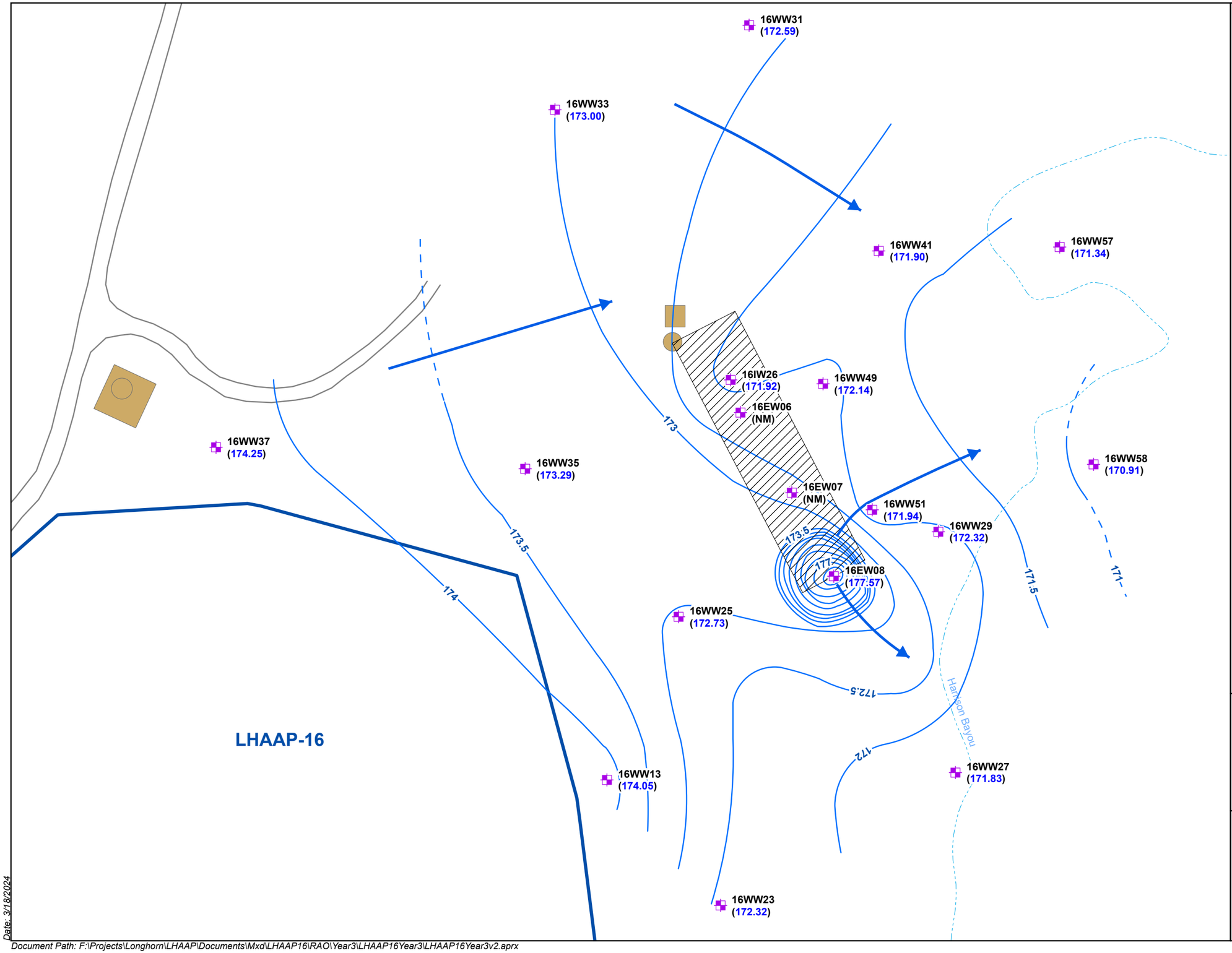

Existing Intermediate Monitoring Well
Groundwater Flow Direction
Groundwater Contour
(*Dashed where inferred*)
Road
LHAAP-16 Landfill Fence
Building or Tank
Sub Area
Stream

Notes:
1. Groundwater elevation in feet above mean sea level.
2. NM denotes not measured.

N
0 70 140
Feet

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Figure 2-5
Intermediate Zone Potentiometric Surface Map Year 3, January 2023
Third Annual RA-O Report
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/18/2024

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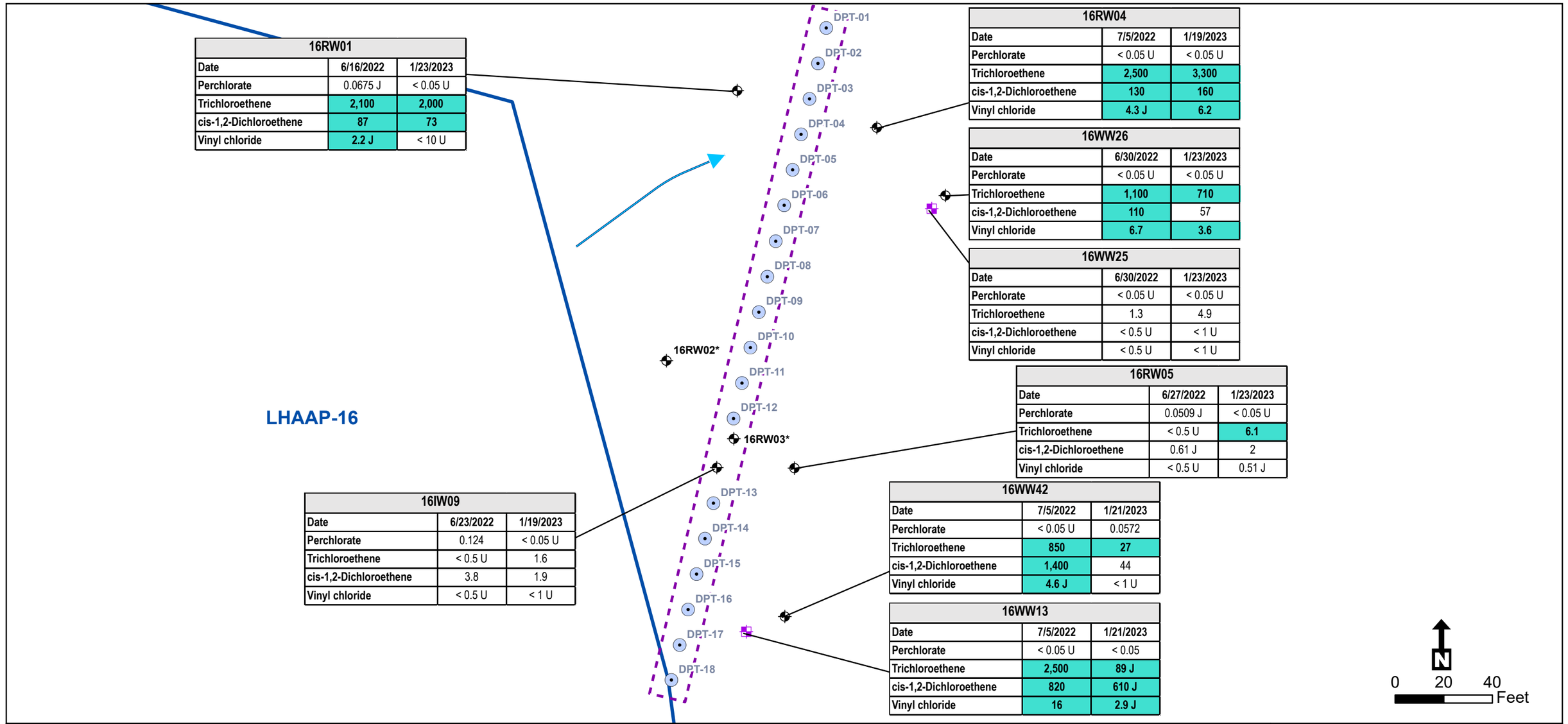

16RW01		
Date	6/16/2022	1/23/2023
Perchlorate	0.0675 J	< 0.05 U
Trichloroethene	2,100	2,000
cis-1,2-Dichloroethene	87	73
Vinyl chloride	2.2 J	< 10 U

16RW04		
Date	7/5/2022	1/19/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	2,500	3,300
cis-1,2-Dichloroethene	130	160
Vinyl chloride	4.3 J	6.2

16WW26		
Date	6/30/2022	1/23/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	1,100	710
cis-1,2-Dichloroethene	110	57
Vinyl chloride	6.7	3.6

16WW25		
Date	6/30/2022	1/23/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	1.3	4.9
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16RW05		
Date	6/27/2022	1/23/2023
Perchlorate	0.0509 J	< 0.05 U
Trichloroethene	< 0.5 U	6.1
cis-1,2-Dichloroethene	0.61 J	2
Vinyl chloride	< 0.5 U	0.51 J

16IW09		
Date	6/23/2022	1/19/2023
Perchlorate	0.124	< 0.05 U
Trichloroethene	< 0.5 U	1.6
cis-1,2-Dichloroethene	3.8	1.9
Vinyl chloride	< 0.5 U	< 1 U

16WW42		
Date	7/5/2022	1/21/2023
Perchlorate	< 0.05 U	0.0572
Trichloroethene	850	27
cis-1,2-Dichloroethene	1,400	44
Vinyl chloride	4.6 J	< 1 U

16WW13		
Date	7/5/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05
Trichloroethene	2,500	89 J
cis-1,2-Dichloroethene	820	610 J
Vinyl chloride	16	2.9 J

- Shallow Well Location
- Intermediate Well Location
- Groundwater Flow Direction (January 2023)
- Direct Push Injection Point
- Target In Situ Reaction Zone
- LHAAP-16 Landfill Fence

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
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.
3. Monitoring wells 16WW13 and 16WW25 are shown on this map due to the lateral bounds of the treatment area; however, these are intermediate zone wells and are not being used to monitor performance of the shallow zone ISB treatment in this area.
4. * - Not analyzed for perchlorate or VOCs

Date: 1/12/2024

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Figure 2-6
Year 3 COC Concentrations in Groundwater
Landfill Biobarrier #1
Third Annual RA-O Report
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Yr3RAO\LHAAP16Yr3RAO.aprx

Figure 2-7
Concentration Trends, 16WW26, Landfill Biobarrier #1

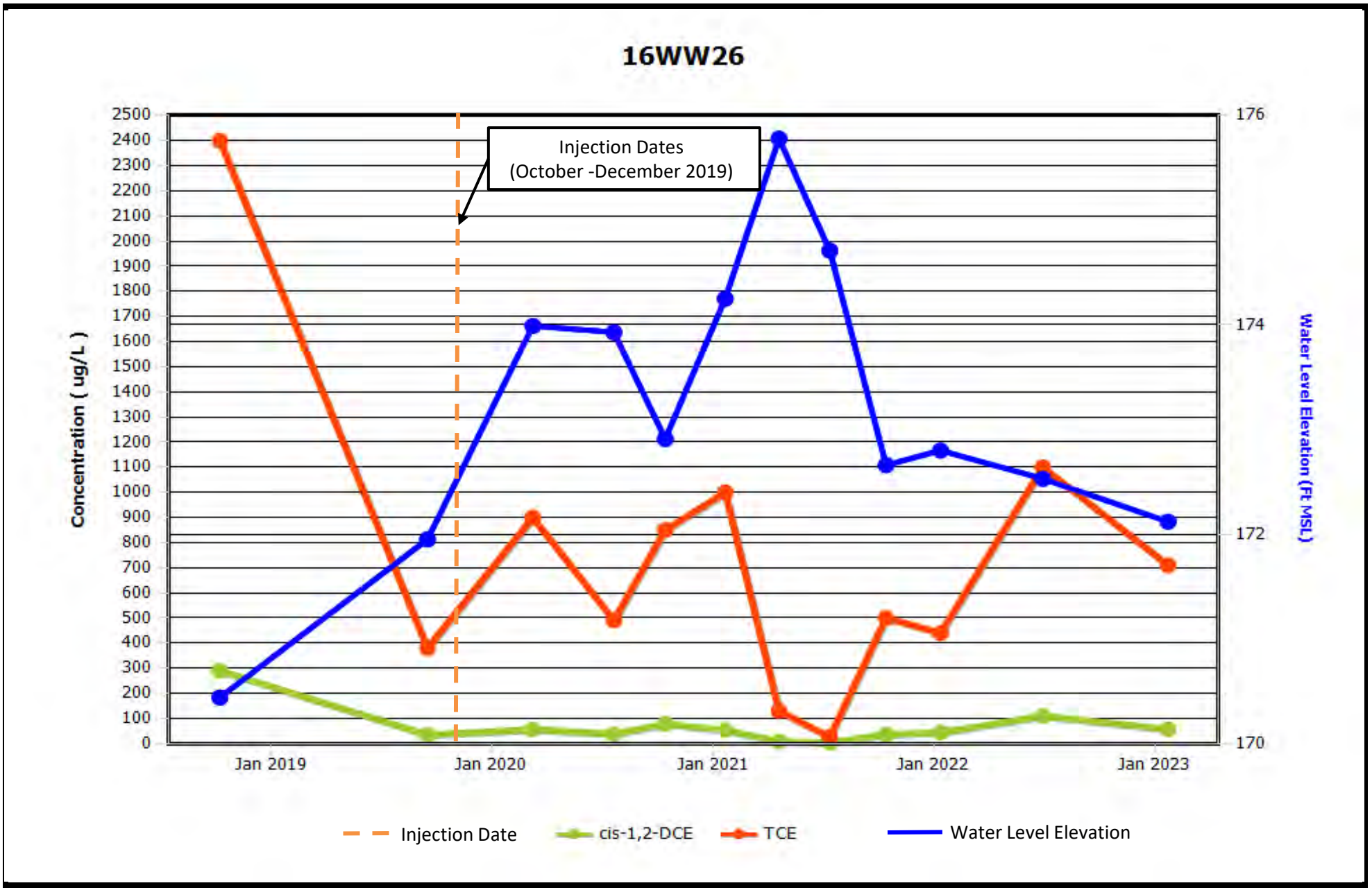
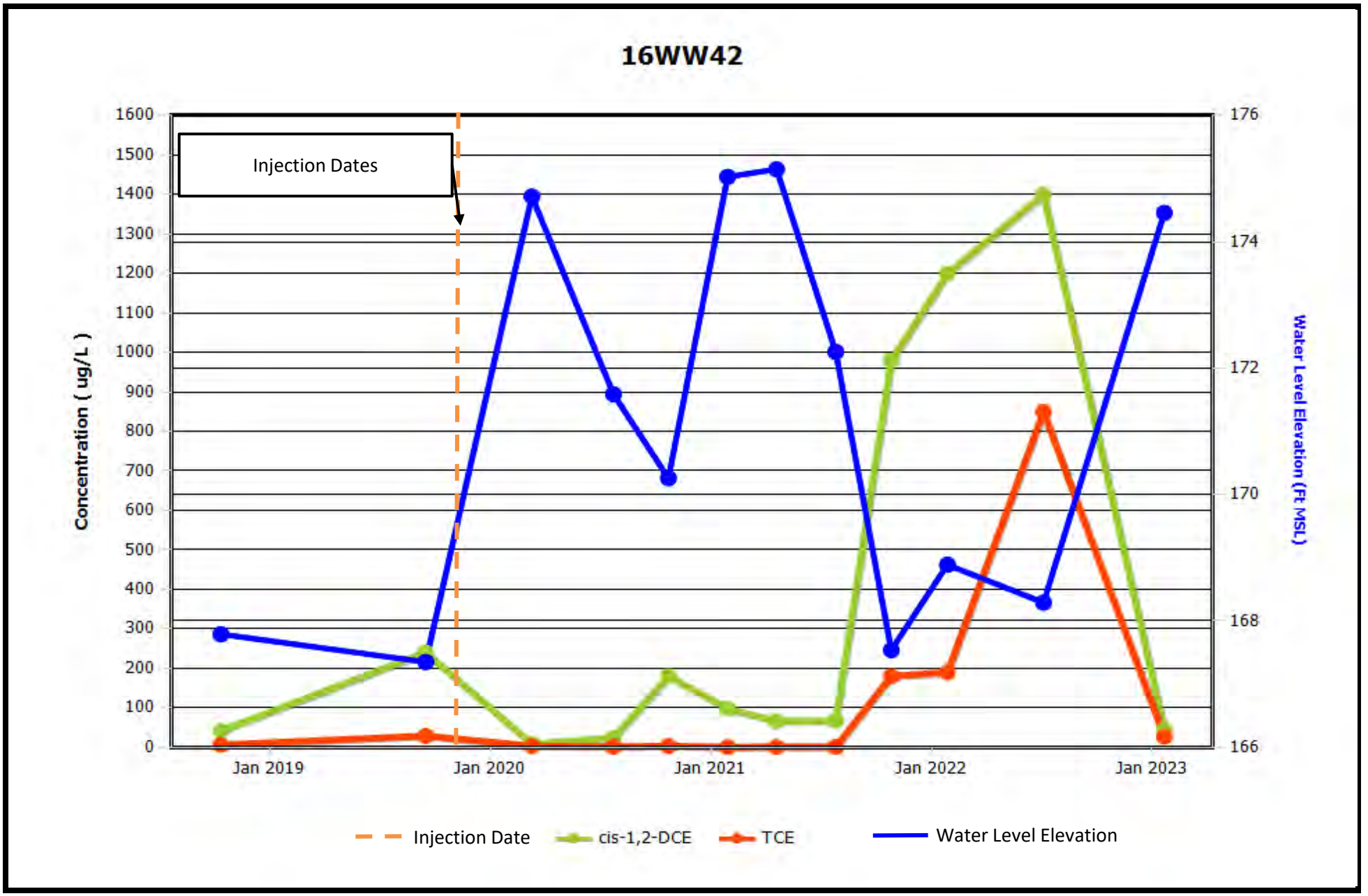


Figure 2-8
Concentration Trends, 16WW42, Landfill Biobarrier #1



16PM03		
Date	6/16/2022	1/21/2023
Perchlorate	253	285
Trichloroethene	8,400	9,100
cis-1,2-Dichloroethene	6,100	4,200
Vinyl chloride	160	220

16WW16		
Date	6/30/2022	1/19/2023
Perchlorate	581	630
Trichloroethene	40,000	63,000
cis-1,2-Dichloroethene	19,000 J	24,000
Vinyl chloride	310	520

16PM02		
Date	6/16/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	32,000	80,000
cis-1,2-Dichloroethene	3,800	7,100
Vinyl chloride	57	160 J

16PM14		
Date	6/27/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	5,700	5,400
cis-1,2-Dichloroethene	5,900	5,300
Vinyl chloride	180	170

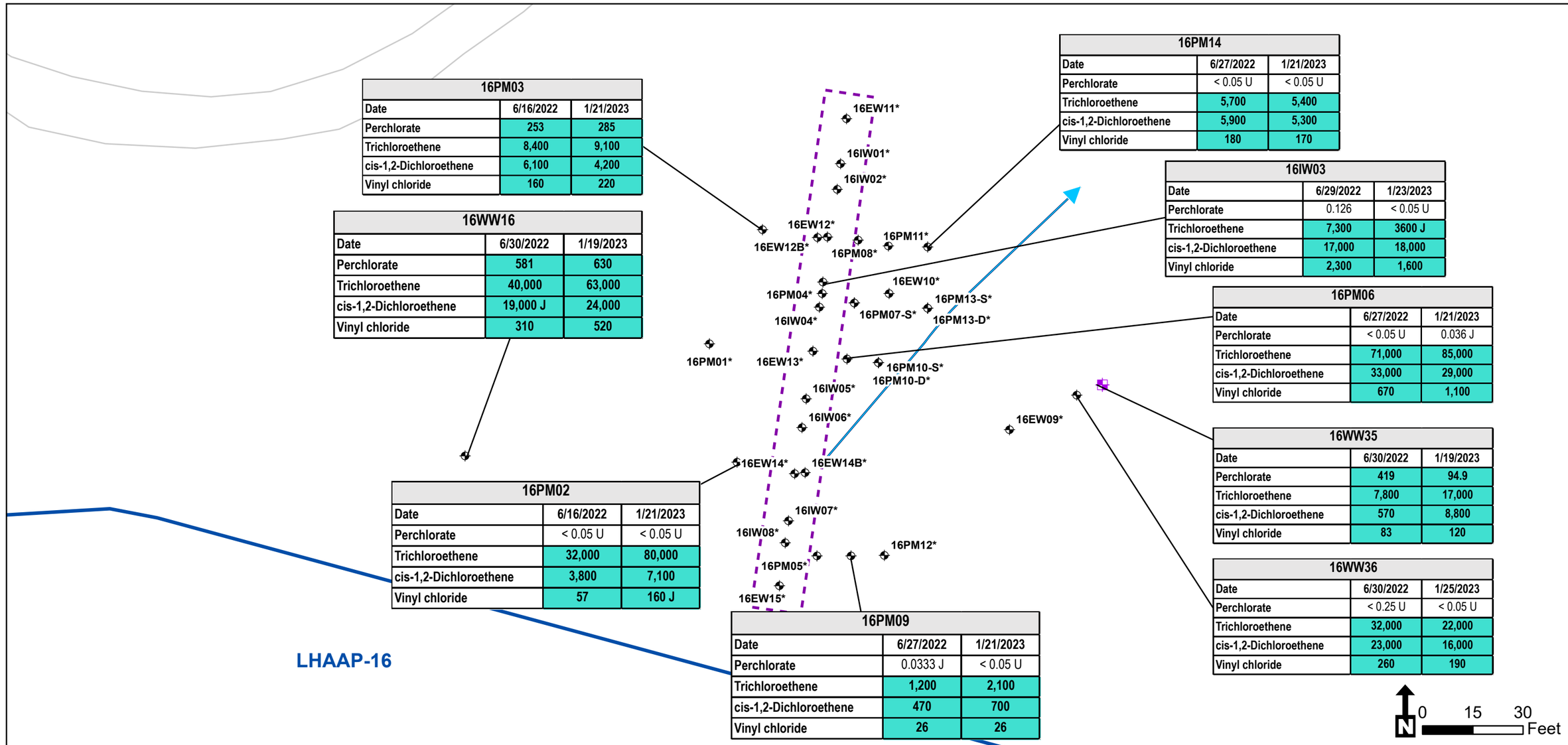
16IW03		
Date	6/29/2022	1/23/2023
Perchlorate	0.126	< 0.05 U
Trichloroethene	7,300	3600 J
cis-1,2-Dichloroethene	17,000	18,000
Vinyl chloride	2,300	1,600

16PM06		
Date	6/27/2022	1/21/2023
Perchlorate	< 0.05 U	0.036 J
Trichloroethene	71,000	85,000
cis-1,2-Dichloroethene	33,000	29,000
Vinyl chloride	670	1,100

16WW35		
Date	6/30/2022	1/19/2023
Perchlorate	419	94.9
Trichloroethene	7,800	17,000
cis-1,2-Dichloroethene	570	8,800
Vinyl chloride	83	120

16WW36		
Date	6/30/2022	1/25/2023
Perchlorate	< 0.25 U	< 0.05 U
Trichloroethene	32,000	22,000
cis-1,2-Dichloroethene	23,000	16,000
Vinyl chloride	260	190

16PM09		
Date	6/27/2022	1/21/2023
Perchlorate	0.0333 J	< 0.05 U
Trichloroethene	1,200	2,100
cis-1,2-Dichloroethene	470	700
Vinyl chloride	26	26



Existing Well Location Shallow Extraction, Injection, or Monitoring Well

Intermediate Well Location

Groundwater Flow Direction (January 2023)

Target In Situ Reaction Zone

LHAAP-16 Landfill Fence

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
J - Concentration shown is estimated
U - Undetected: The analyte was analyzed for, but not detected.
3. Monitoring well 16WW35 is shown on this map due to the lateral bounds of the treatment area; however, this is an intermediate zone well and is not being used to monitor performance of the shallow zone ISB treatment in this area.
4. * - Not analyzed for perchlorate or VOCs.

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Figure 2-9
Year 3 COC Concentrations in Groundwater
Landfill Biobarrier #2
Third Annual RA-O Report
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/12/2024

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Figure 2-10
Concentration Trends, 16PM06, Landfill Biobarrier #2

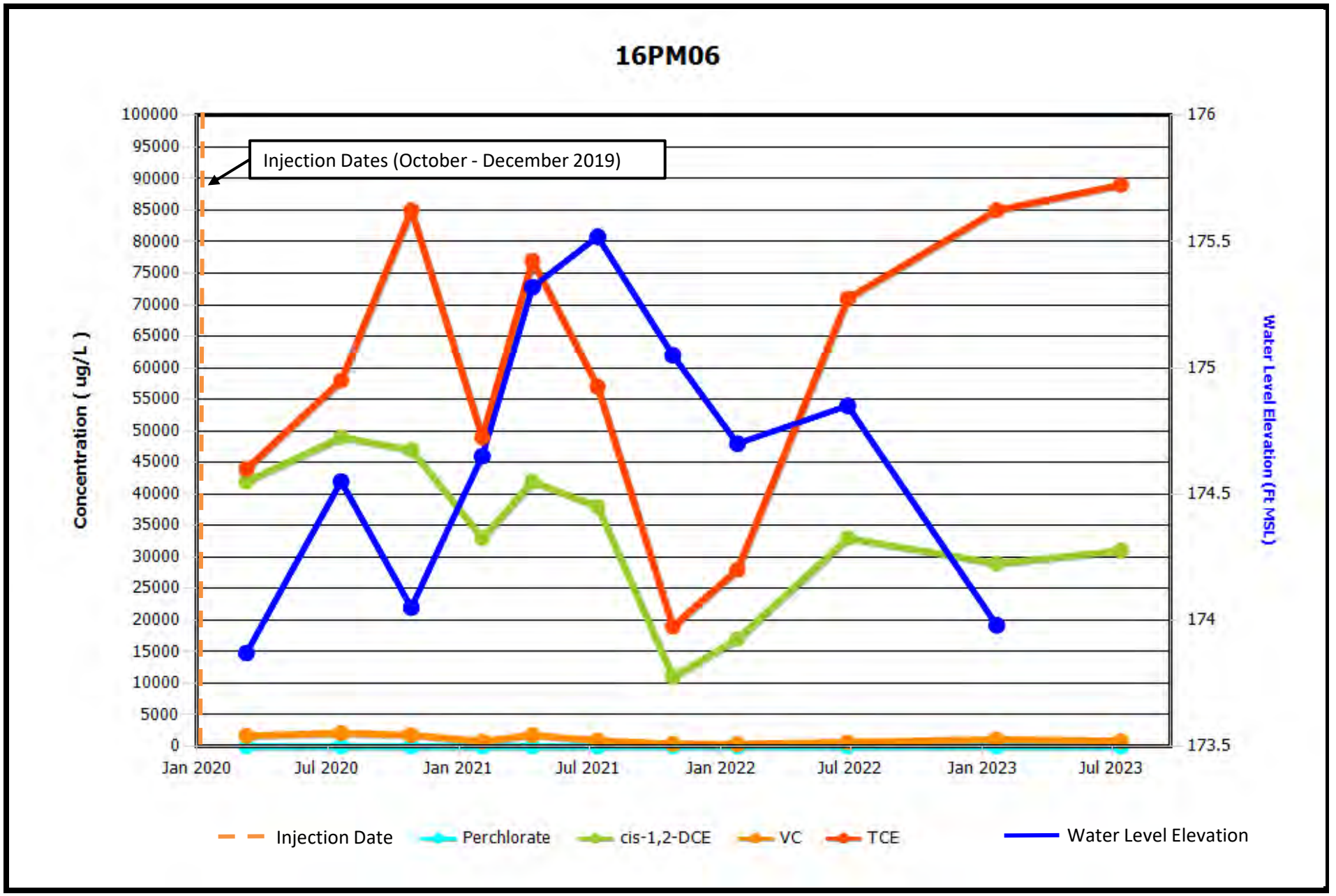
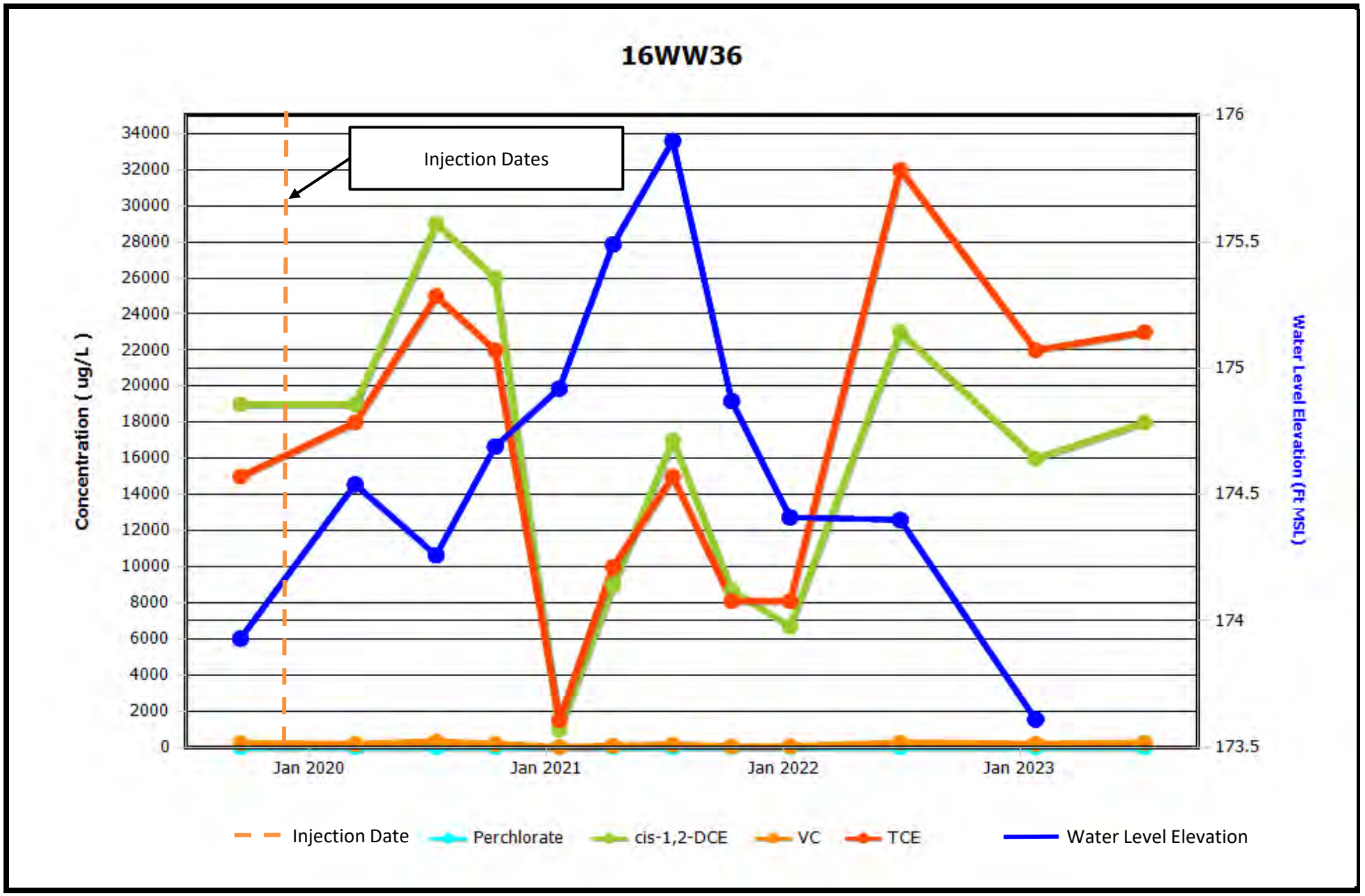


Figure 2-11
Concentration Trends, 16WW36, Landfill Biobarrier #2



16RW06		
Date	6/16/2022	1/19/2023
Perchlorate	0.12	< 0.05 U
Trichloroethene	73	160
cis-1,2-Dichloroethene	6.4	15
Vinyl chloride	2 J	5.1

16RW09		
Date	7/5/2022	1/25/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	1,900	590
cis-1,2-Dichloroethene	130	170
Vinyl chloride	94	71

16RW07		
Date	6/16/2022	1/19/2023
Perchlorate	0.335	0.633
Trichloroethene	780	2,200
cis-1,2-Dichloroethene	24	130
Vinyl chloride	10	100

16WW55		
Date	6/23/2022	1/19/2023
Perchlorate	147	55.5
Trichloroethene	2,400	2,100
cis-1,2-Dichloroethene	480	500
Vinyl chloride	44	100

16IW10		
Date	6/23/2022	1/23/2023
Perchlorate	0.108	< 0.05 U
Trichloroethene	2.1	1.6
cis-1,2-Dichloroethene	2.7	1.9 J
Vinyl chloride	1.3	4.2

16RW10		
Date	7/5/2022	1/25/2023
Perchlorate	2.05	3.39
Trichloroethene	930	1,100
cis-1,2-Dichloroethene	420	260
Vinyl chloride	190	180

16WW14*

16RW08*

DPT-19

DPT-20

DPT-21

DPT-22

DPT-23

DPT-24

DPT-25

N

0 15 30 Feet

Existing Well Location Shallow Zone Injection, Monitoring, or Recovery Well

Direct Push Injection Point

Groundwater Flow Direction (January 2023)

Target In Situ Reaction Zone

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
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.
3. * - not analyzed for perchlorate and VOCs.

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Figure 2-12
Year 3 COC Concentrations in Groundwater
Landfill Biobarrier #3
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LHAAP-16
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Figure 2-13
Concentration Trends, 16IW10, Landfill Biobarrier #3

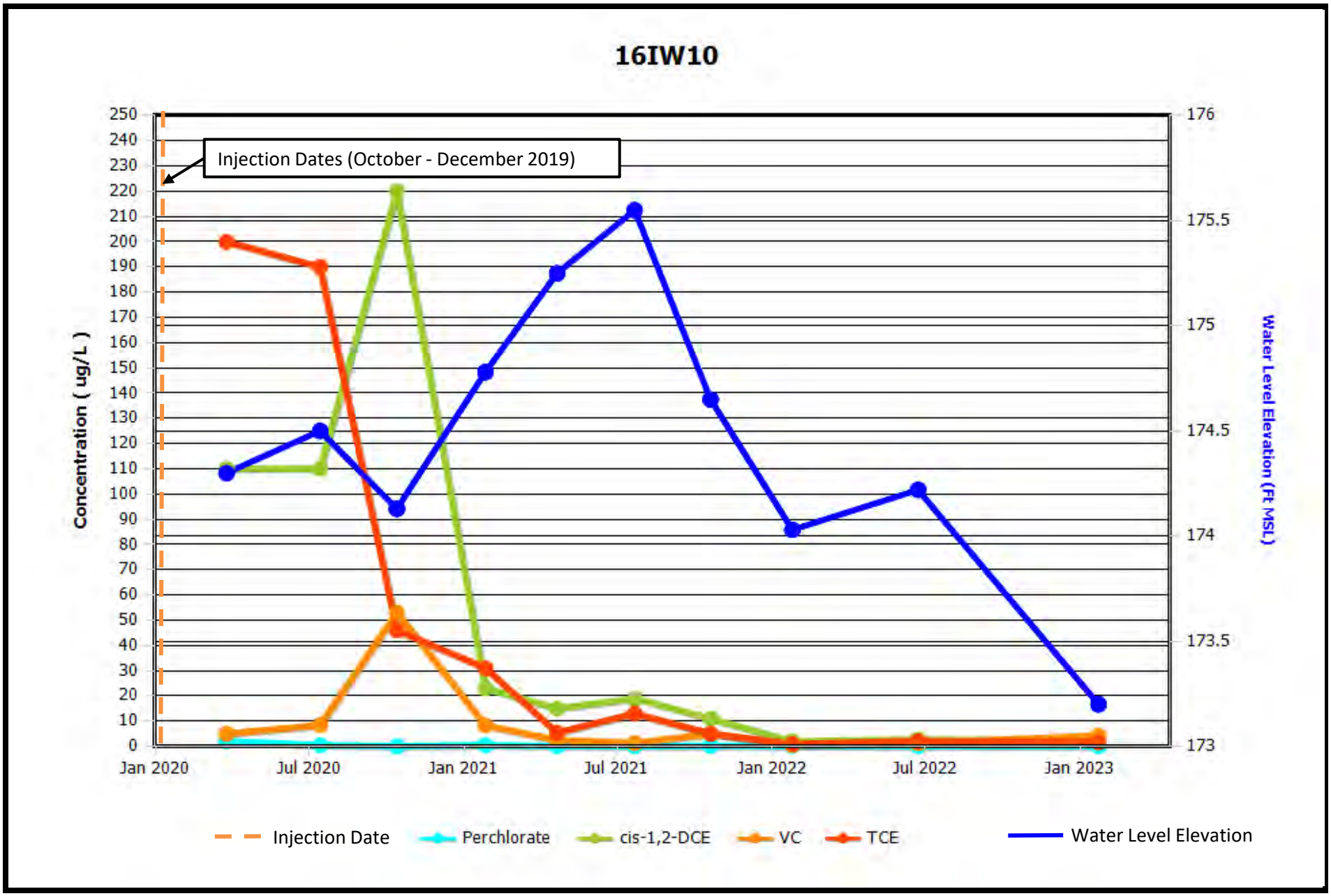
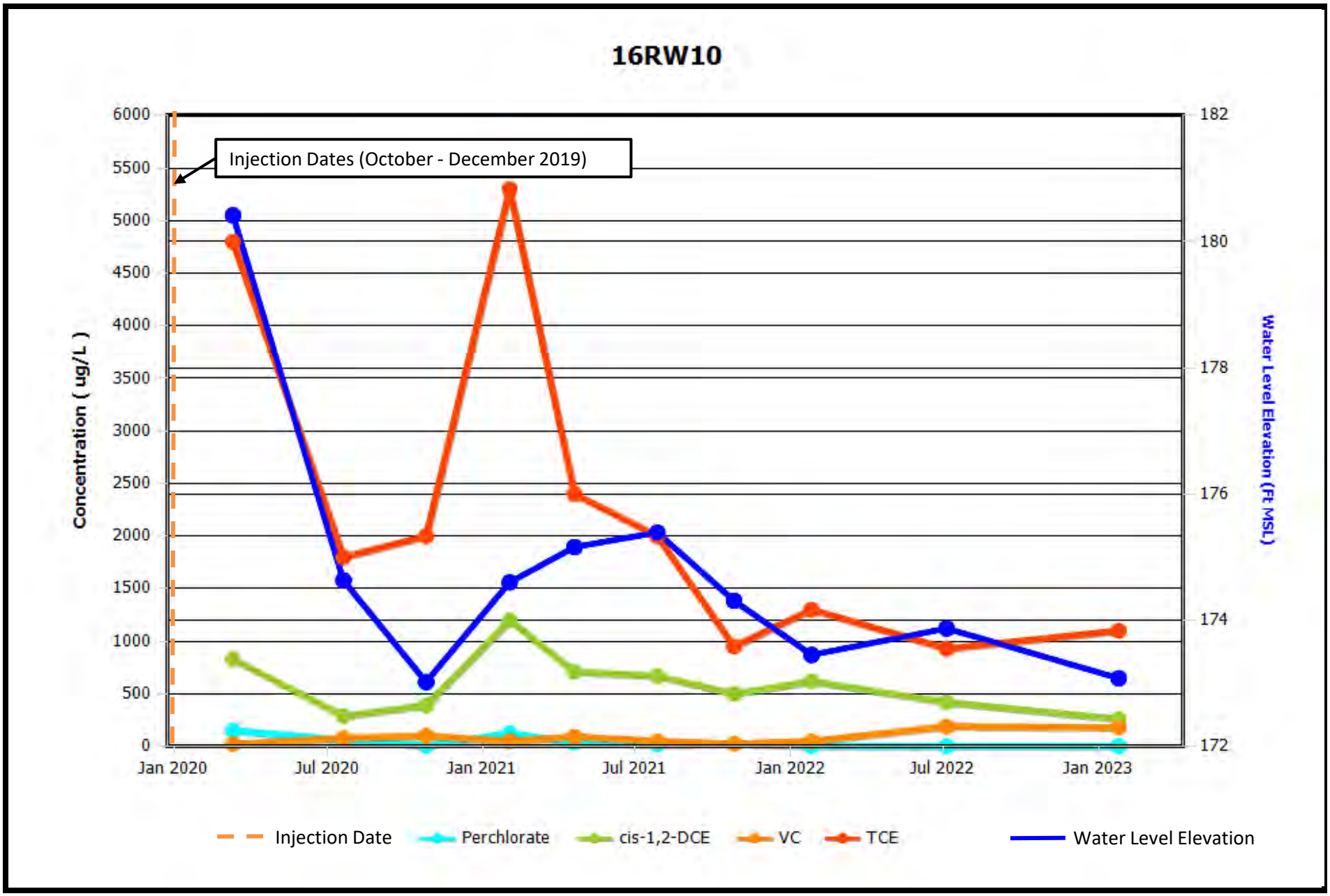


Figure 2-14
Concentration Trends, 16RW10, Landfill Biobarrier #3



16WW22		
Date	6/29/2022	1/20/2023
Perchlorate	0.0564 J	0.488
Trichloroethene	6.1	47
cis-1,2-Dichloroethene	0.96 J	6.7
Vinyl chloride	< 0.5 U	0.94 J

16WW56		
Date	6/16/2022	1/20/2023
Perchlorate	0.0616 J	0.167
Trichloroethene	10	27
cis-1,2-Dichloroethene	0.89 J	1.4
Vinyl chloride	< 0.5 U	< 1 U

16WW41		
Date	6/29/2022	1/19/2023
Perchlorate	85	11
Trichloroethene	6,200	6,800
cis-1,2-Dichloroethene	3,800	3,400
Vinyl chloride	520	720

16RW12		
Date	6/16/2022	1/20/2023
Perchlorate	0.133	0.0598 J
Trichloroethene	52	130
cis-1,2-Dichloroethene	30	37
Vinyl chloride	8.1	9.5

DPT-26
DPT-27
DPT-28
DPT-29
16WW21
DPT-30
DPT-31
DPT-32
DPT-33
DPT-34
DPT-35
16RW11*
DPT-37
DPT-39
DPT-38

16WW40		
Date	7/5/2022	1/21/2023
Perchlorate	< 0.25 U	0.0305
Trichloroethene	990	480
cis-1,2-Dichloroethene	180 J	200
Vinyl chloride	10	4.7

16WW39		
Date	6/29/2022	1/25/2023
Perchlorate	5.56	7.03
Trichloroethene	230	490
cis-1,2-Dichloroethene	28	40
Vinyl chloride	2.2	5.3

16WW12		
Date	7/5/2022	1/25/2023
Perchlorate	58.3	21.9
Trichloroethene	2,100	1,400
cis-1,2-Dichloroethene	100	160
Vinyl chloride	9.9	16

Harrison Bayou

16IW20		
Date	6/23/2022	1/19/2023
Perchlorate	0.0415 J	< 0.05 U
Trichloroethene	1.6	2.5
cis-1,2-Dichloroethene	0.52 J	7.8
Vinyl chloride	3.7	18

N

0 25 50 Feet

Shallow Well
Intermediate Well Location
Upper Deep Well Location
Direct Push Injection Point
Groundwater Flow Direction (January 2023)
Target In Situ Reaction Zone Based on Design Radius of Influence

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
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.
3. * - not analyzed for perchlorate and VOCs.

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Figure 2-15
Year 3 COC Concentrations in Groundwater
Bayou Biobarrier
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LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/12/2024

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Figure 2-16
Concentration Trends, 16IW20, Bayou Barrier

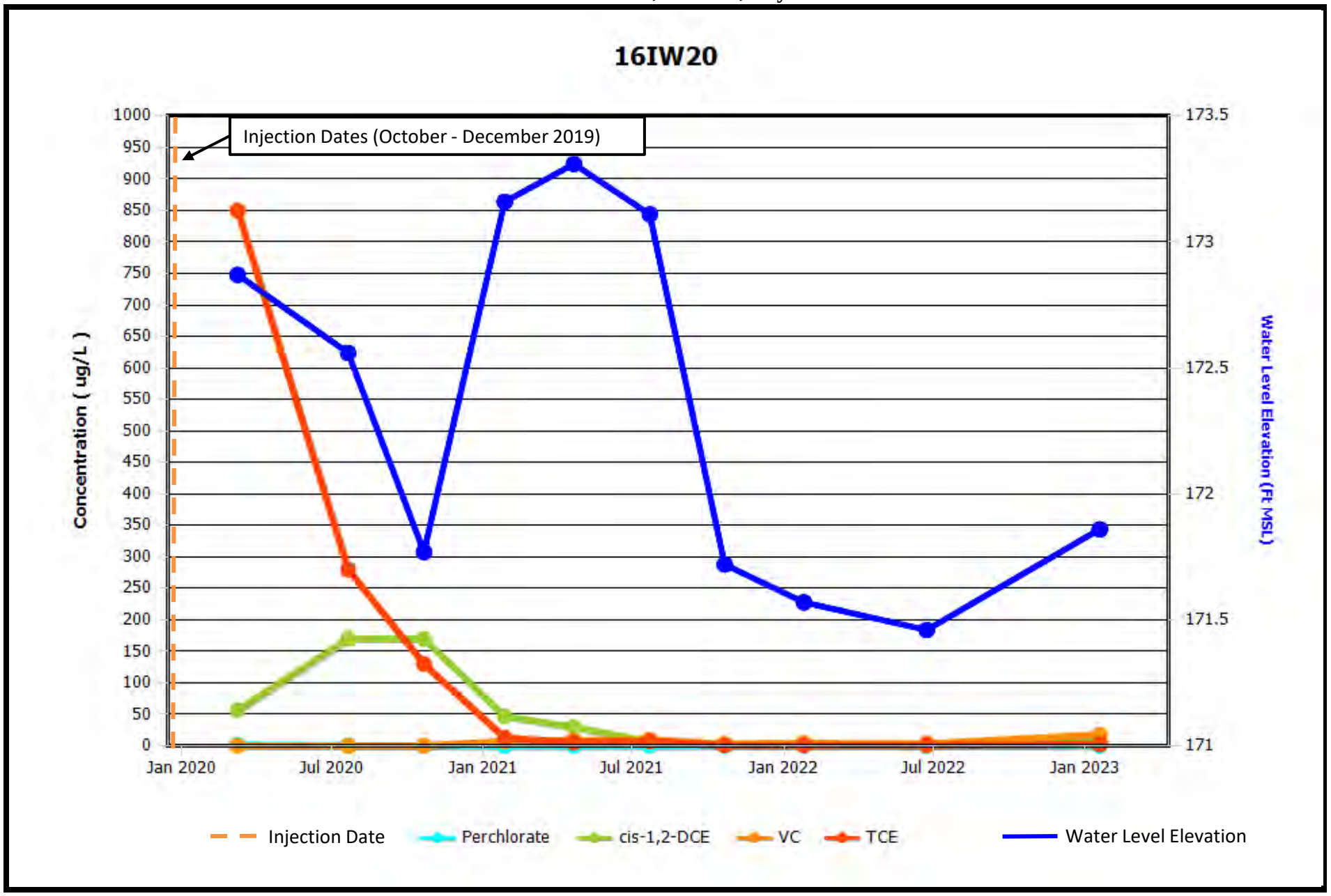


Figure 2-17
Concentration Trends, 16RW12, Bayou Barrier

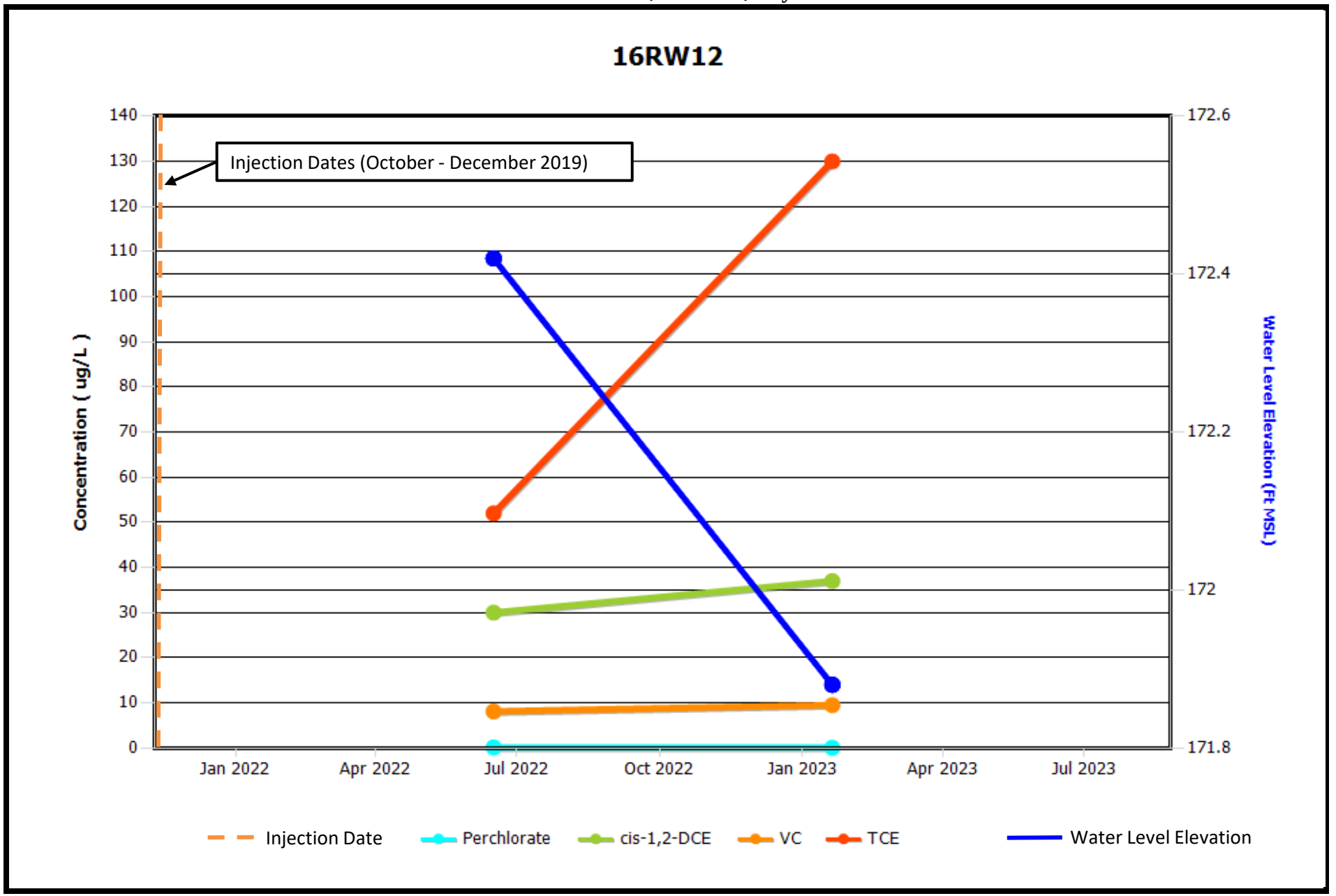
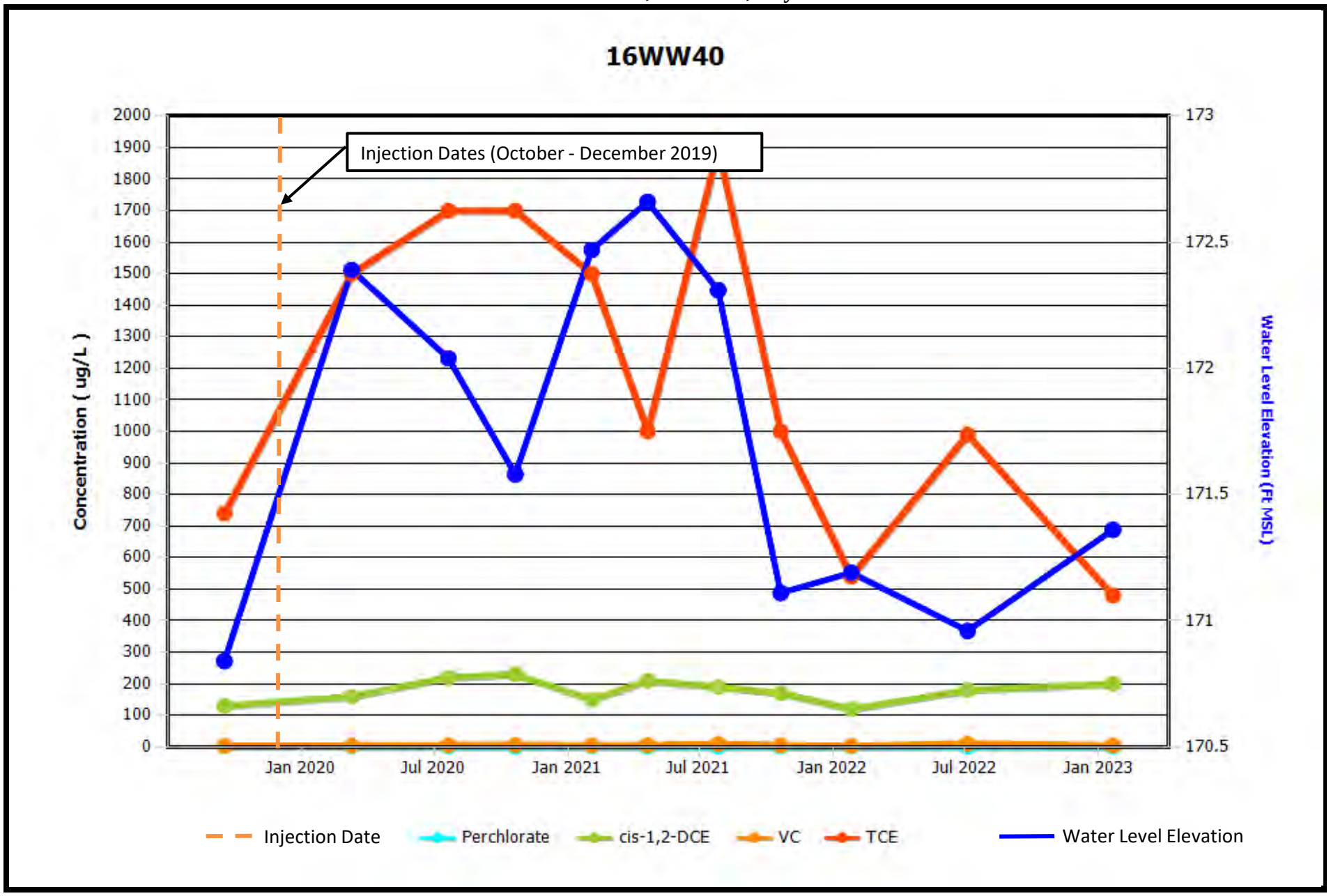


Figure 2-18
Concentration Trends, 16WW40, Bayou Barrier



16EW01		
Date	7/5/2022	1/19/2023
Perchlorate	38.1	30.7
Trichloroethene	2,900	2,400
cis-1,2-Dichloroethene	7,600	7,000
Vinyl chloride	730	890

16EW02		
Date	6/29/2022	1/19/2023
Perchlorate	0.24 J	< 0.05 U
Trichloroethene	35,000	32,000
cis-1,2-Dichloroethene	33,000	39,000
Vinyl chloride	730	1,100

16WW39		
Date	6/29/2022	1/25/2023
Perchlorate	5.56	7.03
Trichloroethene	230	490
cis-1,2-Dichloroethene	28	40
Vinyl chloride	2.2	5.3

16WW48		
Date	6/30/2022	1/19/2023
Perchlorate	7.87	2.35
Trichloroethene	20,000	13,000
cis-1,2-Dichloroethene	22,000	23,000
Vinyl chloride	410	180

16WW36		
Date	6/30/2022	1/25/2023
Perchlorate	< 0.25 U	< 0.05 U
Trichloroethene	32,000	22,000
cis-1,2-Dichloroethene	23,000	16,000
Vinyl chloride	260	190

16EW03		
Date	6/29/2022	1/19/2023
Perchlorate	< 0.05 U	0.0379 J
Trichloroethene	3.8 J	420
cis-1,2-Dichloroethene	120	1,200
Vinyl chloride	< 2.5 U	630

16WW30		
Date	6/30/2022	1/23/2023
Perchlorate	0.176 J	< 0.05 U
Trichloroethene	45	120
cis-1,2-Dichloroethene	3.3	3.3
Vinyl chloride	< 0.5 U	< 1 U

16WW26		
Date	6/30/2022	1/23/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	1,100	710
cis-1,2-Dichloroethene	110	57
Vinyl chloride	6.7	3.6

16EW04		
Date	6/23/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05
Trichloroethene	9,800	28,000
cis-1,2-Dichloroethene	2,700	6,300
Vinyl chloride	44	180

DPT-79 DPT-60 DPT-78 DPT-61 DPT-59 DPT-77 DPT-40 DPT-62 DPT-58 DPT-76 DPT-41 DPT-63 DPT-57 DPT-75 DPT-64 DPT-42 DPT-74 DPT-56 DPT-65 DPT-43 DPT-73 DPT-44 DPT-55 DPT-66 DPT-54 DPT-72 DPT-45 DPT-67 DPT-53 DPT-71 DPT-46 DPT-68 DPT-70 DPT-47 DPT-69 DPT-52 DPT-51 DPT-48 DPT-50 DPT-49

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LHAAP-16

N

0 37.5 75 Feet

- Shallow Zone Extraction or Monitoring Well
- Direct Push Injection Point
- Groundwater Flow Direction (January 2023)
- Stream
- Shallow In Situ Bioremediation Area
- LHAAP-16 Landfill Fence

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
J- - The analyte was positively identified; the associated numerical value is its approximate concentration with a low bias in the sample.
U - Undetected: The analyte was analyzed for, but not detected.
3. Monitoring wells 16WW36, 16WW26, and 16WW39 are not part of the monitoring network for the Mid-Plume Area, but are shown on this map due to their proximity to the Mid-Plume Treatment Area.

Date: 8/22/2023

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Figure 2-19

Year 3 COC Concentrations in Groundwater
Mid-Plume Area, Shallow Zone
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
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Figure 2-20
Concentration Trends, 16EW02, Mid-Plume Area, Shallow Zone

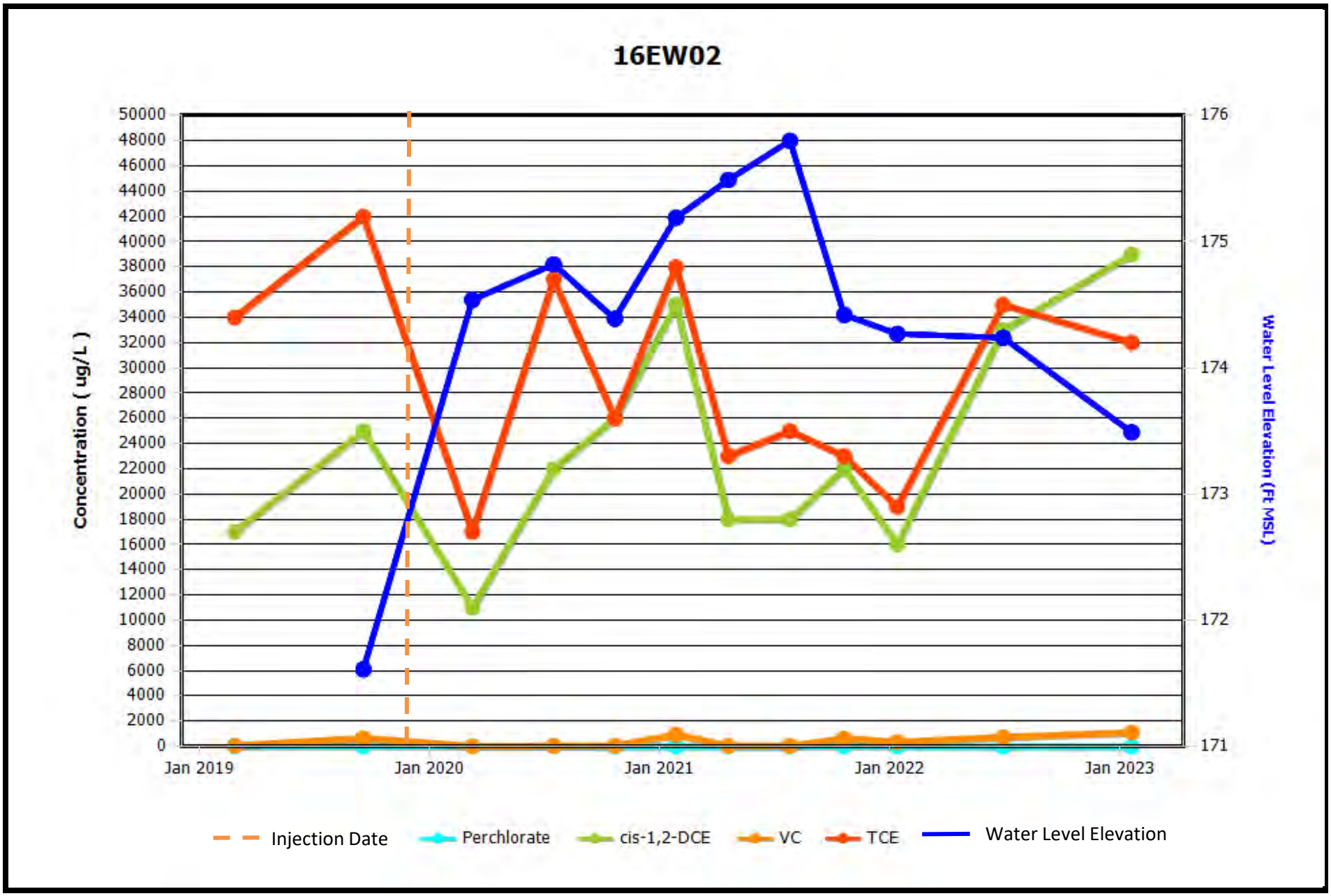


Figure 2-21
Concentration Trends, 16WW30, Mid-Plume Area, Shallow Zone

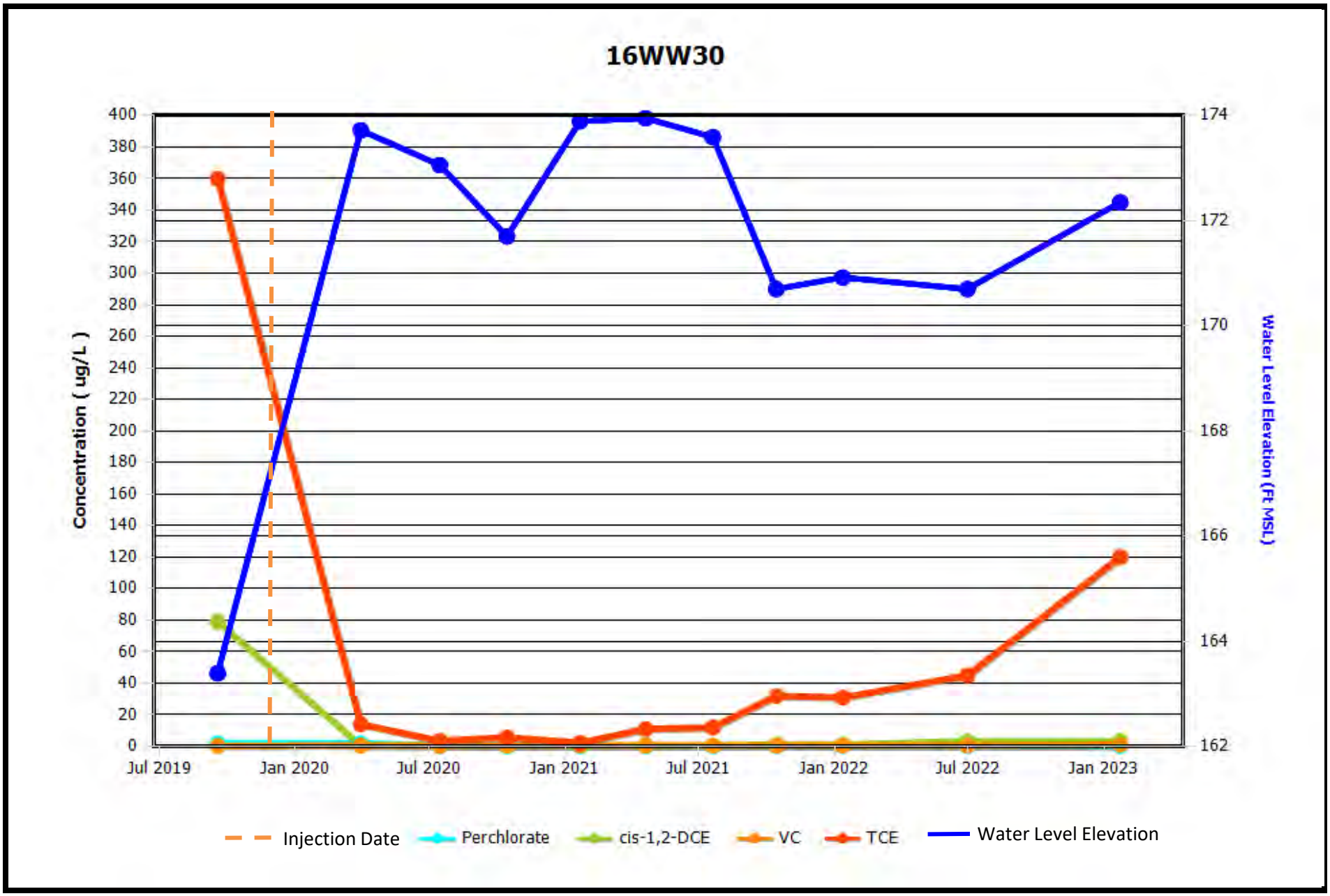
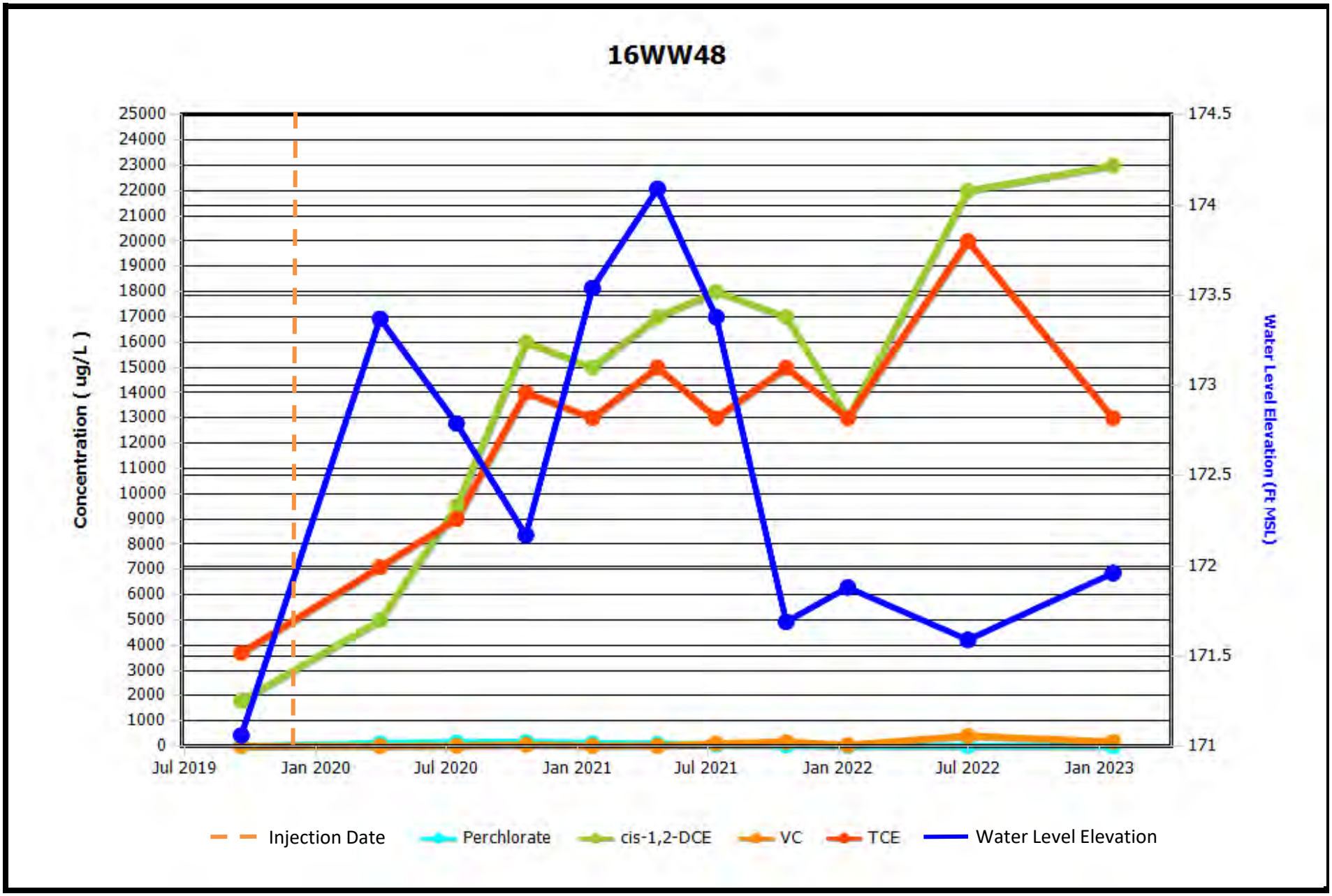


Figure 2-22
Concentration Trends, 16WW48, Mid-Plume Area, Shallow Zone



16WW49		
Date	6/29/2022	1/25/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	46	73
cis-1,2-Dichloroethene	50	41
Vinyl chloride	< 0.5 U	< 1 U

16IW26		
Date	6/29/2022	1/23/2023
Perchlorate	0.053 J	< 0.05 U
Trichloroethene	3.6 J	< 5 U
cis-1,2-Dichloroethene	< 2.5 U	< 5 U
Vinyl chloride	< 2.5 U	2 J

16WW51		
Date	6/16/2022	1/20/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	2,000	5,900
cis-1,2-Dichloroethene	170	900
Vinyl chloride	2.7 J	17

16WW29		
Date	6/30/2022	1/23/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	1.7	2.8
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16EW08		
Date	6/23/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05
Trichloroethene	2.2	2.2
cis-1,2-Dichloroethene	4.2	0.91 J
Vinyl chloride	< 0.5 U	< 1 U

Existing Well Location Intermediate Zone Injection, Extraction, or Monitoring Well

Groundwater Flow Direction (January 2023)

Stream

Intermediate Groundwater Zone In Situ Bioremediation Area

LHAAP-16 Landfill Fence

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
   J - Concentration shown is estimated.
   U - Undetected: The analyte was analyzed for, but not detected.
3. * - Not analyzed for perchlorate and VOCs.

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Figure 2-23

Year 3 COC Concentrations in Groundwater
Mid-Plume Area, Intermediate Zone
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LHAAP-16

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Figure 2-24
Concentration Trends, 16WW49, Mid-Plume Area, Intermediate Zone

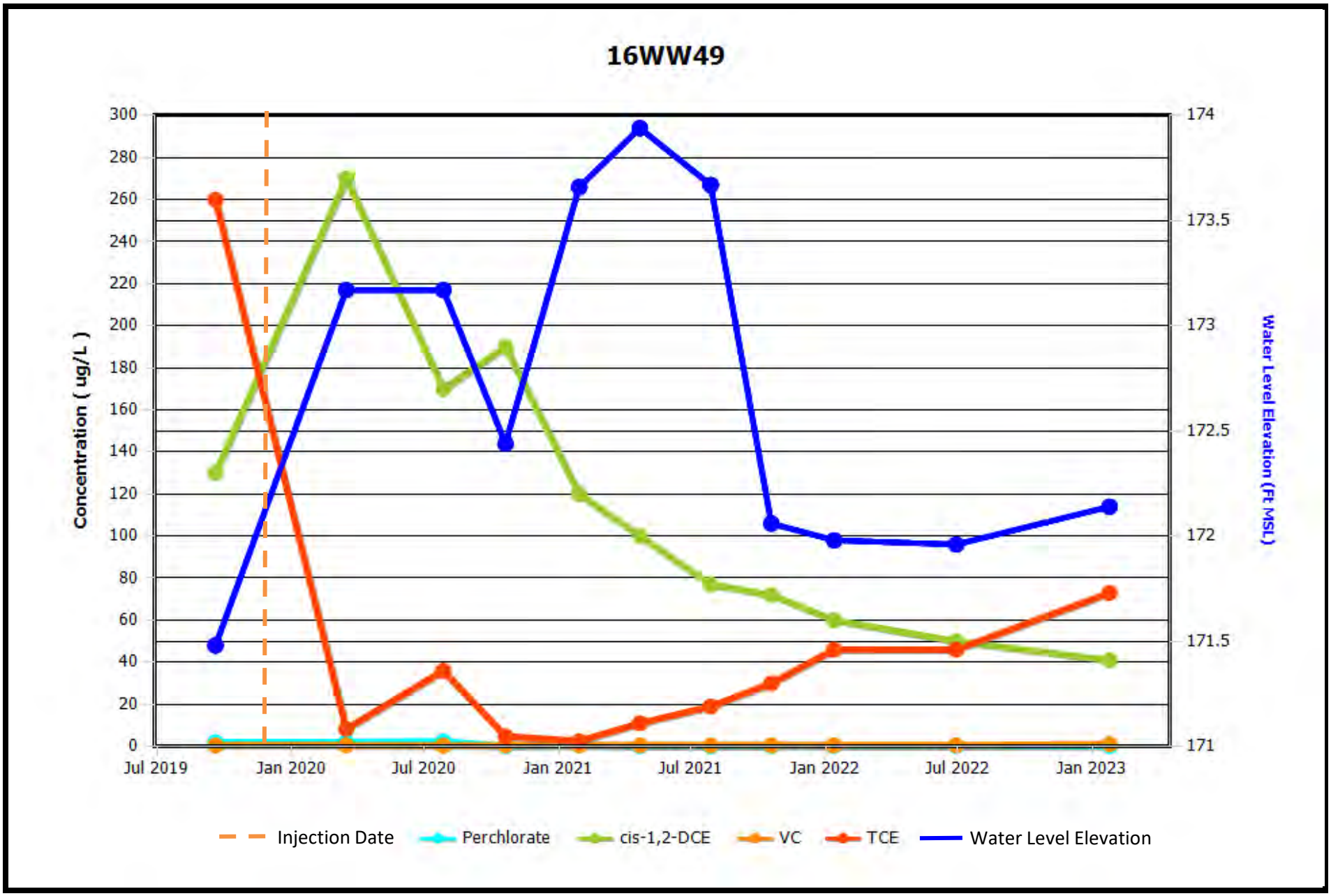
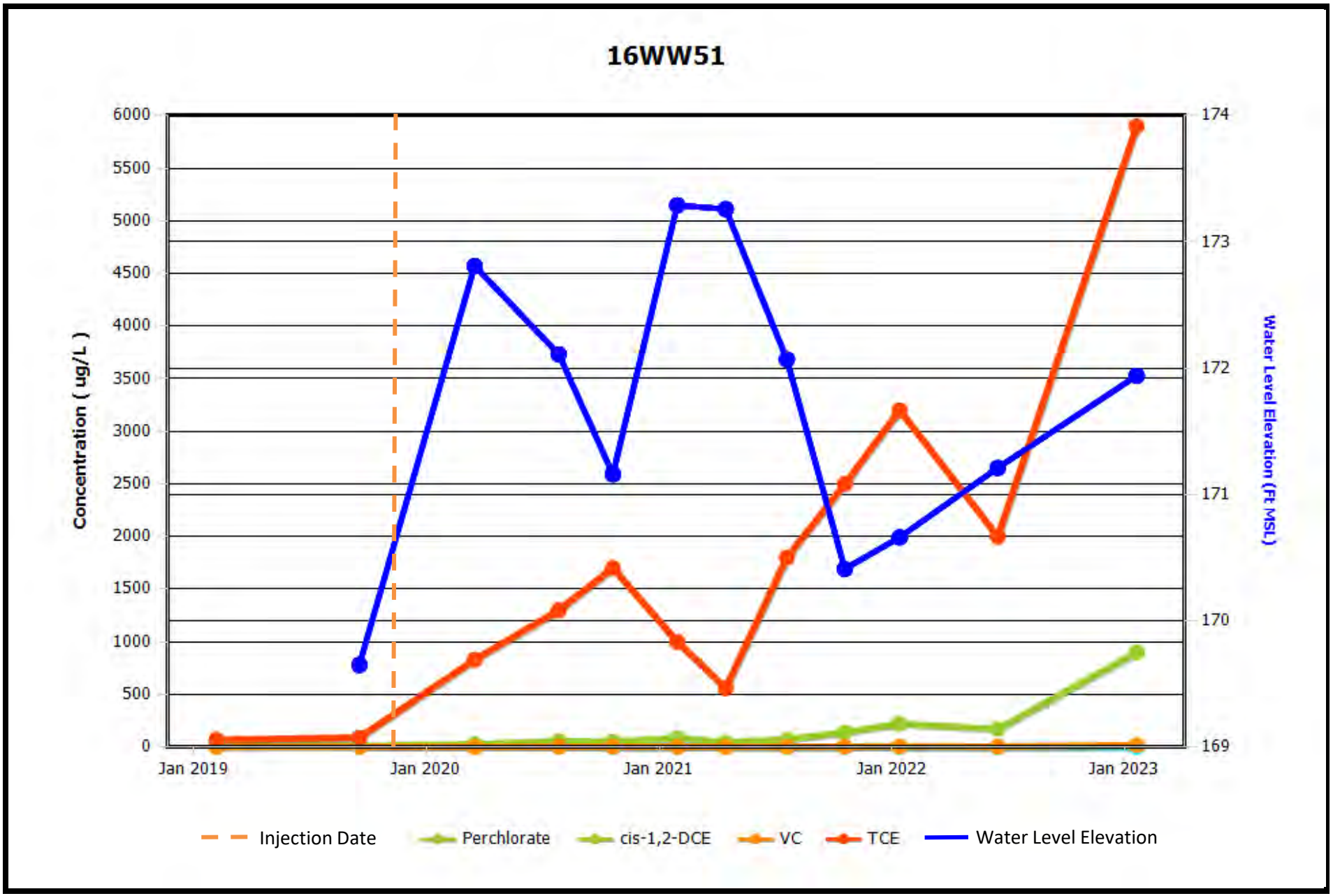


Figure 2-25
Concentration Trends, 16WW51, Mid-Plume Area, Intermediate Zone



Biobarrier_Intermediate_Year3RAO

16WW31		
Date	6/20/2022	1/25/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	< 0.5 U	< 1 U
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW32		
Date	6/20/2022	1/25/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	< 0.5 U	0.82 J
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW33		
Date	6/20/2022	1/25/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	< 0.5 U	< 1 U
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW46		
Date	6/20/2022	1/25/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	< 0.5 U	0.71 J
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW34		
Date	6/20/2022	1/25/2023
Perchlorate	0.0429 J	< 0.05 U
Trichloroethene	< 0.5 U	< 1 U
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW57		
Date	6/23/2022	1/23/2023
Perchlorate	0.138	< 0.05 U
Trichloroethene	120	160
cis-1,2-Dichloroethene	1.6	< 5 U
Vinyl chloride	< 0.5 U	< 5 U

16WW44		
Date	7/25/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05 U
Trichloroethene	< 0.5 U	2.2
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW58		
Date	6/23/2022	1/23/2023
Perchlorate	< 0.05 U	0.0371 J
Trichloroethene	2,600	7,000
cis-1,2-Dichloroethene	95	200
Vinyl chloride	< 5 U	< 50 U

16WW38		
Date	6/20/2022	1/20/2023
Perchlorate	0.0381 J	2.14 J
Trichloroethene	4,200	3,700
cis-1,2-Dichloroethene	710	460
Vinyl chloride	130	110

16WW27		
Date	6/27/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05
Trichloroethene	< 0.5 U	1.9
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW37		
Date	6/20/2022	1/20/2023
Perchlorate	25.1	11.3
Trichloroethene	200	200
cis-1,2-Dichloroethene	14	12
Vinyl chloride	6.3	7.1

16WW43		
Date	6/27/2022	1/21/2023
Perchlorate	< 0.05 U	0.105
Trichloroethene	< 0.5 U	0.63 J
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

16WW24		
Date	6/27/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05
Trichloroethene	< 0.5 U	< 1 U
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 UJ	< 1 U

16WW23		
Date	6/27/2022	1/21/2023
Perchlorate	< 0.05 U	< 0.05
Trichloroethene	< 0.5 U	< 1 U
cis-1,2-Dichloroethene	< 0.5 U	< 1 U
Vinyl chloride	< 0.5 U	< 1 U

Biobarrier 3
Biobarrier 2
Biobarrier 1
Bayou Biobarrier
Mid-Plume Area
Central Creek
Harrison Bayou
AVE "Q"

- Shallow Well Location
- Intermediate Well Location
- Groundwater Flow Direction (January 2023)
- Stream
- Road
- LHAAP-16 Landfill Fence
- Building or Tank
- Sub Area

Notes:
1. Blue Highlighting Indicates the concentration exceeds the MCL/PCL.
2. Qualifiers:
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.

N
0 125 250
Feet

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TULSA, OKLAHOMA

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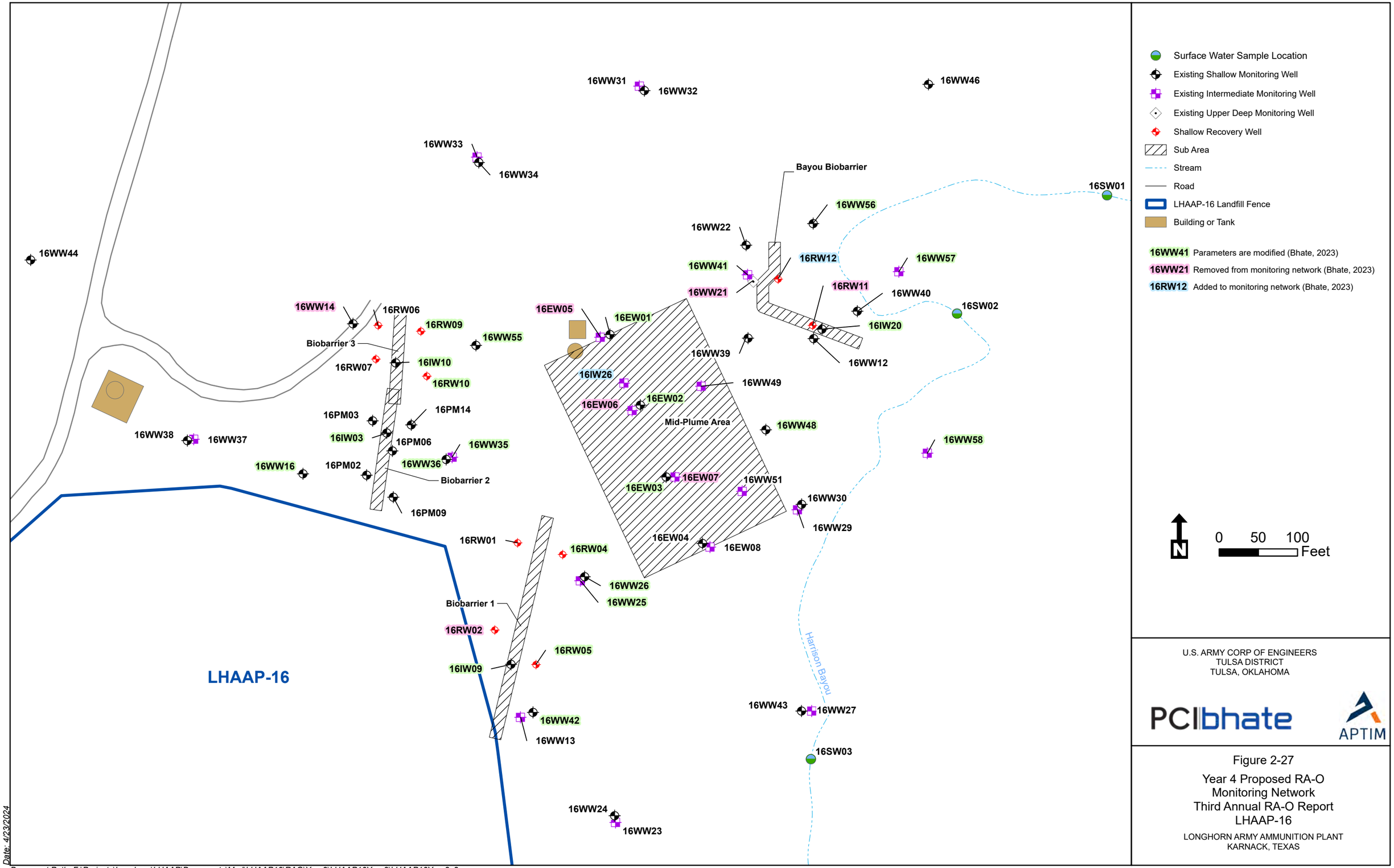
Figure 2-26

Year 3 COC Concentrations in Groundwater Outside Treatment Areas
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 8/23/2023

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Yr3RAO\LHAAP16Yr3RAO\LHAAP16Yr3RAO.aprx



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TULSA DISTRICT
TULSA, OKLAHOMA

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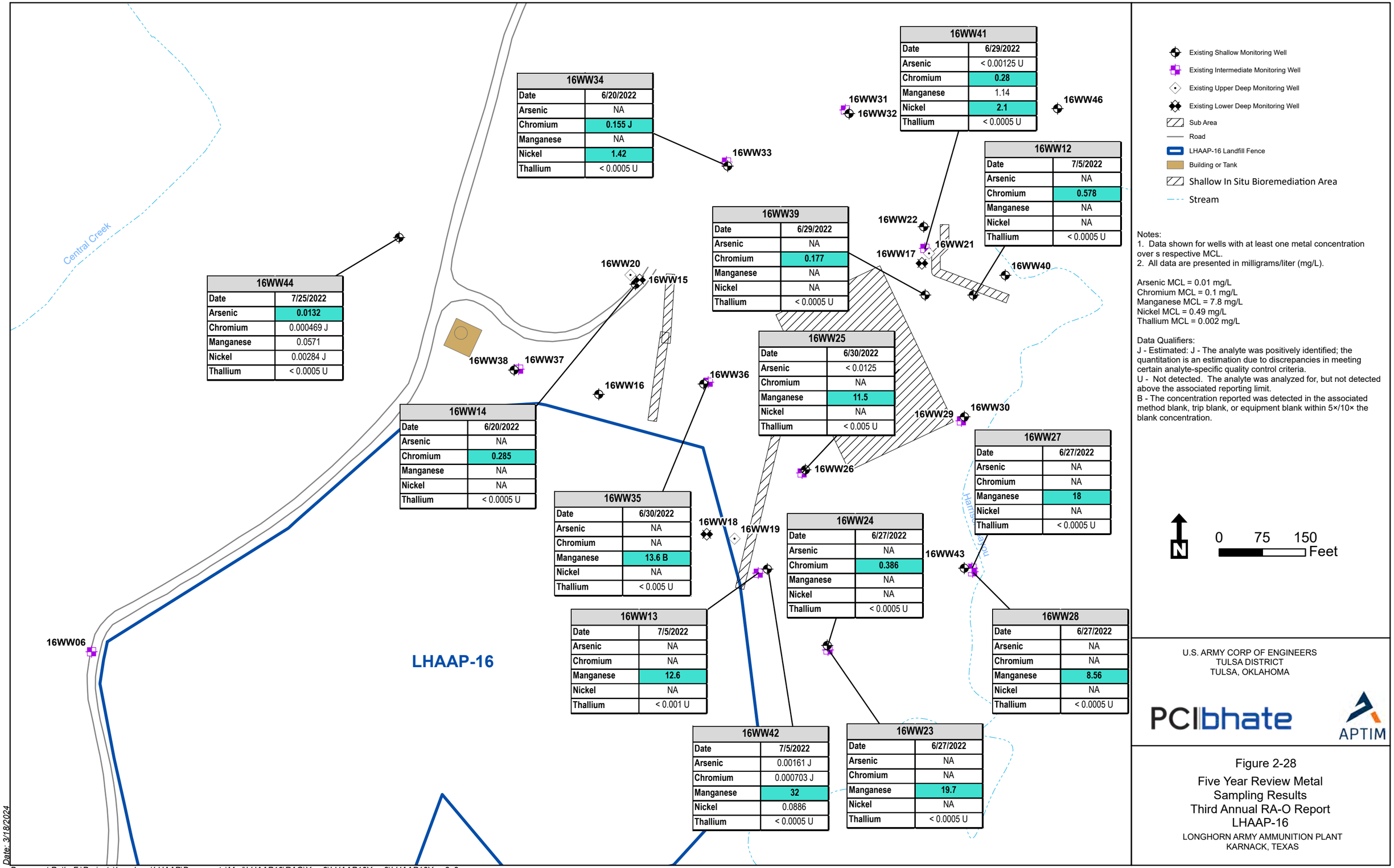
Figure 2-27

Year 4 Proposed RA-O Monitoring Network
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/23/2024

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Year3\LHAAP16Year3v2.aprx



Notes:
1. Data shown for wells with at least one metal concentration over s respective MCL.
2. All data are presented in milligrams/liter (mg/L).

Arsenic MCL = 0.01 mg/L
Chromium MCL = 0.1 mg/L
Manganese MCL = 7.8 mg/L
Nickel MCL = 0.49 mg/L
Thallium MCL = 0.002 mg/L

Data Qualifiers:
J - Estimated: J - The analyte was positively identified; the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.
B - The concentration reported was detected in the associated method blank, trip blank, or equipment blank within 5×/10× the blank concentration.

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TULSA, OKLAHOMA

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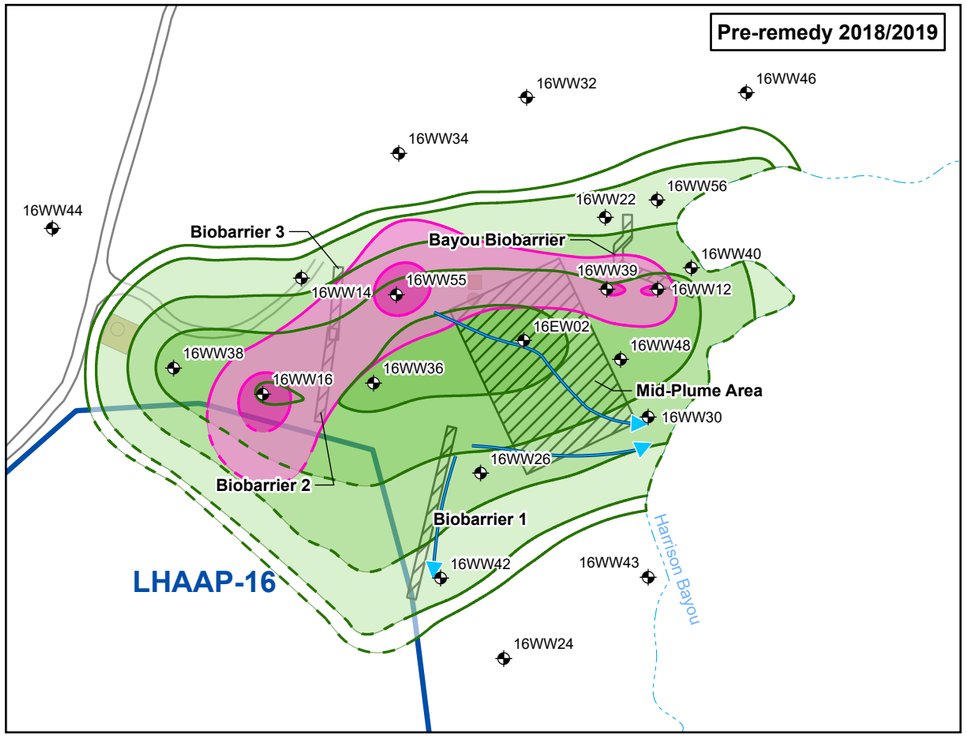
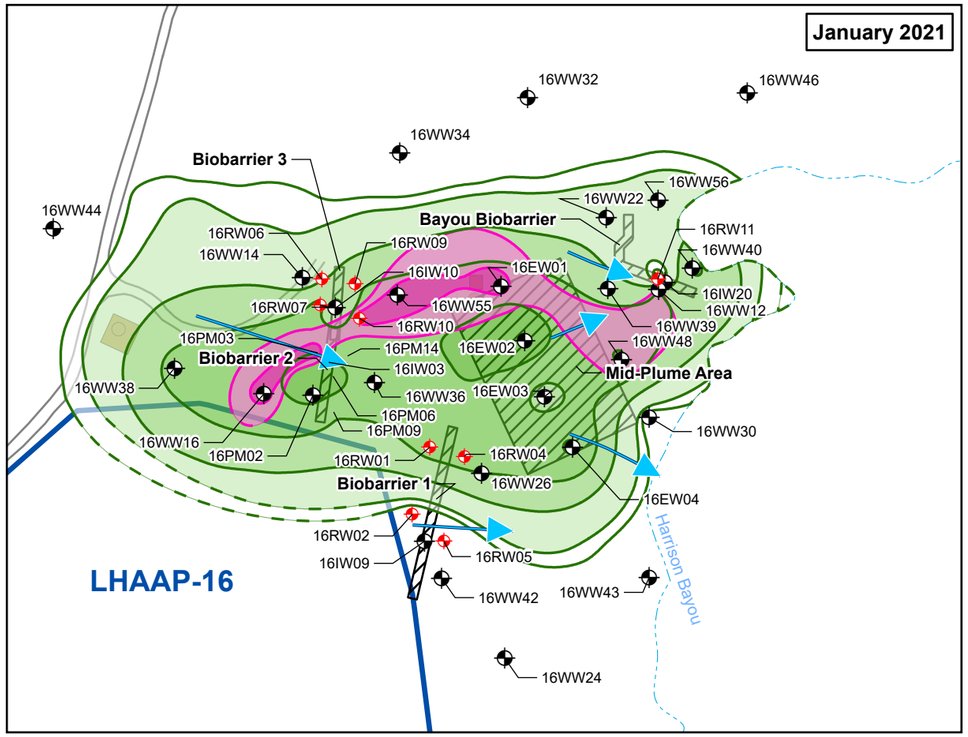
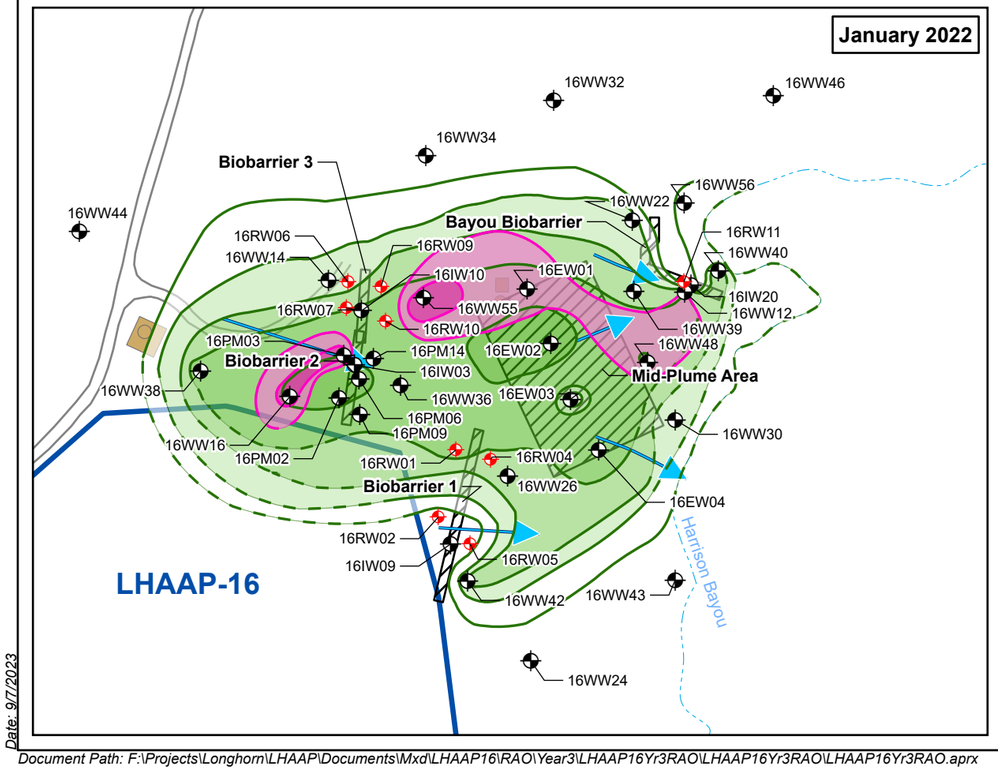
Figure 2-28
Five Year Review Metal Sampling Results
Third Annual RA-O Report
LHAAP-16
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

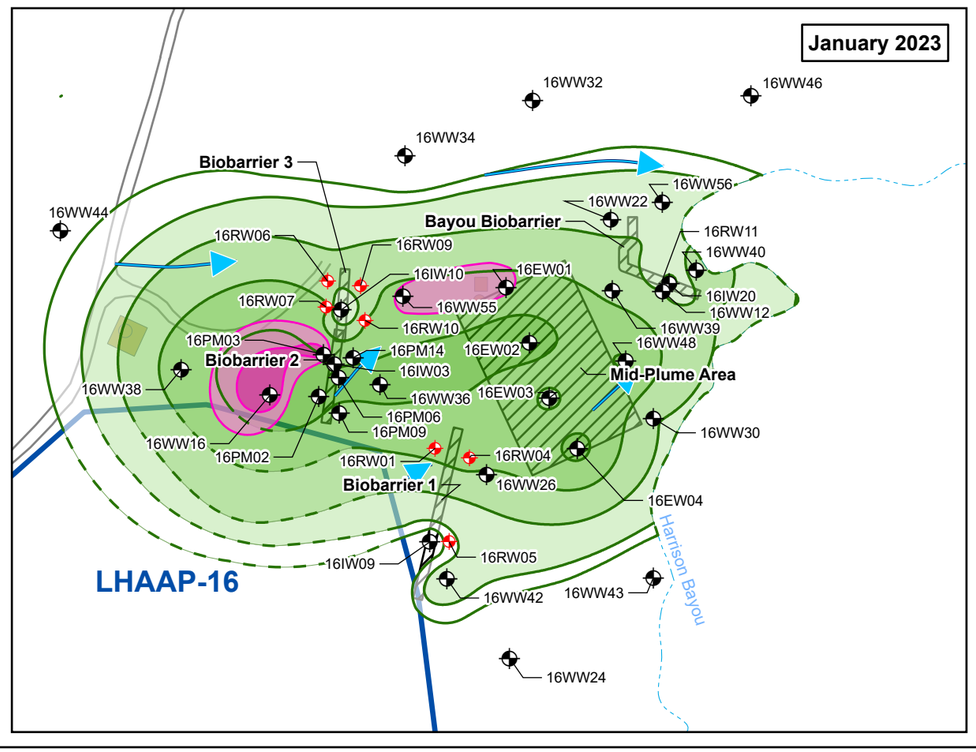
Date: 3/18/2024

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Year3\LHAAP16Year3v2.aprx









Existing Shallow Monitoring Well
Shallow Recovery Well
Groundwater Flow Direction
Sub Area
Stream
Road
LHAAP-16 Landfill Fence
Building or Tank

Perchlorate Plume (µg/L)
17 - 100
>100

Trichloroethene (TCE) Plume (µg/L)
5 - 10
10 - 100
100 - 1,000
1,000 - 10,000
>10,000

Notes:
1. Perchlorate MCL/PCL = 17 µg/L
TCE MCL/PCL = 5 µg/L
2. µg/L = micrograms per liter

N
0 125 250 Feet

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TULSA DISTRICT
TULSA, OKLAHOMA

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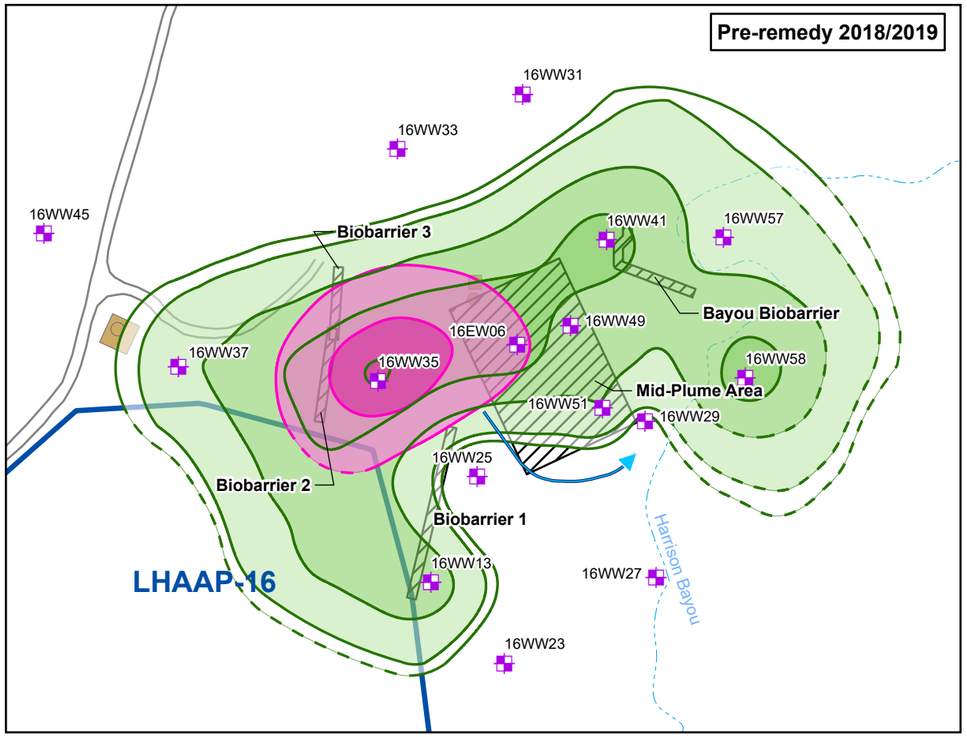
Figure 3-1

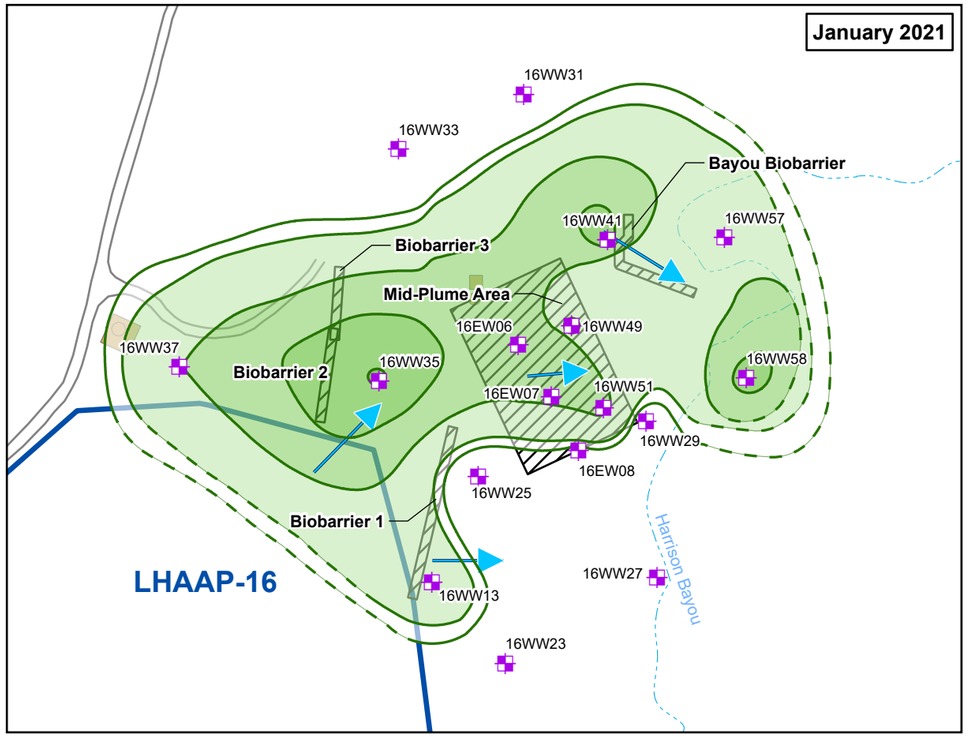
Shallow Zone Plume Stability
Third Annual RA-O Report
LHAAP-16

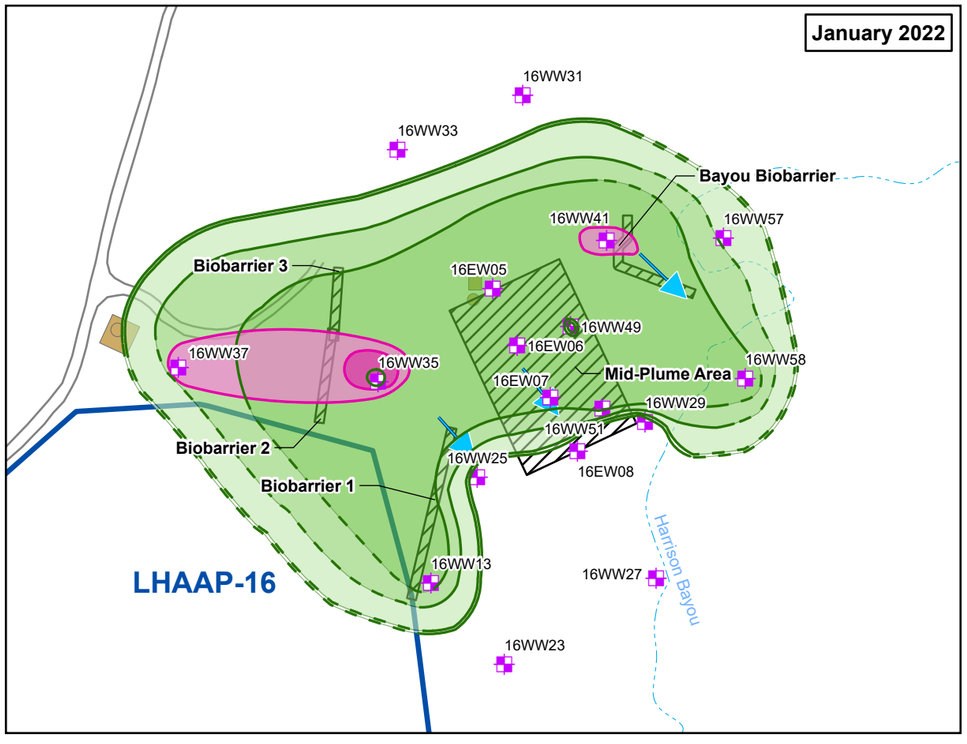
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

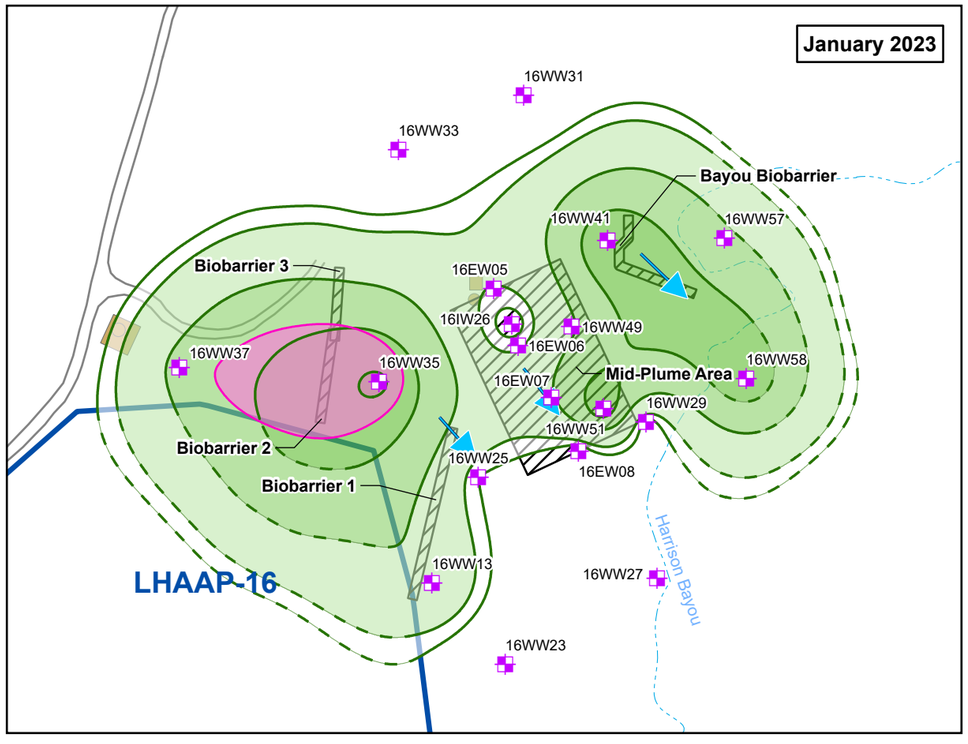
Date: 9/7/2023

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Yr3RAO\LHAAP16Yr3RAO\LHAAP16Yr3RAO.aprx









Existing Intermediate Monitoring Well
Groundwater Flow Direction
Stream
Road
LHAAP-16 Landfill Fence
Building or Tank
Sub Area

Perchlorate Plume (µg/L)
17 - 100
>100

Trichloroethene (TCE) Plume (µg/L)
5 - 10
10 - 100
100 - 1,000
1,000 - 10,000
>10,000

Notes:
1. Perchlorate MCL/PCL = 17 µg/L
TCE MCL/PCL = 5 µg/L
2. µg/L = micrograms per liter

N
0 125 250
Feet

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

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Figure 3-2

Intermediate Zone Plume Stability
Third Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 8/24/2023

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year3\LHAAP16Yr3RAO\LHAAP16Yr3RAO\LHAAP16Yr3RAO.aprx

Appendix A

Annual Land Use Control Compliance Certification and Documentation

Annual Land Use Control Compliance Inspection Form

In accordance with the Remedial Design dated January 18, 2017 for LHAAP-16 an inspection of the site was conducted by ~~[illegible]~~ Aptim [indicate transferee] on 7/19/23.

The land use control mechanisms are:

- Groundwater restrictions - prohibit access to the contaminated groundwater except for environmental monitoring and testing only until cleanup goals are met;
- Landfill integrity - preserve the integrity of the landfill cap and restrict intrusive activities (e.g., digging) that would degrade or alter the cap;
- Land use restrictions - restrict land use to nonresidential;
- Integrity of remedial and monitoring systems - maintain the integrity of any current or future remedial or monitoring systems until cleanup goals are met.

No unauthorized activities or uses have occurred. Compliance with land use controls and restrictions is as follows:

- No use of groundwater (other than environmental testing and monitoring), installation of new groundwater wells, or tampering with existing monitoring wells;
- No landfill intrusive activities (e.g., digging) that would degrade or alter the landfill cap; maintenance of vegetative cover and repair of soil subsidence or erosion areas on the cap;
- No land use other than nonresidential; and
- No activities that would compromise the integrity of the remedial or monitoring systems.

I, the undersigned, do document that the inspection was conducted as indicated above, and that the above information is true and correct to the best of my knowledge, information, and belief.

Date: July 19, 2023

Name/Title: Scott Beesinger / Senior Environmental Tech

Signature: Scott Beesinger

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year, retained in the file and provided to Army, EPA and TCEQ upon request.

RAO Inspection and Maintenance Checklist

General Information	
Project Name	RAO Inspection and Maintenance, LHAAP-16 Landfill, Longhorn Army Ammunition Plant, Karnack, TX
Contractor	BHATA / Aptim
Inspector's Name	Scott Bassinger
Inspector's Title	Senior Environmental Tech
Inspector's Signature	Scott Bassinger
Inspector's Contact Number	(903) 930-6193
Inspection Date	7/19/23
Type of Inspection	☐ Quarterly ☐ Semiannual ☒ Annual ☐ Prior to forecast rain ☐ After a rain event ☐ Other ----------

Description		Yes	No	N/A	Comments (Attach photos/location sketches)	Corrective Action (Attach photos)
A. CAP Cover Surface						
A.1	Are there any significant cracks present?		X			
A.2.	Are there any damaged areas?		X			
A.3	Is there any ponded water present?		X			
A.4	Any other relevant observations?		X			
B. CAP Vegetation and Animal Burrows						
B.1	Are there signs of stressed/ dead vegetation?		X			
B.2	Are there any significant bare spots?		X			
B.3	Are deep-rooted plants present?	X			Pine Trees	
B.4	Are there signs of animal burrows?		X			
B. 5	Any other relevant observations?		X			

Description		Yes	No	N/A	Comments (Attach photos/location sketches)	Corrective Action (Attach photos)
C. CAP Erosion and Drainage System						
C.1	Is there any evidence of significant/ clearly visible erosion, settlement, or other deterioration?		X			
C.2	Are the drainage systems in poor condition?		X			
C.3	Is there excessive silting or debris clogging?		X			
C.4	Is there erosion of banks and slopes?		X			
C.5	Are there areas of choking by overgrown vegetation?		X			
C.7	Is there pooling of water in or along side a channel or berm?		X			
C.8	Any other relevant observations?		X			
D. Groundwater Monitoring Wells						
D.1	Are the installed groundwater monitoring wells in poor condition?		X			
D.2	Are there any signs of damage, unusual wear, rust and corrosion, vandalism, unauthorized entry/use, or settlement?		X			
D.3	Is well cap and/or locking mechanism not properly functioning?		X			
D.4	Are the well heads and protective casings damaged?		X			
D.5	Is the well cleared of vegetation and accessible?	X				
D.6	Any other relevant observations?		X			

Description		Yes	No	N/A	Comments (Attach photos/location sketches)	Corrective Action (Attach photos)
E. Site Access Features						
E.1	Are the perimeter fence and gates damaged?		X			
E.2	Gate(s) damaged?		X			
E.3	Litter encountered within the area?		X			
E.4	Are the gate locks missing?		X			
E.4	Are signs to prevent unauthorized entry missing?		X			
E.5	Are the access roads in unusable or poor condition?		X			
E.6	Any other relevant observations?		X			
F. Concrete Aprons and Bollards						
F.1	Are there any significant cracks present?		X			
F.2	Are there any damaged areas?		X			
F.3	Any other relevant observations?		X			

Appendix B

Photographic Log and Well Inspection Forms

PHOTO LOG

Year 3 Semi-Annual – June 2022

Photo No.	Date	Task and Description
1	7-5-2022	View of Monitoring Well 16EW01
2	6-29-2022	View of Monitoring Well 16EW02
3	6-29-2022	View of Monitoring Well 16EW03
4	6-23-2022	View of Monitoring Well 16EW04
5	6-23-2022	View of Monitoring Well 16EW08
6	6-29-2022	View of Monitoring Well 16IW03
7	6-23-2022	View of Monitoring Well 16IW09
8	6-23-2022	View of Monitoring Well 16IW10
9	6-23-2022	View of Monitoring Well 16IW20
10	6-29-2022	View of Monitoring Well 16IW26
11	6-16-2022	View of Monitoring Well 16PM02
12	6-16-2022	View of Monitoring Well 16PM03
13	6-27-2022	View of Monitoring Well 16PM06
14	6-27-2022	View of Monitoring Well 16PM09
15	6-16-2022	View of Monitoring Well 16RW01
16	7-5-2022	View of Monitoring Well 16RW04
17	6-16-2022	View of Monitoring Well 16RW06
18	6-16-2022	View of Monitoring Well 16RW07
19	7-5-2022	View of Monitoring Well 16RW09
20	7-5-2022	View of Monitoring Well 16RW10
21	6-16-2022	View of Monitoring Well 16RW12
22	7-6-2022	View of Monitoring Well 16WW06
23	7-5-2022	View of Monitoring Well 16WW12

Photo No.	Date	Task and Description
24	7-5-2022	View of Monitoring Well 16WW13
25	6-20-2022	View of Monitoring Well 16WW14
26	7-6-2022	View of Monitoring Well 16WW15
27	6-30-2022	View of Monitoring Well 16WW16
28	7-6-2022	View of Monitoring Well 16WW18
29	7-6-2022	View of Monitoring Well 16WW19
30	6-20-2022	View of Monitoring Well 16WW20
31	6-29-2022	View of Monitoring Well 16WW22
32	6-27-2022	View of Monitoring Well 16WW23
33	6-27-2022	View of Monitoring Well 16WW24
34	6-30-2022	View of Monitoring Well 16WW25
35	6-30-2022	View of Monitoring Well 16WW26
36	6-27-2022	View of Monitoring Well 16WW27
37	6-27-2022	View of Monitoring Well 16WW28
38	6-30-2022	View of Monitoring Well 16WW29
39	6-30-2022	View of Monitoring Well 16WW30
40	6-20-2022	View of Monitoring Well 16WW31
41	6-20-2022	View of Monitoring Well 16WW32
42	6-20-2022	View of Monitoring Well 16WW33
43	6-20-2022	View of Monitoring Well 16WW34
44	6-30-2022	View of Monitoring Well 16WW35
45	6-30-2022	View of Monitoring Well 16WW36
46	6-20-2022	View of Monitoring Well 16WW37
47	6-30-2022	View of Monitoring Well 16WW38
48	6-29-2022	View of Monitoring Well 16WW39

Photo No.	Date	Task and Description
49	7-5-2022	View of Monitoring Well 16WW40
50	6-29-2022	View of Monitoring Well 16WW41
51	7-5-2022	View of Monitoring Well 16WW42
52	6-27-2022	View of Monitoring Well 16WW43
53	7-5-2022	View of Monitoring Well 16WW44
54	6-20-2022	View of Monitoring Well 16WW46
55	6-30-2022	View of Monitoring Well 16WW48
56	6-29-2022	View of Monitoring Well 16WW49
57	6-16-2022	View of Monitoring Well 16WW51
58	6-23-2022	View of Monitoring Well 16WW55
59	6-16-2022	View of Monitoring Well 16WW56
60	6-23-2022	View of Monitoring Well 16WW57
61	6-23-2022	View of Monitoring Well 16WW58

PHOTO 1: View of Monitoring Well 16EW01
DATE: July 5, 2022

PHOTO 2: View of Monitoring Well 16EW02
DATE: June 29, 2022

PHOTO 3: View of Monitoring Well 16EW03
DATE: June 29, 2022

PHOTO 4: View of Monitoring Well 16EW04
DATE: June 23, 2022

PHOTO 5: View of Monitoring Well 16EW08
DATE: June 23, 2022

PHOTO 6: View of Monitoring Well 16IW03
DATE: June 29, 2022

PHOTO 7: View of Monitoring Well 16IW09
DATE: June 23, 2022

PHOTO 8: View of Monitoring Well 16IW10
DATE: June 23, 2022

PHOTO 9: View of Monitoring Well 16IW20
DATE: June 23, 2022

PHOTO 10: View of Monitoring Well 16IW26
DATE: June 29, 2022

PHOTO 11: View of Monitoring Well 16PM02
DATE: June 16, 2022

PHOTO 12: View of Monitoring Well 16PM003
DATE: June 16, 2022

PHOTO 13: View of Monitoring Well 16PM06
DATE: June 27, 2022

PHOTO 14: View of Monitoring Well 16PM09
DATE: June 27, 2022

PHOTO 15: View of Monitoring Well 16RW01
DATE: June 16, 2022

PHOTO 16: View of Monitoring Well 16RW04
DATE: July 5, 2022

PHOTO 17: View of Monitoring Well 16RW06
DATE: June 16, 2022

PHOTO 18: View of Monitoring Well 16RW07
DATE: June 16, 2022

PHOTO 19: View of Monitoring Well 16RW09
DATE: July 5, 2022

PHOTO 20: View of Monitoring Well 16RW10
DATE: July 5, 2022

PHOTO 21: View of Monitoring Well 16RW12
DATE: June 16, 2022

PHOTO 22: View of Monitoring Well 16WW06
DATE: July 6, 2022

PHOTO 23: View of Monitoring Well 16WW12
DATE: July 5, 2022

PHOTO 24: View of Monitoring Well 16WW13
DATE: July 5, 2022

PHOTO 25: View of Monitoring Well 16WW14
DATE: June 20, 2022

PHOTO 26: View of Monitoring Well 16WW15
DATE: July 6, 2022

PHOTO 27: View of 16WW16
DATE: June 30, 2022

PHOTO 28: View of 16WW18
DATE: July 6, 2022

PHOTO 29: View of 16WW19
DATE: July 6, 2022

PHOTO 30: View of Monitoring Well 16WW20
DATE: June 20, 2022

PHOTO 31: View of Monitoring Well 16WW22
DATE: June 29, 2022

PHOTO 32: View of Monitoring Well 16WW23
DATE: June 27, 2022

PHOTO 33: View of Monitoring Well 16WW24
DATE: June 27, 2022

PHOTO 34: View of Monitoring Well 16WW25
DATE: June 30, 2022

PHOTO 35: View of Monitoring Well 16WW26
DATE: June 30, 2022

PHOTO 36: View of Monitoring Well 16WW27
DATE: June 27, 2022

PHOTO 37: View of Monitoring Well 16WW28
DATE: June 27, 2022

PHOTO 38: View of Monitoring Well 16WW29
DATE: June 30, 2022

PHOTO 39: View of Monitoring Well 16WW30
DATE: June 30, 2022

PHOTO 40: View of Monitoring Well 16WW31
DATE: June 20, 2022

PHOTO 41: View of Monitoring Well 16WW32
DATE: June 20, 2022

PHOTO 42: View of Monitoring Well 16WW33
DATE: June 20, 2022

PHOTO 43: View of Monitoring Well 16WW34
DATE: June 20, 2022

PHOTO 44: View of Monitoring Well 16WW35
DATE: June 30, 2022

PHOTO 45: View of Monitoring Well 16WW36
DATE: June 30, 2022

PHOTO 46: View of Monitoring Well 16WW37
DATE: June 20, 2022

PHOTO 47: View of 16WW38
DATE: June 30, 2022

PHOTO 48: View of 16WW39
DATE: June 29, 2022

PHOTO 49: View of 16WW40
DATE: July 5, 2022

PHOTO 50: View of Monitoring Well 16WW41
DATE: June 29, 2022

PHOTO 51: View of Monitoring Well 16WW42
DATE: July 5, 2022

PHOTO 52: View of Monitoring Well 16WW43
DATE: June 27, 2022

PHOTO 53: View of Monitoring Well 16WW44
DATE: July 5, 2022

PHOTO 54: View of Monitoring Well 16WW46
DATE: June 20, 2022

PHOTO 55: View of Monitoring Well 16WW48
DATE: June 30, 2022

PHOTO 56: View of Monitoring Well 16WW49
DATE: June 29, 2022

PHOTO 57: View of Monitoring Well 16WW51
DATE: June 16, 2022

PHOTO 58: View of Monitoring Well 16WW55
DATE: June 23, 2022

PHOTO 59: View of Monitoring Well 16WW56
DATE: June 16, 2022

PHOTO 60: View of Monitoring Well 16WW57
DATE: June 23, 2022

PHOTO 61: View of Monitoring Well 16WW58
DATE: June 23, 2022

01232352

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 16

Well ID: 16EW01
Inspection Date: 7/5/22
Well Completion Depth/ Measured Depth: 34.85
Inspector: Scott Baysinger

ABOVE GROUND

Well Accessible? NA
Protective casing? ☒ Yes ☐ No
Material SB ☒ Yes ☐ No
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? ☒ 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) 6"
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:

01232353

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 16
Well ID: 16EW02
Inspection Date: 6/29/22
Well Completion Depth/ Measured Depth: 29.59
Inspector: Scott Baginaar

☐ ABOVE GROUND
Well Accessible? NA
Protective casing? ☐ Yes ☐ No
Material ☐ Yes ☐ No
Condition:
Lid Condition: ☐ Good ☐ Broken ☐ Cracked ☐ Need Paint
Hinge Condition: ☐ Good ☐ Broken ☒ Cracked
☐ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☒ FLUSH MOUNTED
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) 6"
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:

01232354

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16EW03
Inspection Date: 6/29/22
Well Completion Depth/Measured Depth: 19.55
Inspector: Scott Beesinger

☐ ABOVE GROUND

Well Accessible? NA
Protective casing? ☐ Yes ☐ No
Material ☐ Yes ☐ No
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? ☒ 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) 6"
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:

01232355

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16EW04
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 19.25
Inspector: Scott Beasinger

☐ ABOVE GROUND
Well Accessible? NA
Protective casing? ☐ Yes ☐ No
Material ☐ Yes ☐ No
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? ☒ 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) 6"
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:

01232356

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16EW08
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 37.27
Inspector: Scott Beasinger

☐ ABOVE GROUND
Well Accessible? NA
Protective casing? ☐ Yes ☐ No
Material ☐ Yes ☐ No
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? ☒ 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) 6"
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:

01232357

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16IW03
Inspection Date: 6/29/22
Well Completion Depth/ Measured Depth: 25.00
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): 2"
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:

01232358

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16TW09
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 22.25
Inspector: Scott Beasinger

☒ 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): 2"
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:

01232359

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 16
Well ID: 16_TW10
Inspection Date: 6/23/22
Well Completion Depth/Measured Depth: 28.42
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): 2"
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:

01232360

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16IW20
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 25.38
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) 2"
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:

01232361

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16IW26
Inspection Date: 6/29/22
Well Completion Depth/ Measured Depth: 48.80
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

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): 2"
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:

01232362

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16

Well ID: 16PMO2
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 28.42
Inspector: Scott Beasinger

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): 2"
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:

01232363

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: SD1032
Client: ARMY
Site Name: 16
Well ID: 16PM03
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 28.42
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): 2"
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:

01232364

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16PM06
Inspection Date: 6/27/22
Well Completion Depth/Measured Depth: 27.56
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): 2"
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:

01232365

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16PMW9
Inspection Date: 6/27/22
Well Completion Depth/ Measured Depth: 27.08
Inspector: Scott Beeringer

☒ 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) 2"
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:

01232366

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16PM14
Inspection Date: 6/27/22
Well Completion Depth/Measured Depth: 28.19
Inspector: Scott Beasinger

☒ 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): 2"
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:

01232367

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 16
Well ID: 16RW01
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 28.35
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:

01232368

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16RW04
Inspection Date: 7/5/22
Well Completion Depth/ Measured Depth: 27.61
Inspector: Scott Beasinger

☒ 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:

01232369

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16RW05
Inspection Date: 6/27/22
Well Completion Depth/Measured Depth: 23.35
Inspector: Scott Beasinger

☒ 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:

01232370

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW06
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 29.23
Inspector: Scott Beasingar

☒ 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:

01232371

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16 RW07
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 28.77
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METALS
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:

01232372

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW09
Inspection Date: 7/5/22
Well Completion Depth/Measured Depth: 30.63
Inspector: Scott Beasingar

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:

01232373

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16 RW 10
Inspection Date: 7/5/22
Well Completion Depth/ Measured Depth: 28.28
Inspector: Scott Beasinger

☒ 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:

01232374

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW12
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 32.57
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:

01232375

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW06
Inspection Date: 7/6/22
Well Completion Depth/ Measured Depth: 62.38
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:

01232376

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16

Well ID: 16WW12
Inspection Date: 7/5/22
Well Completion Depth/ Measured Depth: 27.00
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:

01232377

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW13
Inspection Date: 7/5/22
Well Completion Depth/Measured Depth: 23.00
Inspector: Scott Beasinger

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: 16
Well ID: 16MW14
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 30.25
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METALS
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:

01232379

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16MW15
Inspection Date: 7/6/22
Well Completion Depth/ Measured Depth: 310.44
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:

01232380

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: army
Site Name: 16
Well ID: 16WW16
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 31.55
Inspector: Scott Beegs'NGER

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:

01232381

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW17
Inspection Date: 7/6/22
Well Completion Depth/Measured Depth: 228.04
Inspector: Scott Baggincar

☒ 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:

01232382

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW18
Inspection Date: 7/6/22
Well Completion Depth/ Measured Depth: 285.35
Inspector: Scott Beasinger

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:

01232383

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16MW19
Inspection Date: 7/6/22
Well Completion Depth/ Measured Depth: 98.30
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
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:

01232384

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW20
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 113.71
Inspector: Scott Baesinger

☒ 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:

01232385

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW21
Inspection Date: 7/6/22
Well Completion Depth/ Measured Depth: 103.45
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

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:

01232386

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: SD1032
Client: ARmy
Site Name: 16
Well ID: 16WW22
Inspection Date: 6/29/22
Well Completion Depth/ Measured Depth: 39.30
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:

01232387

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16WW23
Inspection Date: 6/27/22
Well Completion Depth/ Measured Depth: 37.15
Inspector: Scott Beasinger

☒ 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:

01232388

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW24
Inspection Date: 6/27/22
Well Completion Depth/Measured Depth: 19.21
Inspector: Scott Beasinger

☒ 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:

01232389

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW25
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 52.50
Inspector: Scott Boesinger

☒ 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:

01232390

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16

Well ID: 16MW26
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 21.80
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:

01232391

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW27
Inspection Date: 6/27/22
Well Completion Depth/ Measured Depth: 39.30
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

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:

01232392

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16MW28
Inspection Date: 6/27/22
Well Completion Depth/Measured Depth: 23.66
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:

01232393

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: SD1032
Client: ARMY
Site Name: 16
Well ID: 16WW29
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 47.97
Inspector: Scott Bagwell

☒ 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:

01232394

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16MW30
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 33.00
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:

01232395

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16WW31
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 51.88
Inspector: Scott Bressinger

☒ 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:

01232396

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16WW32
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 35.00
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:

01232397

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW33
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 51.92
Inspector: Scott Baggenstoss

☒ 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:

01232398

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: SD1032
Client: Army
Site Name: 16
Well ID: 16WW34
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 34.86
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? [illegible]
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:

01232399

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 16
Well ID: 16WW35
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 46.55
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

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:

01232400

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW36
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 24.88
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

Well cover present? N/A ☐ 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:

01232401

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16MW37
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 47.93
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: metals
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:

01232402

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16ww38
Inspection Date: 6/20/22
Well Completion Depth/ Measured Depth: 32.25
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:

01232403

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW39
Inspection Date: 6/29/22
Well Completion Depth/ Measured Depth: 29.38
Inspector: Scott Bagsinger

☒ 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): 2"
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:

01232404

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16

Well ID: 16WW40
Inspection Date: 7/5/22
Well Completion Depth/Measured Depth: 17.82
Inspector: Scott Beasinger

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): 2"
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) SB ☒ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01232405

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16

Well ID: 16WW41
Inspection Date: 6/29/22
Well Completion Depth/Measured Depth: 53.03
Inspector: Scott Beasinger

☒ 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:

01232406

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16WW42
Inspection Date: 7/5/22
Well Completion Depth/ Measured Depth: 15.48
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

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:

01232407

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16MW43
Inspection Date: 6/27/22
Well Completion Depth/ Measured Depth: 15.47
Inspector: Scott Beasinger

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:

01232408

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16WW44
Inspection Date: 8/05/22
Well Completion Depth/ Measured Depth: 32.97
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:

01232409

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16MW46
Inspection Date: 6/20/22
Well Completion Depth/Measured Depth: 22.02
Inspector: Scott Baggenstoss

☒ 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:

01232410

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW48
Inspection Date: 6/30/22
Well Completion Depth/ Measured Depth: 22.55
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

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:

01232411

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16MW49
Inspection Date: 6/29/22
Well Completion Depth/ Measured Depth: 54.71
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:

01232412

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16

Well ID: 16MW51
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 44.54
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:

01232413

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW55
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 30.40
Inspector: Scott Beasinger

☒ 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:

01232414

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16MW56
Inspection Date: 6/16/22
Well Completion Depth/ Measured Depth: 34.07
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:

01232415

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16MW58
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 39.90
Inspector: Scott Beasinger

☒ 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): 2"
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:

01232416

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW58
Inspection Date: 6/23/22
Well Completion Depth/ Measured Depth: 42.80
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): 2"
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:

PHOTO LOG

Year 3 Second Semiannual Sampling – January 2023

Photo No.	Date	Task and Description
1	1-19-2023	View of Monitoring Well 16EW01
2	1-19-2023	View of Monitoring Well 16EW02
3	1-19-2023	View of Monitoring Well 16EW03
4	1-21-2023	View of Monitoring Well 16EW04
5	1-21-2023	View of Monitoring Well 16EW08
6	1-23-2023	View of Monitoring Well 16IW03
7	1-19-2023	View of Monitoring Well 16IW09
8	1-23-2023	View of Monitoring Well 16IW10
9	1-19-2023	View of Monitoring Well 16IW20
10	1-23-2023	View of Monitoring Well 16IW26
11	1-21-2023	View of Monitoring Well 16PM02
12	1-21-2023	View of Monitoring Well 16PM03
13	1-21-2023	View of Monitoring Well 16PM06
14	1-21-2023	View of Monitoring Well 16PM09
15	1-21-2023	View of Monitoring Well 16PM14
16	1-23-2023	View of Monitoring Well 16RW01
17	1-19-2023	View of Monitoring Well 16RW04
18	1-23-2023	View of Monitoring Well 16RW05
19	1-19-2023	View of Monitoring Well 16RW06
20	1-19-2023	View of Monitoring Well 16RW07
21	1-25-2023	View of Monitoring Well 16RW09
22	1-25-2023	View of Monitoring Well 16RW10
23	1-20-2023	View of Monitoring Well 16RW12

Photo No.	Date	Task and Description
24	1-25-2023	View of Monitoring Well 16WW12
25	1-21-2023	View of Monitoring Well 16WW13
26	1-19-2023	View of Monitoring Well 16WW16
27	1-20-2023	View of Monitoring Well 16WW22
28	1-21-2023	View of Monitoring Well 16WW23
29	1-21-2023	View of Monitoring Well 16WW24
30	1-23-2023	View of Monitoring Well 16WW25
31	1-23-2023	View of Monitoring Well 16WW26
32	1-21-2023	View of Monitoring Well 16WW27
33	1-23-2023	View of Monitoring Well 16WW29
34	1-23-2023	View of Monitoring Well 16WW30
35	1-25-2023	View of Monitoring Well 16WW31
36	1-25-2023	View of Monitoring Well 16WW32
37	1-25-2023	View of Monitoring Well 16WW33
38	1-25-2023	View of Monitoring Well 16WW34
39	1-19-2023	View of Monitoring Well 16WW35
40	1-25-2023	View of Monitoring Well 16WW36
41	1-20-2023	View of Monitoring Well 16WW37
42	1-20-2023	View of Monitoring Well 16WW38
43	1-25-2023	View of Monitoring Well 16WW39
44	1-21-2023	View of Monitoring Well 16WW40
45	1-19-2023	View of Monitoring Well 16WW41
46	1-21-2023	View of Monitoring Well 16WW42
47	1-21-2023	View of Monitoring Well 16WW43
48	1-21-2023	View of Monitoring Well 16WW44

Photo No.	Date	Task and Description
49	1-25-2023	View of Monitoring Well 16WW46
50	1-19-2023	View of Monitoring Well 16WW48
51	1-25-2023	View of Monitoring Well 16WW49
52	1-20-2023	View of Monitoring Well 16WW51
53	1-19-2023	View of Monitoring Well 16WW55
54	1-20-2023	View of Monitoring Well 16WW56
55	1-23-2023	View of Monitoring Well 16WW57
56	1-23-2023	View of Monitoring Well 16WW58

PHOTO 1: View of Monitoring Well 16EW01
DATE: January 19, 2023

PHOTO 2: View of Monitoring Well 16EW02
DATE: January 19, 2023

PHOTO 3: View of Monitoring Well 16EW03
DATE: January 19, 2023

PHOTO 4: View of Monitoring Well 16EW04
DATE: January 21, 2023

PHOTO 5: View of Monitoring Well 16EW08
DATE: January 21, 2023

PHOTO 6: View of Monitoring Well 16IW03
DATE: January 23, 2023

PHOTO 7: View of Monitoring Well 16IW09
DATE: January 19, 2023

PHOTO 8: View of Monitoring Well 16IW10
DATE: January 23, 2023

PHOTO 9: View of Monitoring Well 16IW20
DATE: January 19, 2023

PHOTO 10: View of Monitoring Well 16IW26
DATE: January 23, 2023

PHOTO 11: View of Monitoring Well 16PM02
DATE: January 21, 2023

PHOTO 12: View of Monitoring Well 16PM03
DATE: January 21, 2023

PHOTO 13: View of Monitoring Well 16PM06
DATE: January 21, 2023

PHOTO 14: View of Monitoring Well 16PM09
DATE: January 21, 2023

PHOTO 15: View of Monitoring Well 16PM14
DATE: January 21, 2023

PHOTO 16: View of Monitoring Well 16RW01
DATE: January 23, 2023

PHOTO 17: View of Monitoring Well 16RW04
DATE: January 19, 2023

PHOTO 18: View of Monitoring Well 16RW05
DATE: January 23, 2023

PHOTO 19: View of Monitoring Well 16RW06
DATE: January 19, 2023

PHOTO 20: View of Monitoring Well 16RW07
DATE: January 19, 2023

PHOTO 21: View of Monitoring Well 16RW09
DATE: January 25, 2023

PHOTO 22: View of Monitoring Well 16RW10
DATE: January 25, 2023

PHOTO 23: View of Monitoring Well 16RW12
DATE: January 20, 2023

PHOTO 24: View of Monitoring Well 16WW12
DATE: January 25, 2023

PHOTO 25: View of Monitoring Well 16WW13
DATE: January 21, 2023

PHOTO 26: View of Monitoring Well 16WW16
DATE: January 19, 2023

PHOTO 27: View of Monitoring Well 16WW12
DATE: January 20, 2023

PHOTO 28: View of Monitoring Well 16WW23
DATE: January 21, 2023

PHOTO 29: View of Monitoring Well 16WW24
DATE: January 21, 2023

PHOTO 30: View of Monitoring Well 16WW25
DATE: January 23, 2023

PHOTO 31: View of Monitoring Well 16WW26
DATE: January 23, 2023

PHOTO 32: View of Monitoring Well 16WW27
DATE: January 21, 2023

PHOTO 33: View of Monitoring Well 16WW29
DATE: January 23, 2023

PHOTO 34: View of Monitoring Well 16WW30
DATE: January 23, 2023

PHOTO 35: View of Monitoring Well 16WW31
DATE: January 25, 2023

PHOTO 36: View of Monitoring Well 16WW32
DATE: January 25, 2023

PHOTO 37: View of Monitoring Well 16WW33
DATE: January 25, 2023

PHOTO 38: View of Monitoring Well 16WW34
DATE: January 25, 2023

PHOTO 39: View of Monitoring Well 16WW35
DATE: January 19, 2023

PHOTO 40: View of Monitoring Well 16WW36
DATE: January 25, 2023

PHOTO 41: View of Monitoring Well 16WW37
DATE: January 20, 2023

PHOTO 42: View of Monitoring Well 16WW38
DATE: January 20, 2023

PHOTO 43: View of Monitoring Well 16WW39
DATE: January 25, 2023

PHOTO 44: View of Monitoring Well 16WW40
DATE: January 21, 2023

PHOTO 45: View of Monitoring Well 16WW41
DATE: January 19, 2023

PHOTO 46: View of Monitoring Well 16WW42
DATE: January 21, 2023

PHOTO 47: View of Monitoring Well 16WW43
DATE: January 21, 2023

PHOTO 48: View of Monitoring Well 16WW44
DATE: January 21, 2023

PHOTO 49: View of Monitoring Well 16WW46
DATE: January 25, 2023

PHOTO 50: View of Monitoring Well 16WW48
DATE: January 19, 2023

PHOTO 51: View of Monitoring Well 16WW49
DATE: January 25, 2023

PHOTO 52: View of Monitoring Well 16WW51
DATE: January 20, 2023

PHOTO 53: View of Monitoring Well 16WW55
DATE: January 19, 2023

PHOTO 54: View of Monitoring Well 16WW56
DATE: January 20, 2023

PHOTO 55: View of Monitoring Well 16WW57
DATE: January 23, 2023

PHOTO 56: View of Monitoring Well 16WW58
DATE: January 23, 2023

01232448

WELL INSPECTION FORM

Job Name: ~~LTAAP~~
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16EW01
Inspection Date: 11/9/23
Well Completion Depth/ Measured Depth: 39.00
Inspector: Scott Baesinger

☐ **ABOVE GROUND**
Well Accessible? NA
Protective casing? ☐ Yes ☐ No
Material ☐ Yes ☐ No
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? ~~☒~~ 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) 6"
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:

01232449

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16EW02
Inspection Date: 1/19/23
Well Completion Depth/ Measured Depth: 29.65
Inspector: Scott Baesinger

☐ **ABOVE GROUND** — NA

Well Accessible? ☐ Yes ☐ No
Protective casing? ☐ Yes ☐ No
Material
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? ☒ 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): 6"
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:

01232450

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16EW03
Inspection Date: 1/19/23
Well Completion Depth/ Measured Depth: 19.40
Inspector: Scott Beesinger

☐ **ABOVE GROUND** NA

Well Accessible? ☐ Yes ☐ No
Protective casing? ☐ Yes ☐ No
Material
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? ☒ 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) 6"
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:

01232451

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16EW04
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 19.22
Inspector: SCOTT BAGSINGER

☐ **ABOVE GROUND** NA
Well Accessible? ☐ Yes ☐ No
Protective casing? ☐ Yes ☐ No
Material
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? ☒ 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) 6"
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:

01232452

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 50132
Client: Army
Site Name: 16
Well ID: 16EW08
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 38.55
Inspector: Scott Bassinger

☐ **ABOVE GROUND** NA

Well Accessible? ☐ Yes ☐ No
Protective casing? ☐ Yes ☐ No
Material
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? ☒ 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) 6"
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:

01232453

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 50132
Client: Army
Site Name: 16
Well ID: 16IW03
Inspection Date: 1/23/23
Well Completion Depth/ Measured Depth: 25,07
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
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): 2"
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:

01232454

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16IW09
Inspection Date: 1/19/23
Well Completion Depth/ Measured Depth: 22.27
Inspector: Scott Beasinger

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): 2"
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:

01232455

WELL INSPECTION FORM

Job Name: UHAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16IW10
Inspection Date: 1/23/23
Well Completion Depth/ Measured Depth: 28.50
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**
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): 2"
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: 16
Well ID: 16IW20
Inspection Date: 1/19/23
Well Completion Depth/ Measured Depth: 25.45
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): 2"
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:

01232457

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16IW26
Inspection Date: 1/23/23
Well Completion Depth/ Measured Depth: 51.43
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
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:

01232458

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16PM02
Inspection Date: 1-21-2023
Well Completion Depth/ Measured Depth: N/A / 28.31
Inspector: Derrick Berry

☒ 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 N/A
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD: N/A
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): 2in
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? Site 16 not on casing ☒ 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: Good condition

01232459

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16PM03
Inspection Date: 1-21-2023
Well Completion Depth/ Measured Depth: N/A / 28.38
Inspector: Derrick Berry

☑ 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? N/A ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? Small pad ☑ 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): 2 in
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:

Good condition

01232460

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16PM06
Inspection Date: 1-21-2023
Well Completion Depth/ Measured Depth: N/A / 27.53
Inspector: Derrick Berry

☑ 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? N/A ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? Very small pad ☐ Yes ☑ No
Pad Area Cleared of Vegetation? ☐ Yes ☑ No
Check any of the following features that apply: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2in
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? Site 16 not on Id ☑ 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:
Good condition

01232461

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16PM09-230121
Inspection Date: 1-21-2023
Well Completion Depth/ Measured Depth: N/A / 27.04
Inspector: Derrick Berry

☑ 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? N/A ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? N/A ☐ 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): 2in
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? Site 16 needs to be added ☑ 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:
Good condition

01232462

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16PM14
Inspection Date: 1-21-2023
Well Completion Depth/ Measured Depth: N/A / 28.15
Inspector: Derrick Berry

☑ 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? N/A ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? N/A ☐ 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): 2in
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? Site (16) needs to be added ☐ 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:

Good condition

01232463

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW01
Inspection Date: 1-23-2023
Well Completion Depth/ Measured Depth: N/A / 28.33
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4 in
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: Good condition

01232464

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16RW04
Inspection Date: 1/19/23
Well Completion Depth/ Measured Depth: 27.60
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
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:

01232465

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW05
Inspection Date: 1-23-2023
Well Completion Depth/ Measured Depth: N/A / 23.32
Inspector: Derrick Berry

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? N/A ☐ 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: NA
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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:
Good condition

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW06
Inspection Date: 1-19-23
Well Completion Depth/ Measured Depth: N/A / 29.24
Inspector: Derrick Berry

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 N/A
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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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: Good condition

01232467

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW07-2301
Inspection Date: 1-19-23
Well Completion Depth/ Measured Depth: N/A/28.73
Inspector: Derrick Berry

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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4in
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:

Good condition

01232468

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16RW09
Inspection Date: 1/25/23
Well Completion Depth/ Measured Depth: 30.63
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:

01232469

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16 RW 10
Inspection Date: 1/25/23
Well Completion Depth/ Measured Depth: 28.15
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:

01232470

LHAAP

Job No.: 501032 — 16RW12

Client: Army — Inspection Date: 1-20-23

Site Name: 16 — Well Completion Depth/ Measured Depth: N/A / 32.58

Inspector: Derrick Berry

☑ 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 N/A

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: N/A

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4.1

Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present? ☑ Yes ☐ No

Well lock present? ☑ Yes ☐ No

Lock functioning properly? ☑ Yes ☐ No — No lock

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: Good condition

01232471

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW12
Inspection Date: 1/25/23
Well Completion Depth/ Measured Depth: 26.97
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:

01232472

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW13
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 24.90
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

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: 16
Well ID: 16WW16-2301
Inspection Date: 1-19-23
Well Completion Depth/ Measured Depth: N/A / 31.56
Inspector: Derrick Berry

☑ 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 N/A

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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4in
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:

Good condition

01232474

WELL INSPECTION FORM

Job Name: 501032
Job No.: LHAAP
Client: Army
Site Name: 16
Well ID: 16WW22
Inspection Date: 1-20-23
Well Completion Depth/ Measured Depth: N/A/34.37
Inspector: Derrick Berry

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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4.0
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:
Good condition

01232475

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW23
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 37.13
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
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:

01232476

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW24
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 19.22
Inspector: Scott Beasinger

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: 16
Well ID: 16WW25
Inspection Date: 1-23-2023
Well Completion Depth/ Measured Depth: N/A / 52.31
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4 in
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: Good condition

01232478

WELL INSPECTION FORM

Job Name: 501032
Job No.: LHAAP
Client: Army
Site Name: 16
Well ID: 16WW26
Inspection Date: 1-23-2023
Well Completion Depth/ Measured Depth: N/A / 21.78
Inspector: Derrick Berry

☑ 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 Slight create 10%

☐ FLUSH MOUNTED
Well cover present? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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: Good condition

01232479

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW27
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 39.32
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
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:

01232480

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16NW29
Inspection Date: 1-23-2023
Well Completion Depth/ Measured Depth: N/A / 44.93
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ 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:
Good condition, but metal casing is not centered properly which can cause l.d to not close properly. I had to manualy adjust for l.d to fit flush. May have to do again next time sampled.

01232481

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW30-2301
Inspection Date: 1-23-2023
Well Completion Depth/ Measured Depth: N/A / 32.98
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
Condition: ☐ Good ☐ Broken ☑ Cracked ☐ Other (describe): I.d damaged
Cap present? ☐ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☐ Yes ☐ No
Are bollards present and stable? ☐ Yes ☐ No
Well ID visible? (1) slightly leaning ☐ Yes ☐ No

WELL INTEGRITY:
Bailer present? Poor condition as far as protection - Needs to be addressed promptly ☐ 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:
Poor condition, needs immediate attention to correct lid + hinge issues
Well can still be sampled

01232482

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW31
Inspection Date: 1-25-23
Well Completion Depth/ Measured Depth: N/A/51.81
Inspector: Derrick Berry

☑ 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 N/A
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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4 in
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: Good condition

01232483

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW32
Inspection Date: 1-25-2023
Well Completion Depth/ Measured Depth: N/A / 35.02
Inspector: Derrick Berry

☑ 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 N/A

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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4in
Condition: ☐ Good ☐ Broken ☐ Cracked ☑ Other (describe): Pour needs repair
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:

4in metal well pip has been set to far north for lid to close flush. Needs to be cut down and re-surveyed to properly protect well.

01232484

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW33
Inspection Date: 1-25-23
Well Completion Depth/ Measured Depth: N/A / 51.98
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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:
Good condition, but need some touch up paint on lid - Yellow

01232485

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW34
Inspection Date: 1-25-23
Well Completion Depth/ Measured Depth: N/A / 34.81
Inspector: Derrick Berry

☒ 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 N/A
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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4 in
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:
Good condition, needs some touch up paint around protective casing

01232486

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16

Well ID: 16WW35-2301
Inspection Date: 1-19-23
Well Completion Depth/ Measured Depth: N/A / 46.49
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4 in
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:

Good condition

01232487

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16MW36
Inspection Date: 1/25/23
Well Completion Depth/ Measured Depth: 24.88
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:

01232488

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW37
Inspection Date: Derrick Berry
Well Completion Depth/ Measured Depth: N/A / 48.05
Inspector: 1-20-2023

☑ 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? N/A				☐ 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: N/A					
☐ Many Cracks	☐ Gap Around Casing	☐ Few Cracks	☐ Ponded Water	☐ No Pad Present	

WELL CONDITION:

Inner Diameter (inches): 4in					
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: Good condition

01232489

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW38
Inspection Date: 1-20-2023
Well Completion Depth/ Measured Depth: N/A / 32.31
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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:
Good condition

01232490

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW39
Inspection Date: 1-25-2023
Well Completion Depth/ Measured Depth: N/A / 29.41
Inspector: Derrick Berry

☑ 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 N/A

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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2in
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:

Good condition

01232491

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW40
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 18.81
Inspector: Scott Beasinger

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): 2"
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:

01232492

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW41-2301
Inspection Date: 1-19-23
Well Completion Depth/ Measured Depth: N/A / 52.78
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4 inch
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: Good condition

01232493

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW42
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 15.42
Inspector: Scott Baggenger

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:

01232494

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW43
Inspection Date: 1/21/23
Well Completion Depth/ Measured Depth: 14.58
Inspector: Scott Baesinger

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:

01232495

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW44
Inspection Date: 1-21-2023
Well Completion Depth/ Measured Depth: N/A/ 32.98
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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: Good condition

01232496

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW46
Inspection Date: 1/25/23
Well Completion Depth/ Measured Depth: 22.18
Inspector: Scott Beasinger

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:

01232497

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW48
Inspection Date: 1/19/23
Well Completion Depth/ Measured Depth: 22.47
Inspector: Scott Beggs, Wood

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:

01232498

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW49
Inspection Date: 1/25/~~26~~ 23
Well Completion Depth/ Measured Depth: 54.89
Inspector: Scott Baesinger

~~X~~ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ~~X~~ Yes ☐ No
Material: METAL
Condition: ~~X~~ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ~~X~~ Good ☐ Broken ☐ Cracked
Hinge Condition: ~~X~~ 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? ~~X~~ 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: ~~X~~ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ~~X~~ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ~~X~~ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ~~X~~ No
Visual obstruction? ☐ Yes ~~X~~ No
Is well open to completed depth? (complete when gauging) ~~X~~ Yes ☐ No
Is silt present in well? (complete when gauging) ~~X~~ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ~~X~~ No

COMMENTS:

01232499

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WW51
Inspection Date: 1-20-2023
Well Completion Depth/ Measured Depth: N/A / 44.43
Inspector: Derrick Berry

☒ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4in
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:
Good condition

01232500

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16WN55
Inspection Date: 1-19-2023
Well Completion Depth/ Measured Depth: N/A / 30.39
Inspector: Derrick Berry

☑ 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? N/A ☐ 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: N/A
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4inch
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:

Good condition

01232501

WELL INSPECTION FORM

Job Name: 501032 Well ID: 16WW56

Job No.: LitAPP Inspection Date: 1-20-2023

Client: Army Well Completion Depth/ Measured Depth: N/A / 34.08

Site Name: 16 Inspector: Derrick Berry

☑ 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 N/A

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:	N/A					
☐ Many Cracks	☐ Gap Around Casing	☐ Few Cracks	☐ Ponded Water	☐ No Pad Present		

WELL CONDITION:

Inner Diameter (inches)	4in					
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: Good condition

01232502

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 16
Well ID: 16WW57
Inspection Date: 1/23/23 39.89
Well Completion Depth/ Measured Depth:
Inspector: Scott Baesinger

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): 2"
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:

01232503

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 16
Well ID: 16 MW58
Inspection Date: 1/23/23
Well Completion Depth/ Measured Depth: 42.80
Inspector: Scott Beasinger

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): 2"
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 C

Groundwater Sampling Forms

(Provided electronically on the Portal)

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW01**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16EW01-220705 **DATE/TIME:** 7/5/22 0912 **Pump Inlet Depth:** 33.39

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 6

Depth to Water - Initial (DTWi) (ft) 24.22

Depth to Well Bottom (ft) 34.85

Screen Interval (ft): 30.89 - 35.89

Approximate depth of pump inlet*(ft): 33.39

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 7/5/22 0920

Purge End Date/Time: 7/5/22 0950

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0920

2ND DTW - 24.22

APTIM

Sample Collection Log

Location ID: 16EW01		Sample No: 16EW01-220705								
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
7/5/22	0925	100	.5	24.29	7.33	24.12	6.44	14.8	-14	0.88
	0930	100	1.0	24.35	7.95	22.95	6.50	14.2	-20	0.66
	0935	100	1.5	24.40	8.09	22.84	6.54	14.1	-20	0.41
	0940	100	2.0	24.43	8.10	22.80	6.54	14.5	-20	0.40
	0945	100	2.5	24.45	8.11	22.75	6.55	14.2	-21	0.39
↓	0950	100	3.0	24.47	8.11	22.70	6.55	14.4	-21	0.38

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW02**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW02-220629 **DATE/TIME:** 6/29/22 0714 **Pump Inlet Depth:** 24.25

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 6

Purge Start Date/Time: 6/29/22 0720

Depth to Water - Initial (DTWi) (ft) 21.95

Purge End Date/Time: 6/29/22 0750

Depth to Well Bottom (ft) ~~30~~ 29.59

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 21.75 - 26.75

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~25~~ 24.25

Pump Start Time: 0720

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 21.95

APTIM

Sample Collection Log

Location ID: 16EW02		Sample No: 16EW02-220629								
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
6/29/22	0725	100	.5	22.02	5.03	20.80	6.78	16.3	-12	1.07
↓	0730	100	1.0	22.08	5.09	20.11	6.45	11.7	-6	0.80
	0735	100	1.5	22.12	5.07	19.97	6.32	7.5	-2	0.53
	0740	100	2.0	22.15	5.06	19.93	6.33	6.2	-1	0.52
	0745	100	2.5	22.17	5.05	19.86	6.33	4.8	-1	0.52
↓	0750	100	3.0	22.19	5.05	19.81	6.33	3.3	-1	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW02**

Sampler(s): Scott Beegle, NGAR

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW02-220629-FD **DATE/TIME:** 6/29/22 0714 **Pump Inlet Depth:** 24.25

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 6

Purge Start Date/Time: 6/29/22 0720

Depth to Water - Initial (DTWI) (ft) 21.95

Purge End Date/Time: 6/29/22 0750

Depth to Well Bottom (ft) 29.59

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 21.75 - 26.75

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 24.25

Pump Start Time: 0720

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 21.95

APTIM

Sample Collection Log

Location ID: 16EW02		Sample No: 16EW02-220629-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
6/29/22	0725	100	.5	22.02	5.03	20.80	6.78	16.3	-12	1.07
	0730	100	1.0	22.08	5.09	20.11	6.45	11.7	-6	0.80
	0735	100	1.5	22.12	5.07	19.97	6.32	7.5	-2	0.53
	0740	100	2.0	22.15	5.06	19.93	6.33	6.2	-1	0.52
	0745	100	2.5	22.17	5.05	19.86	6.33	4.8	-1	0.52
	0750	100	3.0	22.19	5.05	19.81	6.33	3.3	-1	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW03**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16EW03-220629 **DATE/TIME:** 6/29/22 0626 **Pump Inlet Depth:** 15.03

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 6

Purge Start Date/Time: 6/29/22 0635

Depth to Water - Initial (DTWi) (ft) 12.59

Purge End Date/Time: 6/29/22 0705

Depth to Well Bottom (ft) 19.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.53-17.53

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 15.03

Pump Start Time: 0635

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 12.59

APTIM

Sample Collection Log

Location ID: 16EW03 Sample No: 16EW03-220629

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
6/29/22	0640	100	.5	12.66	5.00	23.30	6.51	88.3	-95	0.81
	0645	100	1.0	12.71	5.16	21.27	6.57	81.5	-132	0.56
	0650	100	1.5	12.75	5.18	20.82	6.58	77.1	-146	0.33
	0655	100	2.0	12.78	5.18	20.76	6.59	76.4	-147	0.32
	0700	100	2.5	12.80	5.19	20.72	6.59	75.8	-147	0.31
	0705	100	3.0	12.82	5.19	20.68	6.59	75.2	-148	0.31

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW04**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16EW04-220623 **DATE/TIME:** 6/23/22 1126 **Pump Inlet Depth:** 16.45

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 6

Depth to Water - Initial (DTWi) (ft) 7.38

Depth to Well Bottom (ft) ~~20~~ 19.25

Screen Interval (ft): 13.95-18.95

Approximate depth of pump inlet*(ft): ~~16.5~~ 16.45

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 6/23/22 1135

Purge End Date/Time: 6/23/22 1205

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1135

2ND DTW - 7.38

APTIM

Sample Collection Log

Location ID: 16EW04 Sample No: 16EW04-220623

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
6/23/22	1140	100	.5	7.45	3.77	24.77	6.01	67.7	15	0.69
	1145	100	1.0	7.51	5.12	24.30	5.91	59.3	20	0.28
	1150	100	1.5	7.55	5.34	23.88	5.82	55.7	22	0.17
	1155	100	2.0	7.57	5.36	23.83	5.81	55.3	22	0.17
	1200	100	2.5	7.59	5.36	23.76	5.80	54.6	23	0.16
↓	1205	100	3.0	7.60	5.36	23.70	5.80	54.0	23	0.16

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW08**

Sampler(s): Scott Beasinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW08-220623 **DATE/TIME:** 6/23/22 1211 **Pump Inlet Depth:** 36.26

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 6

Purge Start Date/Time: 6/23/22 1215

Depth to Water - Initial (DTWi) (ft) 5.30

Purge End Date/Time: 6/23/22 1245

Depth to Well Bottom (ft) 37.27

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 33.76 - 38.76

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 36.26

Pump Start Time: 1215

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 5.30

APTIM

Sample Collection Log

Location ID: 16EW08		Sample No: 16EW08-2206_23								
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
6/23/22	1220	100	.5	5.37	0.786	29.71	6.04	117	-35	0.67
	1225	100	1.0	5.42	0.655	29.22	5.90	100	-37	0.32
	1230	100	1.5	5.45	0.631	29.16	5.68	95.2	-33	0.17
	1235	100	2.0	5.47	0.630	29.10	5.67	94.5	-32	0.17
	1240	100	2.5	5.49	0.630	29.06	5.66	93.6	-31	0.16
↓	1245	100	3.0	5.50	0.630	29.00	5.66	93.0	-31	0.16

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW03**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16IW03-220629 **DATE/TIME:** 6/29/22 1202 **Pump Inlet Depth:** 20.00

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 6/29/22 1210

Depth to Water - Initial (DTWi) (ft) 15.00

Purge End Date/Time: 6/29/22 1240

Depth to Well Bottom (ft) 25.00

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 15.00-25.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 20.00

Pump Start Time: 1210

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 15.00

APTIM

Sample Collection Log

Location ID: 16IW03				Sample No: 16IW03-220629						
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
6/29/22	1215	100	.5	15.07	3.27	21.22	6.17	33.2	-21	0.71
	1220	100	1.0	15.12	3.53	20.89	5.91	28.7	-29	0.38
	1225	100	1.5	15.18	3.71	20.48	5.74	23.8	-41	0.19
	1230	100	2.0	15.21	3.72	20.43	5.73	23.3	-42	0.19
	1235	100	2.5	15.23	3.73	20.37	5.73	22.7	-43	0.19
↓	1240	100	3.0	15.25	3.73	20.33	5.72	22.1	-44	0.18

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW09**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16IW09-220623 **DATE/TIME:** 6/23/22 0852 **Pump Inlet Depth:** 16.33

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	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 6/23/22 0900

Depth to Water - Initial (DTWI) (ft) 10.70

Purge End Date/Time: 6/23/22 0930

Depth to Well Bottom (ft) ~~18.25~~ 22.25

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 11.33 - 21.33

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~18~~ 16.33

Pump Start Time: 0900

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 10.70

APTIM

Sample Collection Log

Location ID: 16IW09		Sample No: 16IW09-2206_23								
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
6/23/22	0905	100	.5	10.77	0.907	24.31	6.70	89.7	-82	0.77
	0910	100	1.0	10.83	0.861	23.97	6.59	84.1	-85	0.36
	0915	100	1.5	10.87	0.833	23.93	6.61	79.2	-91	0.20
	0920	100	2.0	10.89	0.832	23.89	6.62	78.5	-91	0.20
	0925	100	2.5	10.91	0.832	23.85	6.62	77.8	-92	0.19
↓	0930	100	3.0	10.93	0.832	23.81	6.62	77.3	-92	0.19

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 16IW10-220623 **DATE/TIME:** 6/23/22 0804 **Pump Inlet Depth:** ~~28.42~~ 23.21

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 6/23/22 0810

Depth to Water - Initial (DTWi) (ft) 21.68

Purge End Date/Time: 6/23/22 0840

Depth to Well Bottom (ft) ~~28.42~~

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.21 - 28.21

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~28.42~~ 23.21 Pump Start Time: 0810

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 21.68

APTIM

Sample Collection Log

Location ID: 16IW10 Sample No: 16IW10-220623

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
6/23/22	0815	100	.5	21.75	4.29	23.17	6.23	161	-145	0.70
	0820	100	1.0	21.81	4.24	23.29	6.69	148	-148	0.37
	0825	100	1.5	21.85	4.19	23.38	6.81	141	-148	0.28
	0830	100	2.0	21.88	4.18	23.43	6.81	140	-149	0.27
	0835	100	2.5	21.91	4.18	23.48	6.82	138	-149	0.26
↓	0840	100	3.0	21.94	4.17	23.51	6.82	137	-149	0.26

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW20**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW20-220623 **DATE/TIME:** 6/23/22 0945 **Pump Inlet Depth:** 19.91

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 6/23/22 0955

Depth to Water - Initial (DTWi) (ft) 17.48

Purge End Date/Time: 6/23/22 1025

Depth to Well Bottom (ft) 25.38

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 14.91-24.91

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 19.91

Pump Start Time: 0955

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 17.48

APTIM

Sample Collection Log

Location ID: 16IW20		Sample No: 16IW20-2206 23								
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
6/23/22	1000	100	.5	17.56	3.47	23.88	6.58	215	-45	0.75
	1005	100	1.0	17.62	3.61	23.61	6.62	189	-60	0.32
	1010	100	1.5	17.66	3.69	23.37	6.64	175	-68	0.21
	1015	100	2.0	17.69	3.70	23.33	6.65	174	-69	0.20
	1020	100	2.5	17.71	3.71	23.28	6.65	172	-70	0.20
↓	1025	100	3.0	17.73	3.71	23.24	6.65	171	-70	0.20

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW26**

Sampler(s): Scott Baeginger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW26-220629 **DATE/TIME:** 6/29/22 0804 **Pump Inlet Depth:** 47.40

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	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 6/29/22 0810

Depth to Water - Initial (DTWI) (ft) 25.92

Purge End Date/Time: 6/29/22 0840

Depth to Well Bottom (ft) ~~50~~ 48.80

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 42.40 - 52.40

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~45~~ 47.40

Pump Start Time: 0810

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 25.92

APTIM

Sample Collection Log

Location ID: 16IW26 Sample No: 16IW26-220629

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
6/29/22	0815	100	.5	26.00	6.08	20.36	7.07	529	-155	0.65
	0820	100	1.0	26.06	6.09	20.09	7.04	477	-171	0.22
	0825	100	1.5	26.10	6.03	19.98	7.06	458	-181	0.06
	0830	100	2.0	26.13	6.02	19.94	7.07	456	-182	0.06
	0835	100	2.5	26.16	6.02	19.90	7.07	454	-183	0.05
	0840	100	3.0	26.18	6.02	19.86	7.07	453	-183	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM02**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16PM02-220616 **DATE/TIME:** 6/16/22 1057 **Pump Inlet Depth:** 23.10

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/16/22 1105

Depth to Water - Initial (DTWi) (ft) 15.83

Purge End Date/Time: 6/16/22 1135

Depth to Well Bottom (ft) 28.42

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.10 - 28.10

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.10

Pump Start Time: 1105

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water - 15.83

APTIM

Sample Collection Log

Location ID: 16PM02		Sample No: 16PM02-220616								
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
6/16/22	1110	100	.5	15.90	1.20	23.55	5.89	310	83	0.77
	1115	100	1.0	15.95	1.23	21.70	5.41	281	125	0.49
	1120	100	1.5	15.98	1.23	21.48	5.26	274	140	0.30
	1125	100	2.0	16.00	1.24	21.43	5.26	272	141	0.29
	1130	100	2.5	16.02	1.24	21.39	5.25	270	142	0.28
	1135	100	3.0	16.04	1.24	21.34	5.25	269	143	0.28

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM03**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16PM03-220616 **DATE/TIME:** 6/16/22 1143 **Pump Inlet Depth:** 22.65

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/16/22 1150

Depth to Water - Initial (DTWi) (ft) 15.35

Purge End Date/Time: 6/16/22 1220

Depth to Well Bottom (ft) 28.42

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.90 - 27.40

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 22.65

Pump Start Time: 1150

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 15.35

APTIM

Sample Collection Log

Location ID: 16PM03		Sample No: 16PM03-220616								
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
6/16/22	1155	100	.5	15.42	3.59	24.87	6.30	121	77	2.69
↓	1200	100	1.0	15.47	4.11	24.20	6.12	102	116	2.33
	1205	100	1.5	15.50	4.20	24.15	5.96	92.9	138	2.08
	1210	100	2.0	15.52	4.21	24.09	5.96	92.4	140	2.06
	1215	100	2.5	15.53	4.21	24.04	5.95	91.5	141	2.04
↓	1220	100	3.0	15.54	4.22	24.02	5.94	91.0	142	2.01

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM06**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16PM06-220627 **DATE/TIME:** 6/27/22 1206 **Pump Inlet Depth:** 23.20

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	MEE in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/27/22 1210

Depth to Water - Initial (DTWi) (ft) 14.75

Purge End Date/Time: 6/27/22 1240

Depth to Well Bottom (ft) 27.56

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 18.20 - 28.20

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.20

Pump Start Time: 1210

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 14.75

APTIM

Sample Collection Log

Location ID: 16PM06		Sample No: 16PM06-220627								
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
6/27/22	1215	100	.5	14.81	4.43	24.63	6.12	173	-10	0.80
↓	1220	100	1.0	14.86	4.44	24.24	5.95	161	5	0.51
	1225	100	1.5	14.89	4.37	23.92	5.73	155	17	0.18
	1230	100	2.0	14.91	4.36	23.86	5.72	153	17	0.18
	1235	100	2.5	14.93	4.35	23.82	5.72	151	18	0.18
↓	1240	100	3.0	14.94	4.35	23.79	5.71	150	18	0.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM09**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16PM09-220627 **DATE/TIME:** 6/27/22 1127 **Pump Inlet Depth:** 21.80

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/27/22 1130

Depth to Water - Initial (DTWi) (ft) 13.42

Purge End Date/Time: 6/27/22 1200

Depth to Well Bottom (ft) 27.08

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.80 - 26.80

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.80

Pump Start Time: 1130

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 13.42

APTIM

Sample Collection Log

Location ID: 16PM09		Sample No: 16PM09-2206 27								
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
6/27/22	1135	100	.5	13.50	0.649	25.91	6.37	202	59	0.97
	1140	100	1.0	13.56	0.766	25.65	5.89	188	102	0.72
	1145	100	1.5	13.60	0.986	25.55	5.60	178	126	0.47
	1150	100	2.0	13.63	0.986	25.52	5.59	177	128	0.46
	1155	100	2.5	13.65	0.987	25.47	5.58	176	129	0.45
↓	1200	100	3.0	13.67	0.987	25.43	5.57	175	130	0.45

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM14**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16PM14-220627 **DATE/TIME:** 6/27/22 1246 **Pump Inlet Depth:** 23.00

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/27/22 1250

Depth to Water - Initial (DTWi) (ft) 16.50

Purge End Date/Time: 6/27/22 1320

Depth to Well Bottom (ft) 28.19

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.00-28.00

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.00

Pump Start Time: 1250

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water- 16.50

APTIM

Sample Collection Log

Location ID: 16PM14 Sample No: 16PM14-220627

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
6/27/22	1255	100	.5	16.58	5.43	25.61	6.50	18.7	[illegible]	1.29
	1300	100	1.0	16.64	5.77	25.15	6.43	14.2	25	1.01
	1305	100	1.5	16.68	5.82	24.89	6.35	12.7	45	0.88
	1310	100	2.0	16.70	5.83	24.83	6.35	12.4	46	0.87
	1315	100	2.5	16.72	5.83	24.75	6.34	11.5	47	0.87
	1320	100	3.0	16.73	5.83	24.70	6.34	11.0	48	0.86

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW01**

Sampler(s): Scott Beggs, Walker

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW01-220616 **DATE/TIME:** 6/16/22 1013 **Pump Inlet Depth:** 23.21

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 17.02

Depth to Well Bottom (ft) ~~28~~ 28.35

Screen Interval (ft): 18.21 - 28.21

Approximate depth of pump inlet*(ft): ~~28~~ 23.21

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/16/22 1020

Purge End Date/Time: 6/16/22 1050

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Pump Start Time: 1020

2ND DTW - 17.02

APTIM

Sample Collection Log

Location ID: 16RW01 Sample No: 16RW01-2206 16

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
6/16/22	1025	100	.5	17.10	1.56	24.21	5.49	6.1	212	0.80
	1030	100	1.0	17.16	1.51	24.00	4.90	5.4	291	0.57
	1035	100	1.5	17.20	1.46	24.04	4.70	5.1	320	0.39
	1040	100	2.0	17.22	1.45	24.07	4.69	4.9	322	0.38
	1045	100	2.5	17.24	1.44	24.10	4.68	4.7	324	0.38
	1050	100	3.0	17.25	1.44	24.12	4.68	4.5	325	0.37

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW04**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW04-220705 **DATE/TIME:** 7/5/22 1316 **Pump Inlet Depth:** 21.90

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 18.77

Depth to Well Bottom (ft) 27.61

Screen Interval (ft): 16.90 - 26.90

Approximate depth of pump inlet*(ft): 21.90

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/5/22 1320

Purge End Date/Time: 7/5/22 1350

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1320

2ND DTW - 18.77

APTIM

Sample Collection Log

Location ID: 16RW04		Sample No: 16RW04-220705								
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
7/5/22	1325	100	.5	18.85	1.85	29.93	5.27	17.3	185	0.92
	1330	100	1.0	18.91	1.73	29.18	5.14	8.1	200	0.67
	1335	100	1.5	18.95	1.65	28.97	5.12	7.4	209	0.48
	1340	100	2.0	18.98	1.64	28.94	5.11	7.0	210	0.46
	1345	100	2.5	19.00	1.63	28.90	5.11	6.8	210	0.45
	1350	100	3.0	19.02	1.63	28.86	5.11	6.5	211	0.45

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW05**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW05-220627 **DATE/TIME:** 6/27/22 1046 **Pump Inlet Depth:** 18.09

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.):

Depth to Water - Initial (DTWi) (ft) 11.12

Depth to Well Bottom (ft) 23.35

Screen Interval (ft): 13.09 - 23.09

Approximate depth of pump inlet*(ft): 18.09

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 6/27/22 1050

Purge End Date/Time: 6/27/22 1120

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1050

2ND DTW- 11.12

APTIM

Sample Collection Log

Location ID: 16RW05 Sample No: 16RW05-220627

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
6/27/22	1055	100	.5	11.20	3.33	23.63	6.89	222	-49	0.63
	1100	100	1.0	11.26	3.54	23.13	6.93	208	-55	0.29
	1105	100	1.5	11.30	3.60	22.88	6.96	197	-57	0.13
	1110	100	2.0	11.32	3.61	22.83	6.96	196	-58	0.13
	1115	100	2.5	11.34	3.62	22.78	6.96	195	-58	0.12
	1120	100	3.0	11.36	3.62	22.74	6.96	195	-58	0.12

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW06**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16RW06-2206 16 **DATE/TIME:** 6/16/22 0630 **Pump Inlet Depth:** 23.52

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/16/22 0640

Depth to Water - Initial (DTWi) (ft) 22.75

Purge End Date/Time: 6/16/22 0710

Depth to Well Bottom (ft) 29.23

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.52 - 28.52

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.52

Pump Start Time: 0640

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 22.75

APTIM

Sample Collection Log

Location ID: 16RW06		Sample No: 16RW06-220616								
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%	23.34	±0.1 units	No criteria		± 10% or 0.2 mg/L
6/16/22	0645	100	.5	22.82	3.78	[illegible]	6.40	2.3	-21	1.70
	0650	100	1.0	22.88	3.57	22.43	5.97	1.9	-20	1.39
	0655	100	1.5	22.92	3.44	22.39	5.64	1.8	-12	1.06
	0700	100	2.0	22.95	3.43	22.36	5.64	1.7	-11	1.04
	0705	100	2.5	22.98	3.43	22.32	5.63	1.6	-10	1.02
↓	0710	100	3.0	23.00	3.42	22.28	5.62	1.5	-10	1.00

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW07**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16RW07-220616 **DATE/TIME:** 6/16/22 0716 **Pump Inlet Depth:** 23.28

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/16/22 0720

Depth to Water - Initial (DTWi) (ft) 21.00

Purge End Date/Time: 6/16/22 0750

Depth to Well Bottom (ft) ~~28.28~~ 28.77

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.28 - 28.28

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~23~~ 23.28

Pump Start Time: 0720

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 21.00

APTIM

Sample Collection Log

Location ID: 16RW07 Sample No: 16RW07-220616

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
6/16/22	0725	100	.5	21.07	2.64	21.97	6.22	2.3	111	1.23
	0730	100	1.0	21.13	2.64	21.17	5.95	1.7	105	0.98
	0735	100	1.5	21.17	2.65	20.95	5.72	1.4	85	0.81
	0740	100	2.0	21.19	2.66	20.91	5.71	1.2	84	0.80
	0745	100	2.5	21.21	2.67	20.86	5.70	1.0	83	0.79
↓	0750	100	3.0	21.22	2.67	20.82	5.70	0.8	83	0.79

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW09**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW09-220705 **DATE/TIME:** 7/5/22 0827 **Pump Inlet Depth:** 24.67

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	MEE in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 7/5/22 0830

Depth to Water - Initial (DTWi) (ft) 24.10

Purge End Date/Time: 7/5/22 0900

Depth to Well Bottom (ft) 30.63

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 19.67. 29.67

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 24.67

Pump Start Time: 0830

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 24.10

APTIM

Sample Collection Log

Location ID: 16RW09		Sample No: 16RW09-220705								
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
7/5/22	0835	100	.5	24.18	4.07	22.90	6.65	5.1	60	0.97
	0840	100	1.0	24.24	4.00	22.48	6.62	4.4	41	0.75
	0845	100	1.5	24.28	3.96	22.28	6.59	3.5	41	0.54
	0850	100	2.0	24.31	3.95	22.22	6.58	2.7	42	0.53
	0855	100	2.5	24.33	3.95	22.15	6.58	2.1	42	0.52
	0900	100	3.0	24.35	3.94	22.07	6.58	1.6	42	0.52

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW09**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW09-2206~~05~~-FD **DATE/TIME:** 7/5/22 0827 **Pump Inlet Depth:** 24.67

Sampling Method: **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	MEE in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 7/5/22 0830

Depth to Water - Initial (DTWi) (ft) 24.10

Purge End Date/Time: 7/5/22 0900

Depth to Well Bottom (ft) ~~25~~ 30.63

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 19.67-29.67

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~22~~ 24.67

Pump Start Time: 0830

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 24.10

APTIM

Sample Collection Log

Location ID: 16RW09		Sample No: 16RW09-220705-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
7/5/22	0835	100	.5	24.18	4.07	22.40	6.65	5.1	60	0.47
	0840	100	1.0	24.24	4.00	22.48	6.62	4.4	41	0.75
	0845	100	1.5	24.28	3.96	22.28	6.59	3.5	41	0.54
	0850	100	2.0	24.31	3.95	22.22	6.58	2.7	42	0.53
	0855	100	2.5	24.33	3.95	22.15	6.58	2.1	42	0.52
↓	0900	100	3.0	24.35	3.94	22.07	6.58	1.6	42	0.52

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW10-220705 **DATE/TIME:** 7/5/22 0743 **Pump Inlet Depth:** 22.48

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 21.38

Depth to Well Bottom (ft) 28.28

Screen Interval (ft): 17.98 - 27.98

Approximate depth of pump inlet*(ft): 22.48

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 7/5/22 0750

Purge End Date/Time: 7/5/22 0820

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0750

2ND DTW- 21.38

APTIM

Sample Collection Log

Location ID: 16RW10 Sample No: 16RW10-220705

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
7/5/22	0755	100	.5	21.45	4.68	22.91	6.43	16.8	50	0.83
	0800	100	1.0	21.51	4.95	21.81	6.56	8.7	23	0.58
	0805	100	1.5	21.55	4.96	21.51	6.59	5.3	15	0.36
	0810	100	2.0	21.58	4.96	21.44	6.60	4.5	14	0.35
	0815	100	2.5	21.61	4.97	21.37	6.60	3.3	14	0.35
↓	0820	100	3.0	21.63	4.97	21.32	6.60	2.2	14	0.34

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW12**

Sampler(s): Sid H Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16RW12-2206 16 **DATE/TIME:** 6/16/22 0843 **Pump Inlet Depth:** 26.49

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/16/22 0850

Depth to Water - Initial (DTWi) (ft) 23.80

Purge End Date/Time: 6/16/22 0920

Depth to Well Bottom (ft) ~~29~~ 32.57

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.49-31.49

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~25~~ 26.49

Pump Start Time: 0850

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 23.80

APTIM

Sample Collection Log

Location ID: 16RW12		Sample No: 16RW12-220616								
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
6/16/22	0855	100	.5	23.88	3.29	21.91	6.28	20.6	88	0.87
↓	0900	100	1.0	23.95	3.26	21.26	5.98	18.7	90	0.65
	0905	100	1.5	24.00	3.26	21.27	5.80	16.8	113	0.53
	0910	100	2.0	24.03	3.27	21.29	5.79	16.4	114	0.52
	0915	100	2.5	24.05	3.27	21.30	5.79	15.7	115	0.52
↓	0920	100	3.0	24.07	3.27	21.31	5.79	15.3	116	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW06**

Sampler(s): Scott Baessinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW06-220706-M **DATE/TIME:** 7/6/22 0637 **Pump Inlet Depth:** 55.31

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 28.28

Depth to Well Bottom (ft) 62.38

Screen Interval (ft): 49.31 - 61.31

Approximate depth of pump inlet*(ft): 55.31

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/6/22 0650

Purge End Date/Time: 7/6/22 0720

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0650

2nd DTW - 28.28

APTIM

Sample Collection Log

Location ID: 16WW06		Sample No: 16WW06-220706-M								
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
7/6/22	0655	100	.5	28.35	1.75	22.77	6.16	32.7	30	0.98
	0700	100	1.0	28.40	1.73	22.03	6.12	26.1	10	0.75
	0705	100	1.5	28.43	1.73	21.52	6.17	24.7	-7	0.65
	0710	100	2.0	28.46	1.74	21.47	6.18	24.3	-7	0.64
	0715	100	2.5	28.48	1.75	21.42	6.19	23.6	-8	0.64
↓	0720	100	3.0	28.50	1.75	21.38	6.19	23.0	-8	0.63

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW12**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW12-220705 **DATE/TIME:** 7/5/22 1052 **Pump Inlet Depth:** 21.64

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 17.40

Depth to Well Bottom (ft) 27.00

Screen Interval (ft): 16.64 - 26.64

Approximate depth of pump inlet*(ft): 21.64

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/5/22 1100

Purge End Date/Time: 7/5/22 1130

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1100

2nd DTW- 17.40

APTIM

Sample Collection Log

Location ID: 16WW12 Sample No: 16WW12-2205

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
7/5/22	1105	100	.5	17.47	5.50	26.63	6.34	52.7	136	0.81
	1110	100	1.0	17.53	5.38	27.10	6.31	46.3	142	0.53
	1115	100	1.5	17.56	5.30	27.22	6.29	44.8	149	0.35
	1120	100	2.0	17.58	5.29	27.28	6.28	44.3	150	0.34
	1125	100	2.5	17.60	5.28	27.33	6.28	43.7	150	0.33
↓	1130	100	3.0	17.61	5.28	27.38	6.28	43.1	151	0.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW12**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW12-220705-M **DATE/TIME:** 7/5/22 1052 **Pump Inlet Depth:** 21.64

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	Metals (Cr+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 17.40

Depth to Well Bottom (ft) 27.00

Screen Interval (ft): 16.64 - 26.64

Approximate depth of pump inlet*(ft): 21.64

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/5/22 1100

Purge End Date/Time: 7/5/22 1130

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1100

2ND DTW - 17.40

APTIM

Sample Collection Log

Location ID: 16WW12 Sample No: 16WW12-220705-M

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
7/5/22	1105	100	.5	17.47	5.50	26.63	6.34	52.7	136	0.81
	1110	100	1.0	17.53	5.38	27.10	6.31	46.3	142	0.53
	1115	100	1.5	17.56	5.30	27.22	6.29	44.8	149	0.35
	1120	100	2.0	17.58	5.29	27.28	6.28	44.3	150	0.34
	1125	100	2.5	17.60	5.28	27.33	6.28	43.7	150	0.33
	1130	100	3.0	17.61	5.28	27.38	6.28	43.1	151	0.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW12**

Sampler(s): Scott Beggs, Inger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW12-220705-M-FD **DATE/TIME:** 7/5/22 **Pump Inlet Depth:** 21.64

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	Metals (Cr+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 17.40

Depth to Well Bottom (ft) 27.00

Screen Interval (ft): 16.64 - 26.64

Approximate depth of pump inlet*(ft): 21.64

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low Flow Bladder Pump

Purge Start Date/Time: 7/5/22 1100

Purge End Date/Time: 7/5/22 1130

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1100

2ND DTW - 17.40

APTIM

Sample Collection Log

Location ID: 16WW12		Sample No: 16WW12-220705-M-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
7/5/22	1105	100	.5	17.47	5.50	26.63	6.34	52.7	136	0.81
	1110	100	1.0	17.53	5.38	27.10	6.31	46.3	142	0.53
	1115	100	1.5	17.56	5.30	27.22	6.29	44.8	149	0.35
	1120	100	2.0	17.58	5.29	27.28	6.28	44.3	150	0.34
	1125	100	2.5	17.60	5.28	27.33	6.28	43.7	150	0.33
	1130	100	3.0	17.61	5.28	27.38	6.28	43.1	151	0.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW13**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW13-220705 **DATE/TIME:** 7/5/22 1137 **Pump Inlet Depth:** 21.73

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 7/5/22 1145

Depth to Water - Initial (DTWi) (ft) 8.43

Purge End Date/Time: 7/5/22 1215

Depth to Well Bottom (ft) 23.00

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.73-26.73

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 21.73

Pump Start Time: 1145

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 8.43

APTIM

Sample Collection Log

Location ID: 16WW13		Sample No: 16WW13-220705								
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
7/5/22	1150	100	.5	8.50	3.02	29.10	5.53	120	112	1.59
	1155	100	1.0	8.56	3.61	28.65	5.46	106	123	1.20
	1200	100	1.5	8.60	3.75	28.39	5.38	99.2	135	1.11
	1205	100	2.0	8.62	3.76	28.34	5.37	98.5	136	1.09
	1210	100	2.5	8.64	3.76	28.30	5.36	97.8	137	1.08
↓	1215	100	3.0	8.66	3.77	28.26	5.36	97.1	138	1.07

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW13**

Sampler(s): Scott Baggenger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW13-220705-M **DATE/TIME:** 7/5/22 1137 **Pump Inlet Depth:** 21.73

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 8.43

Depth to Well Bottom (ft) 23.00

Screen Interval (ft): 16.73-26.73

Approximate depth of pump inlet*(ft): 21.73

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/5/22 1145

Purge End Date/Time: 7/5/22 1215

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1145

2ND DTW - 8.43

APTIM

Sample Collection Log

Location ID: 16WW13 Sample No: 16WW13-220705-M

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
7/5/22	1150	100	.5	8.50	3.02	29.10	5.53	120	112	1.59
	1155	100	1.0	8.56	3.61	28.65	5.46	106	123	1.20
	1200	100	1.5	8.60	3.75	28.39	5.38	99.2	135	1.11
	1205	100	2.0	8.62	3.76	28.34	5.37	98.5	136	1.09
	1210	100	2.5	8.64	3.76	28.30	5.36	97.8	137	1.08
↓	1215	100	3.0	8.66	3.77	28.26	5.36	97.1	138	1.07

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW14**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW14-220620-M **DATE/TIME:** 6/20/22 0812 **Pump Inlet Depth:** 25.63

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	Metals (Cr+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 0820

Depth to Water - Initial (DTWi) (ft) 24.15

Purge End Date/Time: 6/20/22 0850

Depth to Well Bottom (ft) 30.25

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 20.63 - 30.63

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.63

Pump Start Time: 0820

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 24.15

APTIM

Sample Collection Log

Location ID: 16WW14 Sample No: 16WW14-220620-M

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
6/20/22	0825	100	.5	24.22	3.81	20.61	6.48	49.7	53	0.79
	0830	100	1.0	24.28	3.96	20.35	6.47	43.2	49	0.48
	0835	100	1.5	24.32	4.03	20.32	6.47	39.6	48	0.30
	0840	100	2.0	24.35	4.04	20.29	6.48	39.2	48	0.30
	0845	100	2.5	24.37	4.05	20.25	6.48	38.5	47	0.29
	0850	100	3.0	24.39	4.06	20.21	6.48	38.1	47	0.28

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW15**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW15-220620-M **DATE/TIME:** 6/20/22 1129 **Pump Inlet Depth:** 305.10

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 7/6/22 1145

Depth to Water - Initial (DTWi) (ft) 23.75

Purge End Date/Time: 7/6/22 1215

Depth to Well Bottom (ft) 310.44

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 300.10 - 310.10

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 305.10

Pump Start Time: 1145

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 23.75

APTIM

Sample Collection Log

Location ID: 16WW15 Sample No: 16WW15-220706-M

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
7/6/22	1150	100	.5	23.82	0.921	23.61	8.37	10.2	35	0.85
	1155	100	1.0	23.88	0.895	23.04	8.29	7.2	25	0.69
	1200	100	1.5	23.92	0.891	22.92	8.29	6.7	18	0.41
	1205	100	2.0	23.94	0.890	22.85	8.29	6.3	17	0.40
	1210	100	2.5	23.95	0.890	22.78	8.29	5.9	16	0.40
↓	1215	100	3.0	23.96	0.890	22.73	8.29	5.6	16	0.39

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW16**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW16-220630 **DATE/TIME:** 6/30/22 0630 **Pump Inlet Depth:** 26.62

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 0640

Depth to Water - Initial (DTWi) (ft) 19.72

Purge End Date/Time: 6/30/22 0710

Depth to Well Bottom (ft) 31.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.62-31.62

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 26.62

Pump Start Time: 0640

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 19.72

APTIM

Sample Collection Log

Location ID: 16WW16 Sample No: 16WW16-220630

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
6/30/22	0645	100	.5	19.80	3.58	22.56	6.38	24.7	66	1.07
	0650	100	1.0	19.86	3.77	20.31	6.34	18.6	72	0.85
	0655	100	1.5	19.90	3.77	19.92	6.32	18.3	82	0.80
	0700	100	2.0	19.93	3.76	19.86	6.32	18.0	83	0.79
	0705	100	2.5	19.95	3.76	19.80	6.32	17.7	84	0.78
↓	0710	100	3.0	19.97	3.76	19.75	6.32	17.2	84	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW16**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW16-220630-M **DATE/TIME:** 6/30/22 0630 **Pump Inlet Depth:** 26.62

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 0640

Depth to Water - Initial (DTWi) (ft) 19.72

Purge End Date/Time: 6/30/22 0710

Depth to Well Bottom (ft) ~~32~~ 31.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.62-31.62

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~32~~ 26.62

Pump Start Time: 0640

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 19.72

APTIM

Sample Collection Log

Location ID: 16WW16		Sample No: 16WW16-220630-M								
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
6/30/22	0645	100	1.5	19.80	3.58	22.56	6.38	24.7	66	1.07
	0650	100	1.0	19.86	3.77	20.31	6.34	18.6	72	0.85
	0655	100	1.5	19.90	3.77	19.92	6.32	18.3	82	0.80
	0700	100	2.0	19.93	3.76	19.86	6.32	18.0	83	0.79
	0705	100	2.5	19.95	3.76	19.80	6.32	17.7	84	0.78
	0710	100	3.0	19.97	3.76	19.75	6.32	17.2	84	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW16**

Sampler(s): Scott Beasinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 16WW16-2206 30MS **DATE/TIME:** 6/30/22 0630 **Pump Inlet Depth:** 26.62

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 0640

Depth to Water - Initial (DTWi) (ft) 19.72

Purge End Date/Time: 6/30/22 0710

Depth to Well Bottom (ft) ~~29~~ 31.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.62 - 31.62

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~24~~ 26.62

Pump Start Time: 0640

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 19.72

APTIM

Sample Collection Log

Location ID: 16WW16		Sample No: 16WW16-220630-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
6/30/22	0645	100	.5	19.80	3.58	22.56	6.38	24.7	66	1.07
	0650	100	1.0	19.86	3.77	20.31	6.34	18.6	72	0.85
	0655	100	1.5	19.90	3.77	19.92	6.32	18.3	82	0.80
	0700	100	2.0	19.93	3.76	19.86	6.32	18.0	83	0.79
	0705	100	2.5	19.95	3.76	19.80	6.32	17.7	84	0.78
↓	0710	100	3.0	19.97	3.76	19.75	6.32	17.2	84	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW16**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW16-220630-MSD **DATE/TIME:** 6/30/22 0630 **Pump Inlet Depth:** 26.62

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 0640

Depth to Water - Initial (DTWi) (ft) 19.72

Purge End Date/Time: 6/30/22 0710

Depth to Well Bottom (ft) ~~29~~ 31.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.62-31.62

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~25~~ 26.62

Pump Start Time: 0640

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 19.72

APTIM

Sample Collection Log

Location ID: 16WW16		Sample No: 16WW16-220630-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
6/30/22	0645	100	.5	19.80	3.58	22.56	6.38	24.7	66	1.07
	0650	100	1.0	19.86	3.77	20.31	6.34	18.6	72	0.85
	0655	100	1.5	19.90	3.77	19.92	6.32	18.3	82	0.80
	0700	100	2.0	19.93	3.76	19.86	6.32	18.0	83	0.79
	0705	100	2.5	19.95	3.76	19.80	6.32	17.7	84	0.78
↓	0710	100	3.0	19.97	3.76	19.75	6.32	17.2	84	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW17**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW17-220706-M **DATE/TIME:** 7/6/22 1234 **Pump Inlet Depth:** 222.77

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 7/6/22 1250

Depth to Water - Initial (DTWi) (ft) 23.12

Purge End Date/Time: 7/6/22 1320

Depth to Well Bottom (ft) ~~228~~ 228.04

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 217.77 - 227.77

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~229~~ 222.77

Pump Start Time: 1250

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 23.12

APTIM

Sample Collection Log

Location ID: 16WW17		Sample No: 16WW17-220706-M								
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
7/6/22	1255	100	.5	23.18	0.835	23.62	8.33	11.3	21	0.81
	1300	100	1.0	23.23	0.971	22.91	8.62	7.5	15	0.53
	1305	100	1.5	23.26	1.03	22.63	8.71	6.8	10	0.37
	1310	100	2.0	23.28	1.04	22.58	8.72	6.1	10	0.36
	1315	100	2.5	23.30	1.05	22.52	8.73	5.6	9	0.35
	1320	100	3.0	23.32	1.05	22.47	8.73	5.0	9	0.35

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW18**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW18-22067-M **DATE/TIME:** 7/6/22 0945 **Pump Inlet Depth:** 280.12

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 7/6/22 1040

Depth to Water - Initial (DTWi) (ft) 10.28

Purge End Date/Time: 7/6/22 1110

Depth to Well Bottom (ft) 285.35

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 275.12 - 285.12

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 280.12

Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2nd DTW - 10.28

APTIM

Sample Collection Log

Location ID: 16WW18		Sample No: 16WW18-220706-M								
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
7/6/22	1045	100	.5	10.35	0.767	23.69	7.96	5.5	-63	1.22
	1050	100	1.0	10.40	0.769	23.22	7.24	2.6	-91	1.00
	1055	100	1.5	10.43	0.776	22.50	7.21	2.8	-103	0.90
	1100	100	2.0	10.45	0.777	22.45	7.20	3.0	-104	0.89
	1105	100	2.5	10.47	0.777	22.41	7.20	3.2	-104	0.88
	1110	100	3.0	10.48	0.777	22.37	7.20	3.5	-105	0.88

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW19**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW19-220706-M **DATE/TIME:** 7/6/22 0822 **Pump Inlet Depth:** 93.30

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 9.05

Depth to Well Bottom (ft) ~~95~~ 98.30

Screen Interval (ft): 88.30 - 98.30

Approximate depth of pump inlet*(ft): ~~90~~ 93.30

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/6/22 0835

Purge End Date/Time: 7/6/22 0905

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0835

2ND DTW - 9.05

APTIM

Sample Collection Log

Location ID: 16WW19		Sample No: 16WW19-220606-M								
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
7/6/22	0840	100	.5	9.12	0.604	22.43	9.02	147	50	0.98
	0845	100	1.0	9.17	0.607	21.50	9.19	139	10	0.75
	0850	100	1.5	9.20	0.609	21.30	9.19	134	0	0.64
	0855	100	2.0	9.22	0.610	21.24	9.18	133	-1	0.63
	0900	100	2.5	9.24	0.610	21.18	9.17	132	-1	0.62
	0905	100	3.0	9.26	0.610	21.13	9.17	132	-1	0.61

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW20**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW20-220620-M **DATE/TIME:** 6/20/22 0856 **Pump Inlet Depth:** 108.23

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 0920

Depth to Water - Initial (DTWi) (ft) 24.08

Purge End Date/Time: 6/20/22 0950

Depth to Well Bottom (ft) ~~120~~ 113.71

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 103.23 - 113.23

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~105~~ 108.23

Pump Start Time: 0920

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 24.08

APTIM

Sample Collection Log

Location ID: 16WW20		Sample No: 16WW20-220620-M								
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
6/20/22	0925	100	.5	24.14	0.802	21.29	9.77	7.9	[redacted]20	1.21
	0930	100	1.0	24.19	0.383	20.51	9.98	3.8	-5	0.95
	0935	100	1.5	24.21	0.335	20.44	10.07	3.4	-6	0.89
	0940	100	2.0	24.23	0.335	20.40	10.08	2.9	-7	0.88
	0945	100	2.5	24.24	0.334	20.37	10.09	2.6	-7	0.87
	0950	100	3.0	24.25	0.334	20.33	10.09	2.3	-7	0.87

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW21**

Sampler(s): Scott Baggingar

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW21-220706-M **DATE/TIME:** 7/6/22 0727 **Pump Inlet Depth:** 98.21

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 7/6/22 0740

Depth to Water - Initial (DTWi) (ft) 24.55

Purge End Date/Time: 7/6/22 0810

Depth to Well Bottom (ft) 103.45

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 93.21 - 103.21

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 98.21

Pump Start Time: 0740

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 24.55

APTIM

Sample Collection Log

Location ID: 16WW21 Sample No: 16WW21-220706-M

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
7/6/22	0745	100	.5	24.61	0.562	23.80	6.57	9.1	1	1.12
	0750	100	1.0	24.66	0.560	23.22	6.19	8.7	11	0.82
	0755	100	1.5	24.70	0.563	23.01	6.08	8.1	11	0.51
	0800	100	2.0	24.72	0.563	22.96	6.07	7.5	10	0.50
	0805	100	2.5	24.74	0.563	22.92	6.06	6.9	10	0.49
	0810	100	3.0	24.75	0.564	22.88	6.05	6.4	10	0.48

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW22**

Sampler(s): Scott Bergingar

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW22-220629 **DATE/TIME:** 6/29/22 0946 **Pump Inlet Depth:** 28.94

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 27.02

Depth to Well Bottom (ft) 34.30

Screen Interval (ft): 23.94-33.94

Approximate depth of pump inlet*(ft): 28.94

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/29/22 0955

Purge End Date/Time: 6/29/22 1025

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0955

2ND DTW - 27.02

APTIM

Sample Collection Log

Location ID: 16WW22 Sample No: 16WW22-2206 29

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
6/29/22	1000	100	.5	27.10	3.56	20.80	6.54	90.3	29	1.43
	1005	100	1.0	27.16	3.08	20.16	6.42	79.7	64	1.08
	1010	100	1.5	27.20	2.99	20.01	6.37	73.3	74	0.92
	1015	100	2.0	27.23	2.98	19.96	6.36	72.5	74	0.91
	1020	100	2.5	27.26	2.98	19.92	6.35	71.8	75	0.90
↓	1025	100	3.0	27.29	2.97	19.88	6.35	71.1	75	0.89

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW22**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW22-220629-M **DATE/TIME:** 6/29/22 0946 **Pump Inlet Depth:** 28.94

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	Metals (Ni+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 27.02

Depth to Well Bottom (ft) 34.30

Screen Interval (ft): 23.94 - 33.94

Approximate depth of pump inlet*(ft): 28.94

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 6/29/22 0955

Purge End Date/Time: 6/29/22 1025

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0955

2ND DTW - 27.02

APTIM

Sample Collection Log

Location ID: 16WW22		Sample No: 16WW22-2206 29-M								
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
6/29/22	1000	100	.5	27.10	3.56	20.80	6.54	90.3	29	1.43
	1005	100	1.0	27.16	3.08	20.16	6.42	79.7	64	1.08
	1010	100	1.5	27.20	2.99	20.01	6.37	73.3	74	0.92
	1015	100	2.0	27.23	2.98	19.96	6.36	72.5	74	0.91
	1020	100	2.5	27.26	2.98	19.92	6.35	71.8	75	0.90
↓	1025	100	3.0	27.29	2.97	19.88	6.35	71.1	75	0.89

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW23**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW23-220627 **DATE/TIME:** 6/27/22 0645 **Pump Inlet Depth:** 32.20

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 7.13

Depth to Well Bottom (ft) [redacted] 37.15

Screen Interval (ft): 27.20 - 37.20

Approximate depth of pump inlet*(ft): [redacted] 32.20

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/13/4" Dedicated Pump

Purge Start Date/Time: 6/27/22 0655

Purge End Date/Time: 6/27/22 0725

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0655

2ND DTW- 7.13

APTIM

Sample Collection Log

Location ID: 16WW23		Sample No: 16WW23-220627								
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
6/27/22	0700	100	.5	7.20	2.42	23.34	6.07	105	-19	1.03
	0705	100	1.0	7.25	3.17	21.44	6.13	94.3	-37	0.70
	0710	100	1.5	7.28	3.40	20.36	6.18	90.2	-46	0.53
	0715	100	2.0	7.30	3.41	20.30	6.18	89.4	-47	0.52
	0720	100	2.5	7.32	3.42	20.25	6.18	88.6	-48	0.52
↓	0725	100	3.0	7.33	3.42	20.19	6.18	88.0	-48	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW23**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW23-220627-M **DATE/TIME:** 6/27/22 0645 **Pump Inlet Depth:** 32.20

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/27/22 0655

Depth to Water - Initial (DTWi) (ft) 7.13

Purge End Date/Time: 6/27/22 0725

Depth to Well Bottom (ft) 37.15

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 27.20 - 37.20

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 32.20

Pump Start Time: 0655

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 7.13

APTIM

Sample Collection Log

Location ID: 16WW23 Sample No: 16WW23-220627-M

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
6/27/22	0700	100	.5	7.20	2.42	23.34	6.07	105	-19	1.03
	0705	100	1.0	7.25	3.17	21.44	6.13	94.3	-37	0.70
	0710	100	1.5	7.28	3.40	20.36	6.18	90.2	-46	0.53
	0715	100	2.0	7.30	3.41	20.30	6.18	89.4	-47	0.52
	0720	100	2.5	7.32	3.42	20.25	6.18	88.6	-48	0.52
↓	0725	100	3.0	7.33	3.42	20.19	6.18	88.0	-48	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **16WW24**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW24-220627 **DATE/TIME:** 6/27/22 0734 **Pump Inlet Depth:** 16.79

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/27/22 0740

Depth to Water - Initial (DTWi) (ft) 8.82

Purge End Date/Time: 6/27/22 0810

Depth to Well Bottom (ft) 19.21

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 14.29 - 19.29

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 16.79

Pump Start Time: 0740

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 8.82

APTIM

Sample Collection Log

Location ID: 16WW24		Sample No: 16WW24-2206_27								
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
6/../22	0745	100	.5	8.90	2.80	21.25	4.42	10.3	173	0.98
	0750	100	1.0	8.95	2.82	21.00	4.15	3.7	240	0.67
	0755	100	1.5	8.98	2.84	20.81	4.03	1.3	261	0.56
	0800	100	2.0	9.00	2.84	20.76	4.02	1.0	262	0.55
	0805	100	2.5	9.02	2.85	20.71	4.02	0.7	263	0.54
↓	0810	100	3.0	9.04	2.85	20.67	4.02	0.5	264	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW24-220627-M **DATE/TIME:** 6/27/22 0734 **Pump Inlet Depth:** 16.79

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	Metals (Cr+Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/27/22 0740

Depth to Water - Initial (DTWi) (ft) 8.82

Purge End Date/Time: 6/27/22 0810

Depth to Well Bottom (ft) ~~19~~ 19.21

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 14.29 - 19.29

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~19.5~~ 16.79

Pump Start Time: 0740

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 8.82

APTIM

Sample Collection Log

Location ID: 16WW24		Sample No: 16WW24-220627-M								
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
6/27/22	0745	100	.5	8.90	2.80	21.25	4.42	10.3	173	0.98
	0750	100	1.0	8.95	2.82	21.00	4.15	3.7	240	0.67
	0755	100	1.5	8.98	2.84	20.81	4.03	1.3	261	0.56
	0800	100	2.0	9.00	2.84	20.76	4.02	1.0	262	0.55
	0805	100	2.5	9.02	2.85	20.71	4.02	0.7	263	0.54
	0810	100	3.0	9.04	2.85	20.67	4.02	0.5	264	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW24-2206 27-M-FD **DATE/TIME:** 6/27/22 0734 **Pump Inlet Depth:** 16.79

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	Metals (Cr+Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 8.82

Depth to Well Bottom (ft) ~~19~~ 19.21

Screen Interval (ft): 14.29 - 19.29

Approximate depth of pump inlet*(ft): ~~19.7~~ 16.79

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 6/27/22 0740

Purge End Date/Time: 6/27/22 0810

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Pump Start Time: 0740

2ND DTW- 8.82

APTIM

Sample Collection Log

Location ID: 16WW24 Sample No: 16WW24-220627-M-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
6/27/22	0745	100	.5	8.90	2.80	21.25	4.42	10.3	173	0.98
	0750	100	1.0	8.95	2.82	21.00	4.15	3.7	240	0.67
	0755	100	1.5	8.98	2.84	20.81	4.03	1.3	261	0.56
	0800	100	2.0	9.00	2.84	20.76	4.02	1.0	262	0.55
	0805	100	2.5	9.02	2.85	20.71	4.02	0.7	263	0.54
↓	0810	100	3.0	9.04	2.85	20.67	4.02	0.5	264	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Baggenstoss

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW24-220627-MS **DATE/TIME:** 6/27/22 0734 **Pump Inlet Depth:** 16.79

Sampling Method: **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/27/22 0740

Depth to Water - Initial (DTWi) (ft) 8.82

Purge End Date/Time: 6/27/22 0810

Depth to Well Bottom (ft) 19.21

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 14.29-19.29

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 16.79

Pump Start Time: 0740

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 8.82

APTIM

Sample Collection Log

Location ID: 16WW24		Sample No: 16WW24-220627-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
6/27/22	0745	100	.5	8.90	2.80	21.25	4.42	16.3	173	0.98
	0750	100	1.0	8.95	2.82	21.00	4.15	3.7	240	0.67
	0755	100	1.5	8.98	2.84	20.81	4.03	1.3	261	0.56
	0800	100	2.0	9.00	2.84	20.76	4.02	1.0	262	0.55
	0805	100	2.5	9.02	2.85	20.71	4.02	0.7	263	0.54
↓	0810	100	3.0	9.04	2.85	20.67	4.02	0.5	264	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW24-220627-MSD **DATE/TIME:** 6/27/22 0734 **Pump Inlet Depth:** 16.79

Sampling Method: **Sample Purpose: MSD** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 8.82

Depth to Well Bottom (ft) 19.21

Screen Interval (ft): 14.29 - 19.29

Approximate depth of pump inlet*(ft): 16.79

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/27/22 0740

Purge End Date/Time: 6/27/22 0810

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Pump Start Time: 0740

2ND DTW - 8.82

APTIM

Sample Collection Log

Location ID: 16WW24		Sample No: 16WW24-220627-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
6/27/22	0745	100	.5	8.90	2.80	21.25	4.42	10.3	173	0.98
	0750	100	1.0	8.95	2.82	21.00	4.15	3.7	240	0.67
	0755	100	1.5	8.98	2.84	20.81	4.03	1.3	261	0.56
	0800	100	2.0	9.00	2.84	20.76	4.02	1.0	262	0.55
	0805	100	2.5	9.02	2.85	20.71	4.02	0.7	263	0.54
↓	0810	100	3.0	9.04	2.85	20.67	4.02	0.5	264	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW25**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW25-220630 **DATE/TIME:** 6/30/22 1121 **Pump Inlet Depth:** 47.25

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 1130

Depth to Water - Initial (DTWi) (ft) 17.37

Purge End Date/Time: 6/30/22 1200

Depth to Well Bottom (ft) 52.50

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.25-52.25

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 47.25

Pump Start Time: 1130

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 17.37

APTIM

Sample Collection Log

Location ID: 16WW25					Sample No: 16WW25-220630					
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
6/30/22	1135	100	.5	17.45	6.50 [illegible]	23.05	5.91	62.7	-18	0.70
	1140	100	1.0	17.51	7.73	22.52	6.10	58.6	-40	0.28
	1145	100	1.5	17.55	7.91	22.49	6.14	56.7	-49	0.12
	1150	100	2.0	17.57	7.92	22.46	6.17	56.2	-50	0.12
	1155	100	2.5	17.59	7.93	22.43	6.17	55.6	-50	0.11
↓	1200	100	3.0	17.61	7.94	22.40	6.17	55.0	-51	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW25**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW25-220630-M **DATE/TIME:** 6/30/22 1121 **Pump Inlet Depth:** 47.25

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	Metals (As+Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 1130

Depth to Water - Initial (DTWi) (ft) 17.37

Purge End Date/Time: 6/30/22 1200

Depth to Well Bottom (ft) 52.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 42.25-52.25

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 47.25

Pump Start Time: 1130

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 17.37

APTIM

Sample Collection Log

Location ID: 16WW25				Sample No: 16WW25-220630-M						
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
6/30/22	1135	100	.5	17.45	6.50	23.05	5.91	62.7	-18	0.70
	1140	100	1.0	17.51	7.73	22.52	6.10	58.6	-40	0.28
	1145	100	1.5	17.55	7.91	22.49	6.16	56.7	-49	0.12
	1150	100	2.0	17.57	7.92	22.46	6.17	56.2	-50	0.12
	1155	100	2.5	17.59	7.93	22.43	6.17	55.6	-50	0.11
↓	1200	100	3.0	17.61	7.94	22.40	6.17	55.0	-51	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW25**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW25-220630-M-FD **DATE/TIME:** 6/30/22 1121 **Pump Inlet Depth:** 47.25

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	Metals (As+Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 1130

Depth to Water - Initial (DTWi) (ft) 17.37

Purge End Date/Time: 6/30/22 1200

Depth to Well Bottom (ft) ~~42~~ 52.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~42~~ 42.25-52.25

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~45~~ 47.25

Pump Start Time: 1130

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 17.37

APTIM

Sample Collection Log

Location ID: 16WW25	Sample No: 16WW25-2206 30-M-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
6/30/22	1135	100	.5	17.45	6.50	23.05	5.91	62.7	-18	0.70
	1140	100	1.0	17.51	7.73	22.52	6.10	58.6	-40	0.28
	1145	100	1.5	17.55	7.91	22.49	6.16	56.7	-49	0.12
	1150	100	2.0	17.57	7.92	22.46	6.17	56.2	-50	0.12
	1155	100	2.5	17.59	7.93	22.43	6.17	55.6	-50	0.11
	1200	100	3.0	17.61	7.94	22.40	6.17	55.0	-51	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW25**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW25-220630-MS **DATE/TIME:** 6/30/22 1121 **Pump Inlet Depth:** 47.25

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 1130

Depth to Water - Initial (DTWi) (ft) 17.37

Purge End Date/Time: 6/30/22 1200

Depth to Well Bottom (ft) ~~40~~ 52.50

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.25 - 52.25

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~45~~ 47.25

Pump Start Time: 1130

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 17.37

APTIM

Sample Collection Log

Location ID: 16WW25 Sample No: 16WW25-220630-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
6/30/22	1135	100	.5	17.45	6.50	23.05	5.91	62.7	-18	0.70
	1140	100	1.0	17.51	7.73	22.52	6.10	58.6	-40	0.28
	1145	100	1.5	17.55	7.91	22.49	6.16	56.7	-49	0.12
	1150	100	2.0	17.57	7.92	22.46	6.17	56.2	-50	0.12
	1155	100	2.5	17.59	7.93	22.43	6.17	55.6	-50	0.11
↓	1200	100	3.0	17.61	7.94	22.40	6.17	55.0	-51	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW25**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW25-220630-MSD **DATE/TIME:** 6/30/22 1121 **Pump Inlet Depth:** 47.25

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 17.37

Depth to Well Bottom (ft) 52.50

Screen Interval (ft): 42.25 - 52.25

Approximate depth of pump inlet*(ft): 47.25

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/30/22 1130

Purge End Date/Time: 6/30/22 1200

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Pump Start Time: 1130

2ND DTW- 17.37

APTIM

Sample Collection Log

Location ID: 16WW25		Sample No: 16WW25-220630-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
6/30/22	1135	100	.5	17.45	6.50	23.05	5.91	62.7	-18	0.70
↓	1140	100	1.0	17.51	7.73	22.52	6.10	58.6	-40	0.28
	1145	100	1.5	17.55	7.91	22.49	6.16	56.7	-49	0.12
	1150	100	2.0	17.57	7.92	22.46	6.17	56.2	-50	0.12
	1155	100	2.5	17.59	7.93	22.43	6.17	55.6	-50	0.11
↓	1200	100	3.0	17.61	7.94	22.40	6.17	55.0	-51	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW26**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW26-220630 **DATE/TIME:** 6/30/22 1215 **Pump Inlet Depth:** 18.47

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 16.30

Depth to Well Bottom (ft) 21.80

Screen Interval (ft): 15.97-20.97

Approximate depth of pump inlet*(ft): 18.47

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: LowFlow/BLADDER Pump

Purge Start Date/Time: 6/30/22 1220

Purge End Date/Time: 6/30/22 1250

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Pump Start Time: 1220

2ND DTW- 16.30

APTIM

Sample Collection Log

Location ID: 16WW26 Sample No: 16WW26-220630

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
6/30/22	1225	100	.5	16.37	1.20	24.38	5.33	83.7	121	0.91
	1230	100	1.0	16.42	0.987	22.45	5.12	76.6	165	0.63
	1235	100	1.5	16.45	0.967	22.02	5.03	72.2	180	0.47
	1240	100	2.0	16.47	0.966	21.94	5.03	71.5	181	0.46
	1245	100	2.5	16.49	0.966	21.89	5.02	70.8	182	0.45
↓	1250	100	3.0	16.51	0.966	21.85	5.02	70.1	183	0.45

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

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APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW26**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW26-220630-M **DATE/TIME:** 6/30/22 1215 **Pump Inlet Depth:** 18.47

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 1220

Depth to Water - Initial (DTWi) (ft) 16.30

Purge End Date/Time: 6/30/22 1250

Depth to Well Bottom (ft) 21.80

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 15.97 - 20.97

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.47

Pump Start Time: 1220

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 16.30

APTIM

Sample Collection Log

Location ID: 16WW26		Sample No: 16WW26-220630-M								
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
6/30/22	1225	100	.5	16.37	1.20	24.38	5.33	83.7	121	0.91
	1230	100	1.0	16.42	0.987	22.45	5.12	76.6	165	0.63
	1235	100	1.5	16.45	0.967	22.02	5.03	72.2	180	0.47
	1240	100	2.0	16.47	0.966	21.94	5.03	71.5	181	0.46
	1245	100	2.5	16.49	0.966	21.89	5.02	70.8	182	0.45
↓	1250	100	3.0	16.51	0.966	21.85	5.02	70.1	183	0.45

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW27**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW27-220627 **DATE/TIME:** 6/27/22 0925 **Pump Inlet Depth:** 34.10

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) ~~7.18~~ 7.18

Depth to Well Bottom (ft) ~~39~~ 39.30

Screen Interval (ft): 29.10-39.10

Approximate depth of pump inlet*(ft): ~~34~~ 34.10

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/27/22 0930

Purge End Date/Time: 6/27/22 1000

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0930

2ND DTW - 7.18

APTIM

Sample Collection Log

Location ID: 16WW27 Sample No: 16WW27-220627

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
6/27/22	0935	100	.5	7.25	2.94	21.90	6.24	23.7	-53	0.69
	0940	100	1.0	7.30	4.15	21.12	6.18	19.2	-70	0.33
	0945	100	1.5	7.33	4.29	21.08	6.18	16.7	-82	0.18
	0950	100	2.0	7.32	4.30	21.05	6.18	16.2	-83	0.17
	0955	100	2.5	7.34	4.31	21.02	6.19	15.5	-83	0.17
	1000	100	3.0	7.36	4.31	21.00	6.19	15.1	-84	0.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW27**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW27-220627-M **DATE/TIME:** 6/27/22 0925 **Pump Inlet Depth:** 34.10

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/27/22 0930

Depth to Water - Initial (DTWi) (ft) 7.18

Purge End Date/Time: 6/27/22 1000

Depth to Well Bottom (ft) 39.30

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 29.10 - 39.10

Discharge Tube Diameter: 1/411 Immersible Layer: Y /(N)

Approximate depth of pump inlet*(ft): 34.10

Pump Start Time: 0930

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 7.18

APTIM

Sample Collection Log

Location ID: 16WW27		Sample No: 16WW27-220627-M								
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
6/27/22	0935	100	.5	7.25	2.94	21.90	6.21	23.7	-53	0.69
	0940	100	1.0	7.30	4.15	21.12	6.18	19.2	-70	0.33
	0945	100	1.5	7.33	4.29	21.08	6.18	16.7	-82	0.18
	0950	100	2.0	7.32	4.30	21.05	6.18	16.2	-83	0.17
	0955	100	2.5	7.34	4.31	21.02	6.19	15.5	-84	0.17
↓	1000	100	3.0	7.36	4.31	21.00	6.19	15.1	-84	0.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW28**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW28-220627-M **DATE/TIME:** 6/27/22 0828 **Pump Inlet Depth:** 21.41

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/27/22 0850

Depth to Water - Initial (DTWi) (ft) 8.10

Purge End Date/Time: 6/27/22 0920

Depth to Well Bottom (ft) 23.66

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.91 - 23.91

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.41

Pump Start Time: 0850

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 8.10

APTIM

Sample Collection Log

Location ID: 16WW28 Sample No: 16WW28-220627-M

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
6/27/22	0855	100	.5	8.17	2.46	22.32	5.37	217	90	0.81
	0900	100	1.0	8.23	2.55	20.39	5.58	199	36	0.43
	0905	100	1.5	8.27	2.58	19.90	5.68	189	21	0.31
	0910	100	2.0	8.29	2.59	19.86	5.69	188	21	0.30
	0915	100	2.5	8.31	2.59	19.81	5.70	187	20	0.30
↓	0920	100	3.0	8.32	2.59	19.77	5.70	186	20	0.29

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW29**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW29-220630 **DATE/TIME:** 6/30/22 1032 **Pump Inlet Depth:** 42.58

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 1040

Depth to Water - Initial (DTWi) (ft) 7.29

Purge End Date/Time: 6/30/22 1110

Depth to Well Bottom (ft) ~~42~~ 44.97

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 40.08 - 45.08

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~39.5~~ 42.58

Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 7.29

APTIM

Sample Collection Log

Location ID: 16WW29		Sample No: 16WW29-220630								
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
6/30/22	1045	100	.5	7.36	3.43	22.88	6.04	81.6	-40	0.66
	1050	100	1.0	7.42	3.75	21.44	6.18	75.7	-68	0.25
	1055	100	1.5	7.45	3.84	21.94	6.27	69.2	-81	0.13
	1100	100	2.0	7.47	3.85	21.90	6.28	68.5	-82	0.13
	1105	100	2.5	7.48	3.85	21.86	6.28	67.8	-83	0.12
	1110	100	3.0	7.49	3.86	21.82	6.28	67.2	-83	0.12

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW29**

Sampler(s): Scott Baesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW29-220630-FD **DATE/TIME:** 6/30/22 1032 **Pump Inlet Depth:** 42.58

Sampling Method: **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 7.29

Depth to Well Bottom (ft) ~~42~~ 44.97

Screen Interval (ft): 40.08 - 45.08

Approximate depth of pump inlet*(ft): ~~40.5~~ 42.58

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: LowFlow/Bladder Pump

Purge Start Date/Time: 6/30/22 1040

Purge End Date/Time: 6/30/22 1110

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1040

2WD DTW - 7.29

APTIM

Sample Collection Log

Location ID: 16WW29 Sample No: 16WW29-220630-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
6/30/22	1045	100	.5	7.36	3.43	22.88	6.04	81.6	-40	0.66
	1050	100	1.0	7.42	3.75	21.99	6.18	75.7	-68	0.25
	1055	100	1.5	7.45	3.84	21.94	6.27	69.2	-81	0.13
	1100	100	2.0	7.47	3.85	21.90	6.28	68.5	-82	0.13
	1105	100	2.5	7.48	3.85	21.86	6.28	67.8	-83	0.12
↓	1110	100	3.0	7.49	3.86	21.82	6.28	67.2	-83	0.12

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW29**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW29-220630-M **DATE/TIME:** 6/30/22 1032 **Pump Inlet Depth:** 42.58

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 1040

Depth to Water - Initial (DTWi) (ft) 7.29

Purge End Date/Time: 6/30/22 1110

Depth to Well Bottom (ft) 44.97

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 40.08 - 45.08

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 42.58 Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2nd DTW - 7.29

APTIM

Sample Collection Log

Location ID: 16WW29		Sample No: 16WW29-220630-M								
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
6/30/22	1045	100	.5	7.36	3.43	22.88	6.04	81.6	-40	0.66
	1050	100	1.0	7.42	3.75	21.99	6.18	75.7	-68	0.25
	1055	100	1.5	7.45	3.84	21.94	6.27	69.2	-81	0.18
	1100	100	2.0	7.47	3.85	21.90	6.28	68.5	-82	0.13
	1105	100	2.5	7.48	3.85	21.86	6.28	67.8	-83	0.12
↓	1110	100	3.0	7.49	3.86	21.82	6.28	67.2	-83	0.12

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW30**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW30-220630 **DATE/TIME:** 6/30/22 0948 **Pump Inlet Depth:** 30.64

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 7.77

Depth to Well Bottom (ft) ~~30~~ 33.00

Screen Interval (ft): 28.14-33.14

Approximate depth of pump inlet*(ft): ~~28.6~~ 30.64

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 6/30/22 0955

Purge End Date/Time: 6/30/22 1025

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0955

2WD DTW-7.77

APTIM

Sample Collection Log

Location ID: 16WW30				Sample No: 16WW30-220630						
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
6/30/22	1000	100	.5	7.85	1.97	22.40	6.40	271	-71	0.91
	1005	100	1.0	7.90	2.00	21.26	6.33	249	-73	0.54
	1010	100	1.5	7.93	1.96	21.12	6.14	240	-55	0.32
	1015	100	2.0	7.95	1.95	21.07	6.14	239	-54	0.31
	1020	100	2.5	7.97	1.94	21.03	6.13	237	-53	0.31
	1025	100	3.0	7.98	1.94	20.97	6.12	236	-52	0.31

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW30**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW30-220630-M **DATE/TIME:** 6/30/22 0948 **Pump Inlet Depth:** 30.64

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 0955

Depth to Water - Initial (DTWi) (ft) 7.77

Purge End Date/Time: 6/30/22 1025

Depth to Well Bottom (ft) ~~30~~ 33.00

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 28.14 - 33.14

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~25~~ 30.64

Pump Start Time: 0955

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 7.77

APTIM

Sample Collection Log

Location ID: 16WW30		Sample No: 16WW30-220630-M								
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
6/30/22	1000	100	.5	7.85	1.97	22.40	6.40	271	-71	0.91
	1005	100	1.0	7.90	2.00	21.26	6.33	249	-73	0.54
	1010	100	1.5	7.93	1.96	21.12	6.14	240	-55	0.32
	1015	100	2.0	7.95	1.95	21.07	6.14	239	-54	0.31
	1020	100	2.5	7.97	1.94	21.03	6.13	237	-53	0.31
	1025	100	3.0	7.98	1.94	20.97	6.12	236	-54	0.31

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW31**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW31-220620 **DATE/TIME:** 6/20/22 1212 **Pump Inlet Depth:** 46.78

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 29.02

Depth to Well Bottom (ft) 51.88

Screen Interval (ft): 41.78 - 51.78

Approximate depth of pump inlet*(ft): 46.78

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/20/22 1220

Purge End Date/Time: 6/20/22 1250

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1220

2nd DTW - 29.02

APTIM

Sample Collection Log

Location ID: 16WW31		Sample No: 16WW31-220620								
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
6/20/22	1225	100	.5	29.10	1.06	22.88	6.49	12.7	126	0.82
	1230	100	1.0	29.16	0.805	21.33	6.52	8.4	125	0.59
	1235	100	1.5	29.20	0.806	21.45	6.52	8.0	126	0.42
	1240	100	2.0	29.22	0.807	21.50	6.52	7.5	126	0.41
	1245	100	2.5	29.23	0.807	21.56	6.52	6.8	127	0.41
↓	1250	100	3.0	29.24	0.807	21.60	6.52	6.3	127	0.40

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW31**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW31-220620-M **DATE/TIME:** 6/20/22 1212 **Pump Inlet Depth:** 46.78

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	Metals (Cr+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 29.02

Depth to Well Bottom (ft) ~~49~~ 51.88

Screen Interval (ft): 41.78 - 51.78

Approximate depth of pump inlet*(ft): ~~44~~ 46.78

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 6/20/22 1220

Purge End Date/Time: 6/20/22 1250

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1220

2ND DTW - 29.02

APTIM

Sample Collection Log

Location ID: 16WW31		Sample No: 16WW31-220620-M								
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
6/20/22	1225	100	1.5	29.10	1.06	22.88	6.49	12.7	126	0.82
↓	1230	100	1.0	29.16	0.805	21.33	6.52	8.4	125	0.59
	1235	100	1.5	29.20	0.806	21.45	6.52	8.0	~~126~~	0.42
	1240	100	2.0	29.22	0.807	21.50	6.52	7.5	126	0.41
	1245	100	2.5	29.23	0.807	21.56	6.52	6.8	127	0.41
↓	1250	100	3.0	29.24	0.807	21.60	6.52	6.3	127	0.40

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW32**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW32-220620 **DATE/TIME:** 6/20/22 1128 **Pump Inlet Depth:** 30.01

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 29.09

Depth to Well Bottom (ft) 35.00

Screen Interval (ft): 25.01 - 35.01

Approximate depth of pump inlet*(ft): 30.01

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/20/22 1135

Purge End Date/Time: 6/20/22 1205

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1135

2nd DTW - 29.09

APTIM

Sample Collection Log

Location ID: 16WW32 Sample No: 16WW32-220620

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
6/20/22	1140	100	.5	29.17	1.33	23.21	6.34	133	127	2.66
	1145	100	1.0	29.23	1.30	22.69	6.45	120	105	2.29
	1150	100	1.5	29.26	1.28	22.51	6.55	113	101	2.11
	1155	100	2.0	29.28	1.27	22.46	6.56	112	100	2.09
	1200	100	2.5	29.30	1.24	22.42	6.58	111	100	2.08
↓	1205	100	3.0	29.32	1.26	22.39	6.59	110	100	2.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **16WW32**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW32-220620-M **DATE/TIME:** 6/20/22 1128 **Pump Inlet Depth:** 30.01

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	Metals (Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 1135

Depth to Water - Initial (DTWi) (ft) 29.09

Purge End Date/Time: 6/20/22 1205

Depth to Well Bottom (ft) ~~35~~ 35.00

Discharge Tube Length: N/A

PID Reading: N/A

Screen Interval (ft): 25.01 - 35.01

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / ~~N~~

Approximate depth of pump inlet*(ft): ~~35~~ 30.01

Pump Start Time: 1135

Ferrous Iron (Required Y or ~~N~~) _____ mg/L

2ND DTW - 29.09

APTIM

Sample Collection Log

Location ID: 16WW32		Sample No: 16WW32-220620-M								
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
6/20/22	1140	100	.5	29.17	1.33	23.21	6.34	133	127	2.66
	1145	100	1.0	29.23	1.30	22.69	6.45	120	105	2.29
	1150	100	1.5	29.26	1.28	22.51	6.55	113	101	2.01
	1155	100	2.0	29.28	1.27	22.46	6.56	112	100	2.09
	1200	100	2.5	29.30	1.26	22.42	6.58	111	100	2.08
↓	1205	100	3.0	29.32	1.26	22.39	6.59	110	100	2.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW33**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW33-220620 **DATE/TIME:** 6/20/22 1043 **Pump Inlet Depth:** 47.17

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 28.89

Depth to Well Bottom (ft) ~~49~~ 51.92

Screen Interval (ft): 42.17 - 52.17

Approximate depth of pump inlet*(ft): ~~44~~ 47.17

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/20/22 1050

Purge End Date/Time: 6/20/22 1120

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1050

2nd DTW - 28.89

APTIM

Sample Collection Log

Location ID: 16WW33 Sample No: 16WW33-220620

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
6/20/22	1055	100	.5	28.96	1.81	21.44	6.10	23.7	155	0.81
	1100	100	1.0	29.02	1.85	20.19	6.17	16.2	156	0.50
	1105	100	1.5	29.06	1.87	20.10	6.21	14.8	157	0.35
	1110	100	2.0	29.08	1.88	20.03	6.22	14.3	157	0.35
	1115	100	2.5	29.09	1.89	19.98	6.22	13.6	158	0.34
	1120	100	3.0	29.10	1.89	19.93	6.22	13.3	158	0.34

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW33**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW33-220620-M **DATE/TIME:** 6/20/22 1043 **Pump Inlet Depth:** 47.17

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 1050

Depth to Water - Initial (DTWi) (ft) 28.89

Purge End Date/Time: 6/20/22 1120

Depth to Well Bottom (ft) 51.92

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.17 - 52.17

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 47.17

Pump Start Time: 1050

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 28.89

APTIM

Sample Collection Log

Location ID: 16WW33		Sample No: 16WW33-220620-M								
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
6/20/22	1055	100	.5	28.96	1.81	21.44	6.10	23.7	155	0.81
	1100	100	1.0	29.02	1.85	20.19	6.17	16.2	156	0.50
	1105	100	1.5	29.06	1.87	20.10	6.21	14.8	157	0.35
	1110	100	2.0	29.08	1.88	20.03	6.22	14.3	157	0.35
	1115	100	2.5	29.09	1.89	19.98	6.22	13.6	158	0.34
↓	1120	100	3.0	29.10	1.89	19.93	6.22	13.3	158	0.34

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW34**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW34-220620 **DATE/TIME:** 6/20/22 0957 **Pump Inlet Depth:** 32.31

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 28.81

Depth to Well Bottom (ft) 34.86

Screen Interval (ft): 29.81 - 34.81

Approximate depth of pump inlet*(ft): 32.31

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 6/20/22 1005

Purge End Date/Time: 6/20/22 1035

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1005

2ND DTW - 28.81

APTIM

Sample Collection Log

Location ID: 16WW34 Sample No: 16WW34-220620

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
6/20/22	1010	100	.5	28.88	1.02	22.30	6.23	22.7	107	1.13
	1015	100	1.0	28.94	1.04	21.48	6.28	18.1	95	0.92
	1020	100	1.5	28.98	1.04	21.37	6.27	17.6	100	0.80
	1025	100	2.0	29.00	1.04	21.33	6.26	17.1	101	0.79
	1030	100	2.5	29.02	1.04	21.29	6.26	16.5	101	0.79
	1035	100	3.0	29.03	1.04	21.25	6.26	16.2	101	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW34**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW34-2206 ~~20~~-FD **DATE/TIME:** 6/20/22 0957 **Pump Inlet Depth:** 32.31

Sampling Method: **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/20/22 1005

Depth to Water - Initial (DTWi) (ft) 28.81

Purge End Date/Time: 6/20/22 1035

Depth to Well Bottom (ft) ~~35~~ 34.86

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 29.81-34.81

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~28.5~~ 32.31

Pump Start Time: 1005

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 28.81

APTIM

Sample Collection Log

Location ID: 16WW34 Sample No: 16WW34-220620-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
6/20/22	1010	100	.5	28.88	1.02	22.30	6.23	22.7	107	1.13
	1015	100	1.0	28.94	1.04	21.48	6.28	18.1	95	0.92
	1020	100	1.5	28.98	1.04	21.37	6.27	17.6	100	0.80
	1025	100	2.0	29.00	1.04	21.33	6.26	17.1	104	0.79
	1030	100	2.5	29.02	1.04	21.29	6.26	16.5	101	0.79
↓	1035	100	3.0	29.03	1.04	21.25	6.26	16.2	101	0.80

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW34**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW34-220620-M **DATE/TIME:** 6/20/22 0957 **Pump Inlet Depth:** 32.31

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	Metals (Cr+Ni+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 1005

Depth to Water - Initial (DTWi) (ft) 28.81

Purge End Date/Time: 6/20/22 1035

Depth to Well Bottom (ft) 34.86

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 29.81-34.81

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~29.5~~ 32.31

Pump Start Time: 1005

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 28.81

APTIM

Sample Collection Log

Location ID: 16WW34 Sample No: 16WW34-220620-M										
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
6/20/22	1010	100	.5	28.88	1.02	22.30	6.23	22.7	107	1.13
	1015	100	1.0	28.94	1.04	21.48	6.28	18.1	95	0.92
	1020	100	1.5	28.98	1.04	21.37	6.27	17.6	100	0.80
	1025	100	2.0	29.00	1.04	21.33	6.26	17.1	101	0.79
	1030	100	2.5	29.02	1.04	21.29	6.26	16.5	101	0.79
↓	1035	100	3.0	29.03	1.04	21.25	6.26	16.2	104	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW34**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW34-220620-M-MS **DATE/TIME:** 6/20/22 0957 **Pump Inlet Depth:** 32.31

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	Metals (Cr+Ni+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 1005

Depth to Water - Initial (DTWi) (ft) 28.81

Purge End Date/Time: 6/20/22 1035

Depth to Well Bottom (ft) ~~32~~ 34.86

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 29.81 - 34.81

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~29.5~~ 32.31

Pump Start Time: 1005

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 28.81

APTIM

Sample Collection Log

Location ID: 16WW34	Sample No: 16WW34-220620-M-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
6/20/22	1010	100	.5	28.88	1.02	22.30	6.23	22.7	107	1.13
	1015	100	1.0	28.94	1.04	21.48	6.28	18.1	95	0.92
	1020	100	1.5	28.98	1.04	21.37	6.27	17.6	100	0.80
	1025	100	2.0	29.00	1.04	21.33	6.26	17.1	101	0.79
	1030	100	2.5	29.02	1.04	21.29	6.26	16.5	101	0.79
	1035	100	3.0	29.03	1.04	21.25	6.26	16.2	101	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW34**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW34-220620-M-MSD **DATE/TIME:** 6/20/22 0957 **Pump Inlet Depth:** 32.31

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	Metals (Cr+Ni+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 1005

Depth to Water - Initial (DTWi) (ft) 28.81

Purge End Date/Time: 6/20/22 1035

Depth to Well Bottom (ft) ~~38~~ 34.86

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 29.81 - 34.81

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~28.8~~ 32.31

Pump Start Time: 1005

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 28.81

APTIM

Sample Collection Log

Location ID: 16WW34 Sample No: 16WW34-2206 20 -M-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
6/20/22	1010	100	.5	28.88	1.02	22.30	6.23	22.7	107	1.13
	1015	100	1.0	28.94	1.04	21.48	6.28	18.1	95	0.92
	1020	100	1.5	28.98	1.04	21.37	6.27	17.6	100	0.80
	1025	100	2.0	29.00	1.04	21.33	6.26	17.1	101	0.79
	1030	100	2.5	29.02	1.04	21.29	6.26	16.5	101	0.79
	1035	100	3.0	29.03	1.04	21.25	6.26	16.2	101	0.78

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **16WW35**

Project No: **501032**

Sampler(s): Swtt Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW35-220630 **DATE/TIME:** 6/30/22 0732 **Pump Inlet Depth:** 41.58

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 0740

Depth to Water - Initial (DTWi) (ft) 17.05

Purge End Date/Time: 6/30/22 0810

Depth to Well Bottom (ft) ~~46.5~~ 46.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 36.58-46.58

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~46.5~~ 41.58

Pump Start Time: 0740

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 17.05

APTIM

Sample Collection Log

Location ID: 16WW35		Sample No: 16WW35-220630								
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
6/30/22	0745	100	.5	17.12	14.4	21.20	6.87	9.8	86	0.88
	0750	100	1.0	17.18	16.0	20.48	6.77	6.7	85	0.51
	0755	100	1.5	17.22	16.2	20.31	6.73	6.6	86	0.29
	0800	100	2.0	17.24	16.3	20.25	6.73	6.5	86	0.28
	0805	100	2.5	17.26	16.4	20.21	6.73	6.5	87	0.28
↓	0810	100	3.0	17.27	16.4	20.17	6.73	6.4	87	0.27

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW35**

Sampler(s): Scott Baesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW35-2206 30-M **DATE/TIME:** 6/30/22 0732 **Pump Inlet Depth:** 41.58

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	Metals (As+Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 17.05

Depth to Well Bottom (ft) ~~46.58~~ 46.55

Screen Interval (ft): 36.58 - 46.58

Approximate depth of pump inlet*(ft): ~~36.58~~ 41.58

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow / Bladder Pump

Purge Start Date/Time: 6/30/22 0740

Purge End Date/Time: 6/30/22 0810

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0740

2ND DTW - 17.05

APTIM

Sample Collection Log

Location ID: 16WW35		Sample No: 16WW35-220630-M								
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
6/30/22	0745	100	.5	17.12	14.4	21.20	6.87	9.8	86	0.88
	0750	100	1.0	17.18	16.0	20.48	6.77	6.7	85	0.51
	0755	100	1.5	17.22	16.2	20.31	6.73	6.6	86	0.29
	0800	100	2.0	17.24	16.3	20.25	6.73	6.5	86	0.28
	0805	100	2.5	17.26	16.4	20.21	6.73	6.5	87	0.28
	0810	100	3.0	17.27	16.4	20.17	6.73	6.4	87	0.27

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW36**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW36-220630 **DATE/TIME:** 6/30/22 0819 **Pump Inlet Depth:** 21.99

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 0825

Depth to Water - Initial (DTWi) (ft) 16.54

Purge End Date/Time: 6/30/22 0855

Depth to Well Bottom (ft) ~~24.5~~ 24.88

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 19.49 - 24.49

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~22~~ 21.99

Pump Start Time: 0825

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 16.54

APTIM

Sample Collection Log

Location ID: 16WW36 Sample No: 16WW36-220630

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
6/30/22	0830	100	.5	16.61	9.41	20.58	6.28	2.3	105	0.86
	0835	100	1.0	16.67	10.0	20.15	6.26	0.6	113	0.52
	0840	100	1.5	16.70	10.0	20.05	6.29	0.2	116	0.28
	0845	100	2.0	16.72	10.1	20.00	6.29	0.1	117	0.27
	0850	100	2.5	16.74	10.1	19.94	6.29	0.0	117	0.27
	0855	100	3.0	16.76	10.1	19.90	6.30	0.0	118	0.26

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW36**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW36-220630-M **DATE/TIME:** 6/30/22 0819 **Pump Inlet Depth:** 21.99

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/30/22 0825

Depth to Water - Initial (DTWi) (ft) 16.54

Purge End Date/Time: 6/30/22 0855

Depth to Well Bottom (ft) ~~25~~ 24.88

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 19.49 - 24.49

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~20~~ 21.99

Pump Start Time: 0825

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 16.54

APTIM

Sample Collection Log

Location ID: 16WW36		Sample No: 16WW36-220630-M								
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
6/30/22	0830	100	.5	16.61	9.41	20.58	6.28	2.3	105	0.86
	0835	100	1.0	16.67	10.0	20.15	6.26	0.6	113	0.52
	0840	100	1.5	16.70	10.0	20.05	6.29	0.2	116	0.28
	0845	100	2.0	16.72	10.1	20.00	6.29	0.1	117	0.27
	0850	100	2.5	16.74	10.1	19.94	6.29	0.0	117	0.27
	0855	100	3.0	16.76	10.1	19.90	6.30	0.0	118	0.26

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW37**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW37-220620 **DATE/TIME:** 6/20/22 0640 **Pump Inlet Depth:** 46.22

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/20/22 0650

Depth to Water - Initial (DTWi) (ft) 26.58

Purge End Date/Time: 6/20/22 0720

Depth to Well Bottom (ft) 47.93

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 43.72 - 48.72

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 46.22

Pump Start Time: 0650

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 26.58

APTIM

Sample Collection Log

Location ID: 16WW37					Sample No: 16WW37-2206 20					
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
6/20/22	0655	100	.5	26.65	4.26	21.51	6.24	70.3	54	1.03
	0700	100	1.0	26.71	4.26	20.29	6.10	63.7	101	0.86
	0705	100	1.5	26.75	4.25	20.15	5.92	58.8	128	0.73
	0710	100	2.0	26.78	4.25	20.10	5.91	58.3	129	0.72
	0715	100	2.5	26.80	4.24	20.05	5.90	57.6	129	0.71
	0720	100	3.0	26.82	4.24	20.01	5.90	57.0	130	0.70

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW37**

Sampler(s): Scott Beegle/NGAR

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW37-220620-M **DATE/TIME:** 6/20/22 0640 **Pump Inlet Depth:** 46.22

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	Metals (Mn+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 0650

Depth to Water - Initial (DTWi) (ft) 26.58

Purge End Date/Time: 6/20/22 0720

Depth to Well Bottom (ft) ~~47.5~~ 47.93

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 43.72 - 48.72

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~48~~ 46.22

Pump Start Time: 0650

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 26.58

APTIM

Sample Collection Log

Location ID: 16WW37		Sample No: 16WW37-2206 20-M								
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
6/20/22	0655	100	.5	26.65	4.26	21.51	6.24	70.3	54	1.03
	0700	100	1.0	26.71	4.26	20.29	6.10	63.7	101	0.86
	0705	100	1.5	26.75	4.25	20.15	5.92	58.8	128	0.73
	0710	100	2.0	26.78	4.25	20.10	5.91	58.3	129	0.72
	0715	100	2.5	26.80	4.24	20.05	5.90	57.6	129	0.71
↓	0720	100	3.0	26.82	4.24	20.01	5.90	57.0	130	0.70

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW38**

Sampler(s): Scott Beasinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW38-220620 **DATE/TIME:** 6/20/22 0727 **Pump Inlet Depth:** 27.30

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 26.37

Depth to Well Bottom (ft) 32.25

Screen Interval (ft): 22.30 - 32.30

Approximate depth of pump inlet*(ft): 27.30

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 6/20/22 0735

Purge End Date/Time: 6/20/22 0805

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0735

2ND DTW - 26.37

APTIM

Sample Collection Log

Location ID: 16WW38		Sample No: 16WW38-220620								
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
6/20/22	0740	100	.5	26.44	1.67	20.67	6.28	18.8	50	0.91
	0745	100	1.0	26.50	1.41	20.41	6.48	16.1	35	0.70
	0750	100	1.5	26.53	1.29	20.38	6.44	15.7	30	0.51
	0755	100	2.0	26.55	1.28	20.34	6.43	15.3	30	0.50
	0800	100	2.5	26.57	1.27	20.30	6.43	14.6	29	0.50
↓	0805	100	3.0	26.58	1.27	20.27	6.43	14.2	29	0.49

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW38**

Sampler(s): Scott Bass, NSAR

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW38-220620-M **DATE/TIME:** 6/20/22 0727 **Pump Inlet Depth:** 27.30

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	Metals (Cr+Tl) by 6020A (W)	1 x 125 mL HDPE	HN03<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: 6/20/22 0735

Depth to Water - Initial (DTWi) (ft) 26.37

Purge End Date/Time: 6/20/22 0805

Depth to Well Bottom (ft) 32.25

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.30 - 32.30

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.30

Pump Start Time: 0705

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 26.37

APTIM

Sample Collection Log

Location ID: 16WW38		Sample No: 16WW38-220620-M								
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
6/20/22	0740	100	.5	26.44	1.67	20.67	6.28	18.8	50	0.91
	0745	100	1.0	26.50	1.41	20.41	6.48	16.1	35	0.70
	0750	100	1.5	26.53	1.29	20.38	6.44	15.7	30	0.51
	0755	100	2.0	26.55	1.28	20.34	6.43	15.3	30	0.50
	0800	100	2.5	26.57	1.27	20.30	6.43	14.6	29	0.50
↓	0805	100	3.0	26.58	1.27	20.27	6.43	14.2	29	0.49

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW39**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW39-220629 **DATE/TIME:** 6/29/22 1032 **Pump Inlet Depth:** 23.00

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2

Purge Start Date/Time: 6/29/22 1040

Depth to Water - Initial (DTWi) (ft) 19.60

Purge End Date/Time: 6/29/22 1110

Depth to Well Bottom (ft) ~~28.0~~ 29.38

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.00 - 28.00

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~20~~ 23.00

Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 19.60

APTIM

Sample Collection Log

Location ID: 16WW39 Sample No: 16WW39-220629

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
6/29/22	1045	100	.5	19.67	4.66	22.88	6.47	24.6	43	0.83
	1050	100	1.0	19.73	4.83	23.21	6.40	21.3	80	0.51
	1055	100	1.5	19.77	4.81	23.27	6.40	19.7	87	0.37
	1100	100	2.0	19.79	4.80	23.33	6.39	19.4	87	0.36
	1105	100	2.5	19.81	4.79	23.37	6.39	18.6	88	0.36
↓	1110	100	3.0	19.82	4.79	23.40	6.39	18.3	88	0.35

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW39**

Sampler(s): Scott Beggsinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW39-220629-M **DATE/TIME:** 6/29/22 1032 **Pump Inlet Depth:** 23.00

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2

Purge Start Date/Time: 6/29/22 1040

Depth to Water - Initial (DTWi) (ft) 19.60

Purge End Date/Time: 6/29/22 1110

Depth to Well Bottom (ft) ~~29.5~~ 29.38

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 18.00 - 28.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~28~~ 23.00

Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 19.60

APTIM

Sample Collection Log

Location ID: 16WW39		Sample No: 16WW39-220629-M								
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
6/29/22	1045	100	1.5	19.67	4.66	22.88	6.47	24.6	43	0.83
	1050	100	1.0	19.73	4.83	23.21	6.40	21.3	80	0.51
	1055	100	1.5	19.77	4.81	23.27	6.40	19.7	87	0.37
	1100	100	2.0	19.79	4.80	23.33	6.39	19.4	87	0.36
	1105	100	2.5	19.81	4.79	23.37	6.39	18.6	88	0.36
↓	1110	100	3.0	19.82	4.79	23.40	6.39	18.3	88	0.35

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW40**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW40-220705 **DATE/TIME:** 7/5/22 0958 **Pump Inlet Depth:** 15.80

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	MEE in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2

Purge Start Date/Time: 7/5/22 1005

Depth to Water - Initial (DTWi) (ft) 11.23

Purge End Date/Time: 7/5/22 1035

Depth to Well Bottom (ft) 17.82

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 15.80

Pump Start Time: 1005

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 11.23

APTIM

Sample Collection Log

Location ID: 16WW40 Sample No: 16WW40-220705

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
7/5/22	1010	100	.5	11.30	4.87	24.21	6.29	59.7	67	1.06
	1015	100	1.0	11.36	5.15	23.80	6.41	53.5	51	0.83
	1020	100	1.5	11.40	4.98	23.76	6.45	48.8	42	0.65
	1025	100	2.0	11.42	4.97	23.73	6.46	48.3	41	0.63
	1030	100	2.5	11.44	4.96	23.68	6.47	47.6	41	0.63
	1035	100	3.0	11.46	4.95	23.63	6.47	47.1	40	0.62

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW40**

Sampler(s): Scott Baesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW40-220705-M **DATE/TIME:** 7/5/22 0958 **Pump Inlet Depth:** 15.80

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 2

Purge Start Date/Time: 7/5/22 1005

Depth to Water - Initial (DTWi) (ft) 11.23

Purge End Date/Time: 7/5/22 1035

Depth to Well Bottom (ft) 17.82

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 15.80

Pump Start Time: 1005

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 11.23

APTIM

Sample Collection Log

Location ID: 16WW40		Sample No: 16WW40-220705-M								
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
7/5/22	1010	100	.5	11.30	4.87	24.21	6.29	54.7	67	1.06
	1015	100	1.0	11.36	5.15	23.80	6.41	53.5	51	0.83
	1020	100	1.5	11.40	4.98	23.76	6.45	48.8	42	0.65
	1025	100	2.0	11.42	4.97	23.73	6.46	48.3	41	0.63
	1030	100	2.5	11.44	4.96	23.68	6.47	47.6	41	0.63
	1035	100	3.0	11.46	4.95	23.63	6.47	47.1	40	0.62

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW40**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW40-220705-MS **DATE/TIME:** 7/5/22 0958 **Pump Inlet Depth:** 15.80

Sampling Method: **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	MEE in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2

Purge Start Date/Time: 7/5/22 1005

Depth to Water - Initial (DTWi) (ft) 11.23

Purge End Date/Time: 7/5/22 1035

Depth to Well Bottom (ft) ~~19.5~~ 17.82

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~15.5~~ 15.80

Pump Start Time: 1005

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 11.23

APTIM

Sample Collection Log

Location ID: 16WW40 Sample No: 16WW40-220705-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
7/5/22	1010	100	.5	11.30	4.87	24.21	6.29	59.7	67	1.06
	1015	100	1.0	11.36	5.15	23.80	6.41	53.5	51	0.83
	1020	100	1.5	11.40	4.98	23.76	6.45	48.8	42	0.65
	1025	100	2.0	11.42	4.97	23.73	6.46	48.3	41	0.63
	1030	100	2.5	11.44	4.96	23.68	6.47	47.6	41	0.63
	1035	100	3.0	11.46	4.95	23.63	6.47	47.1	40	0.62

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW40**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW40-220705-MSD **DATE/TIME:** 7/5/22 0958 **Pump Inlet Depth:** 15.80

Sampling Method: **Sample Purpose: MSD** **Sample Matrix: GW**

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	MEE in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2

Depth to Water - Initial (DTWi) (ft) 11.23

Depth to Well Bottom (ft) ~~17.82~~ 17.82

Screen Interval (ft): 10.80 - 20.80

Approximate depth of pump inlet*(ft): ~~15.80~~ 15.80

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow Bladder Pump

Purge Start Date/Time: 7/5/22 1005

Purge End Date/Time: 7/5/22 1035

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1005

2ND DTW - 11.23

APTIM

Sample Collection Log

Location ID: 16WW40 Sample No: 16WW40-220705-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
7/5/22	1010	100	.5	11.30	4.87	24.21	6.29	59.7	67	1.06
	1015	100	1.0	11.36	5.15	23.80	6.41	53.5	51	0.83
	1020	100	1.5	11.40	4.98	23.76	6.45	48.8	42	0.65
	1025	100	2.0	11.42	4.97	23.73	6.46	48.3	41	0.63
	1030	100	2.5	11.44	4.96	23.68	6.47	47.6	41	0.63
	1035	100	3.0	11.46	4.95	23.63	6.47	47.1	40	0.62

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW41**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW41-220629 **DATE/TIME:** 6/29/22 0855 **Pump Inlet Depth:** 47.60

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/29/22 0900

Depth to Water - Initial (DTWi) (ft) 25.45

Purge End Date/Time: 6/29/22 0930

Depth to Well Bottom (ft) 53.03

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.60-52.60

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 47.60

Pump Start Time: 0900

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW- 25.45

APTIM

Sample Collection Log

Location ID: 16WW41 Sample No: 16WW41-220629

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
6/29/22	0905	100	.5	25.52	12.3	20.68	6.57	139	25	2.97
	0910	100	1.0	25.57	13.2	20.75	6.59	121	41	2.60
	0915	100	1.5	25.58	13.4	20.80	6.58	115	49	2.43
	0920	100	2.0	25.60	13.5	20.83	6.57	113	50	2.41
	0925	100	2.5	25.62	13.5	20.88	6.57	112	50	2.38
	0930	100	3.0	25.63	13.5	20.92	6.57	111	50	2.36

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW41**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW41-220629-FD **DATE/TIME:** 6/29/21 0855 **Pump Inlet Depth:** 47.60

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/29/22 0900

Depth to Water - Initial (DTWi) (ft) 25.45

Purge End Date/Time: 6/29/22 0930

Depth to Well Bottom (ft) 53.03

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.60 - 52.60

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 47.60

Pump Start Time: 0900

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 25.45

APTIM

Sample Collection Log

Location ID: 16WW41				Sample No: 16WW41-220629-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
6/29/22	0905	100	.5	25.52	12.3	20.68	6.57	139	25	2.97
	0910	100	1.0	25.57	13.2	20.75	6.59	121	41	2.60
	0915	100	1.5	25.58	13.4	20.80	6.58	115	49	2.43
	0920	100	2.0	25.60	13.5	20.83	6.57	113	50	2.41
	0925	100	2.5	25.62	13.5	20.88	6.57	112	50	2.38
↓	0930	100	3.0	25.63	13.5	20.92	6.57	111	50	2.36

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW41**

Sampler(s): Scott Beggs, Inger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW41-220629-M **DATE/TIME:** 6/29/22 0855 **Pump Inlet Depth:** 47.60

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<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: 6/29/22 0900

Depth to Water - Initial (DTWi) (ft) 25.45

Purge End Date/Time: 6/29/22 0930

Depth to Well Bottom (ft) ~~53~~ 53.03

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.60-52.60

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~48~~ 47.60

Pump Start Time: 0900

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 25.45

APTIM

Sample Collection Log

Location ID: 16WW41 Sample No: 16WW41-220629-M

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
6/29/22	0905	100	.5	25.52	12.3	20.68	6.57	139	25	2.97
	0910	100	1.0	25.57	13.2	20.75	6.59	121	41	2.60
	0915	100	1.5	25.58	13.4	20.80	6.58	115	49	2.43
	0920	100	2.0	25.60	13.5	20.83	6.57	113	50	2.41
	0925	100	2.5	25.62	13.5	20.88	6.57	112	50	2.38
↓	0930	100	3.0	25.63	13.5	20.92	6.57	111	50	2.36

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW41**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW41-2206 29-M-MS **DATE/TIME:** 6/29/22 0855 **Pump Inlet Depth:** 47.60

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<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: 6/29/22 0900

Depth to Water - Initial (DTWi) (ft) 25.45

Purge End Date/Time: 6/29/22 0930

Depth to Well Bottom (ft) ~~53~~ 53.03

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 42.60 - 52.60

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~45~~ 47.60

Pump Start Time: 0900

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 25.45

APTIM

Sample Collection Log

Location ID: 16WW41	Sample No: 16WW41-220629-M-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
6/29/22	0905	100	1.5	25.52	12.3	20.68	6.57	139	25	2.97
	0910	100	1.0	25.57	13.2	20.75	6.59	121	41	2.60
	0915	100	1.5	25.58	13.4	20.80	6.58	115	49	2.43
	0920	100	2.0	25.60	13.5	20.83	6.57	113	50	2.41
	0925	100	2.5	25.62	13.5	20.88	6.57	112	50	2.38
	0930	100	3.0	25.63	13.5	20.92	6.57	111	50	2.36

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW41**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW41-220629-M-MSD **DATE/TIME:** 6/29/22 0855 **Pump Inlet Depth:** 47.60

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<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: 6/29/22 0900

Depth to Water - Initial (DTWi) (ft) 25.45

Purge End Date/Time: 6/29/22 0930

Depth to Well Bottom (ft) 53.03

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 42.60 - 52.60

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 47.60

Pump Start Time: 0900

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 25.45

APTIM

Sample Collection Log

Location ID: 16WW41		Sample No: 16WW41-220629-M-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
6/29/22	0905	100	.5	25.52	12.3	20.68	6.57	139	25	2.97
↓	0910	100	1.0	25.57	13.2	20.75	6.54	121	41	2.60
	0915	100	1.5	25.58	13.4	20.80	6.58	115	49	2.43
	0920	100	2.0	25.60	13.5	20.83	6.57	113	50	2.41
	0925	100	2.5	25.62	13.5	20.88	6.57	112	50	2.38
↓	0930	100	3.0	25.63	13.5	20.92	6.57	111	50	2.36

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW42**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW42-220705 **DATE/TIME:** 7/5/22 1221 **Pump Inlet Depth:** 11.57

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 10.45

Depth to Well Bottom (ft) 15.48

Screen Interval (ft): 6.57 - 16.57

Approximate depth of pump inlet*(ft): 11.57

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 7/5/22 1225

Purge End Date/Time: 7/5/22 1255

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1225

2nd DTW - 10.45

APTIM

Sample Collection Log

Location ID: 16WW42 Sample No: 16WW42-220705

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
7/5/22	1230	100	.5	10.52	5.19	27.46	5.69	58.6	91	0.91
	1235	100	1.0	10.58	5.24	26.53	5.68	53.5	97	0.65
	1240	100	1.5	10.62	5.29	26.47	5.68	51.2	98	0.42
	1245	100	2.0	10.65	5.30	26.44	5.69	50.6	98	0.41
	1250	100	2.5	10.67	5.30	26.41	5.69	49.7	99	0.41
↓	1255	100	3.0	10.69	5.31	26.38	5.69	49.1	99	0.40

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW42**

Sampler(s): Scott Beggs, Nick R

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW42-220705-M **DATE/TIME:** 7/5/22 1221 **Pump Inlet Depth:** 11.57

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<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: 7/5/22 1225

Depth to Water - Initial (DTWi) (ft) 10.45

Purge End Date/Time: 7/5/22 1255

Depth to Well Bottom (ft) 15.48

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 6.57 - 16.57

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 11.57

Pump Start Time: 1225

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 10.45

APTIM

Sample Collection Log

Location ID: 16WW42		Sample No: 16WW42-220705-M								
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
7/5/22	1230	100	.5	10.52	5.19	27.46	5.69	58.6	91	0.91
	1235	100	1.0	10.58	5.24	26.53	5.68	53.5	97	0.65
	1240	100	1.5	10.62	5.29	26.47	5.68	51.2	98	0.42
	1245	100	2.0	10.65	5.30	26.44	5.69	50.6	98	0.41
	1250	100	2.5	10.67	5.30	26.41	5.69	49.7	99	0.41
	1255	100	3.0	10.69	5.31	26.38	5.69	49.1	99	0.40

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **16WW42**

Project No: **501032**

Sampler(s): Scott Beasinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW42-220705-M-FD **DATE/TIME:** 7/5/22 1221 **Pump Inlet Depth:** 11.57

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<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: 7/5/22 1225

Depth to Water - Initial (DTWi) (ft) 10.45

Purge End Date/Time: 7/5/22 1255

Depth to Well Bottom (ft) 15.48

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 6.57-16.57

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 11.57

Pump Start Time: 1225

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW- 10.45

APTIM

Sample Collection Log

Location ID: 16WW42		Sample No: 16WW42-2207 05-M-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
7/5/22	1230	100	.5	10.52	5.19	27.46	5.69	58.6	91	0.91
	1235	100	1.0	10.58	5.24	26.53	5.68	53.5	97	0.65
	1240	100	1.5	10.62	5.29	26.47	5.68	51.2	98	0.47
	1245	100	2.0	10.65	5.30	26.44	5.69	50.6	98	0.41
	1250	100	2.5	10.67	5.30	26.41	5.69	49.7	99	0.41
↓	1255	100	3.0	10.69	5.31	26.38	5.69	49.1	99	0.40

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW43**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW43-220627 **DATE/TIME:** 6/27/22 1006 **Pump Inlet Depth:** 9.59

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/27/22 1010

Depth to Water - Initial (DTWi) (ft) 9.02

Purge End Date/Time: 6/27/22 1040

Depth to Well Bottom (ft) 15.47

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 4.59 - 14.59

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 9.59

Pump Start Time: 1010

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 9.02

APTIM

Sample Collection Log

Location ID: 16WW43 Sample No: 16WW43-220627

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
6/27/22	1015	100	.5	9.08	0.865	23.23	6.21	24.8	-36	0.98
↓	1020	100	1.0	9.14	0.624	23.05	6.08	19.5	-4	0.70
	1025	100	1.5	9.18	0.595	22.70	5.85	17.7	19	0.61
	1030	100	2.0	9.20	0.594	22.63	5.84	17.3	20	0.61
	1035	100	2.5	9.22	0.594	22.58	5.83	16.6	21	0.60
↓	1040	100	3.0	9.23	0.594	22.53	5.83	16.0	21	0.60

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW43**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW43-220627-M **DATE/TIME:** 6/27/22 1006 **Pump Inlet Depth:** 9.59

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 9.02

Depth to Well Bottom (ft) 15.47

Screen Interval (ft): 4.59 - 14.59

Approximate depth of pump inlet*(ft): 9.59

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/27/22 1010

Purge End Date/Time: 6/27/22 1040

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1010

2ND DTW - 9.02

APTIM

Sample Collection Log

Location ID: 16WW43				Sample No: 16WW43-220627-M						
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
6/27/22	1015	100	.5	9.08	0.865	23.23	6.21	24.8	-36	0.98
	1020	100	1.0	9.14	0.624	23.05	6.08	19.5	-4	0.70
	1025	100	1.5	9.18	0.595	22.70	5.85	17.7	19	0.61
	1030	100	2.0	9.20	0594	22.63	5.84	17.3	20	0.61
	1035	100	2.5	9.22	0.594	22.58	5.83	16.6	21	0.60
	1040	100	3.0	9.23	0.594	22.53	5.83	16.0	21	0.60

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW44**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW44-220705 **DATE/TIME:** 7/05/22 0655 **Pump Inlet Depth:** 27.18

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 7/05/22 0705

Depth to Water - Initial (DTWi) (ft) 23.60

Purge End Date/Time: 7/05/22 0735

Depth to Well Bottom (ft) 32.94

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.18 - 32.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.18

Pump Start Time: 0705

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 23.60

APTIM

Sample Collection Log

Location ID: 16WW44 Sample No: 16WW44-220503

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
5/05/22	0710	100	.5	23.68	0.232	23.90	5.93	94.7	134	0.95
	0715	100	1.0	23.74	0.179	21.27	5.75	86.5	137	0.70
	0720	100	1.5	23.78	0.166	21.13	5.60	84.6	136	0.53
	0725	100	2.0	23.81	0.165	21.09	5.59	84.1	136	0.52
	0730	100	2.5	23.83	0.165	21.05	5.58	83.6	135	0.51
	0735	100	3.0	23.85	0.165	21.00	5.58	83.0	135	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW44**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW44-220705-FD **DATE/TIME:** 7/05/22 0655 **Pump Inlet Depth:** 27.18

Sampling Method: **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 23.60

Depth to Well Bottom (ft) 32.94

Screen Interval (ft): 22.18 - 32.18

Approximate depth of pump inlet*(ft): 27.18

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 7/05/22 0705

Purge End Date/Time: 7/05/22 0735

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0705

2ND DTW - 23.60

APTIM

Sample Collection Log

Location ID: 16WW44		Sample No: 16WW44-220705-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
7/05/22	0710	100	.5	23.68	0.232	23.90	5.93	94.7	134	0.95
	0715	100	1.0	23.74	0.179	21.27	5.75	86.5	137	0.70
	0720	100	1.5	23.78	0.166	21.13	5.60	84.6	136	0.53
	0725	100	2.0	23.81	0.165	21.09	5.59	84.1	136	0.52
	0730	100	2.5	23.83	0.165	21.05	5.58	83.6	135	0.51
	0735	100	3.0	23.85	0.165	21.00	5.58	83.0	135	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW44**

Sampler(s): Scott Beasinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 16WW44-220705-M **DATE/TIME:** 7/05/22 0655 **Pump Inlet Depth:** 27.18

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 23.60

Depth to Well Bottom (ft) ~~32~~ 32.94

Screen Interval (ft): 22.18-32.18

Approximate depth of pump inlet*(ft): ~~25~~ 27.18

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: low flow/BLADDER Pump

Purge Start Date/Time: 7/5/22 0705

Purge End Date/Time: 7/5/22 0735

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0705

2ND DTW - 23.60

APTIM

Sample Collection Log

Location ID: 16WW44 Sample No: 16WW44-220705-M

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
7/5/22	0710	100	.5	23.68	0.232	23.90	5.93	94.7	134	0.95
	0715	100	1.0	23.74	0.179	21.27	5.75	86.5	137	0.70
	0720	100	1.5	23.78	0.166	21.13	5.60	84.6	136	0.53
	0725	100	2.0	23.81	0.165	21.09	5.59	84.1	136	0.52
	0730	100	2.5	23.83	0.165	21.05	5.58	83.6	135	0.51
↓	0735	100	3.0	23.85	0.165	21.00	5.58	83.0	135	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW46**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW46-220620 **DATE/TIME:** 6/20/22 1258 **Pump Inlet Depth:** 17.29

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/20/22 1305

Depth to Water - Initial (DTWi) (ft) 13.82

Purge End Date/Time: 6/20/22 1335

Depth to Well Bottom (ft) 22.02

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.29-22.29

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 17.29

Pump Start Time: 1305

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 13.82

APTIM

Sample Collection Log

Location ID: 16WW46		Sample No: 16WW46-220620								
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
6/20/22	1310	100	.5	13.89	2.61	23.51	6.52	48.7	-7	0.86
	1315	100	1.0	13.95	2.64	21.00	6.63	37.4	-17	0.27
	1320	100	1.5	13.98	2.67	20.59	6.67	31.8	-22	0.12
	1325	100	2.0	14.00	2.68	20.53	6.67	31.3	-22	0.12
	1330	100	2.5	14.02	2.69	20.47	6.67	30.5	-23	0.11
↓	1335	100	3.0	14.04	2.69	20.42	6.67	30.2	-23	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW46**

Sampler(s): Scott Baggenger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW46-2206 20-M **DATE/TIME:** 6/20/22 1258 **Pump Inlet Depth:** 17.29

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	Metals (As, Cr, Mn, Ni, Tl) by 6020A (water)	1 x 125 mL HPDE	HN03<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 13.82

Depth to Well Bottom (ft) 22.02

Screen Interval (ft): 12.29 - 22.29

Approximate depth of pump inlet*(ft): 17.29

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/20/22 1305

Purge End Date/Time: 6/20/22 1335

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1305

2nd DTW- 13.82

APTIM

Sample Collection Log

Location ID: 16WW46		Sample No: 16WW46-220620-M								
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
6/20/22	1310	100	.5	13.89	2.61	23.51	6.52	48.7	-7	0.86
↓	1315	100	1.0	13.95	2.64	21.00	6.63	37.4	-17	0.27
↓	1320	100	1.5	13.98	2.67	20.59	6.67	31.8	-22	0.12
↓	1325	100	2.0	14.00	2.68	20.53	6.67	31.3	-22	0.12
↓	1330	100	2.5	14.02	2.69	20.47	6.67	30.5	-23	0.11
↓	1335	100	3.0	14.04	2.69	20.42	6.67	30.2	-23	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW48**

Sampler(s): Scott Bressingar

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW48-220630 **DATE/TIME:** 6/30/22 0903 **Pump Inlet Depth:** 17.95

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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: 6/30/22 0910

Depth to Water - Initial (DTWi) (ft) 12.82

Purge End Date/Time: 6/30/22 0940

Depth to Well Bottom (ft) ~~22~~ 22.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.95-22.95

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~15~~ 17.95

Pump Start Time: 0910

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 12.82

APTIM

Sample Collection Log

Location ID: 16WW48		Sample No: 16WW48-220630								
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
6/30/22	0915	100	.5	12.90	7.17	21.60	6.59	16.3	93	0.97
↓	0920	100	1.0	12.95	6.81	21.95	6.45	9.5	117	0.70
↓	0925	100	1.5	12.99	6.63	22.16	6.30	9.0	135	0.54
↓	0930	100	2.0	13.02	6.62	22.21	6.29	8.4	137	0.53
↓	0935	100	2.5	13.04	6.61	22.26	6.28	7.8	138	0.53
↓	0940	100	3.0	13.06	6.60	22.30	6.28	7.4	139	0.52

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW49**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW49-220629 **DATE/TIME:** 6/29/22 1117 **Pump Inlet Depth:** 50.03

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.):

Purge Start Date/Time: 6/29/22 1125

Depth to Water - Initial (DTWi) (ft) 18.73

Purge End Date/Time: 6/29/22 1155

Depth to Well Bottom (ft) ~~52~~ 54.71

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 45.03 - 55.03

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~47~~ 50.03

Pump Start Time: 1125

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 18.73

APTIM

Sample Collection Log

Location ID: 16WW49 Sample No: 16WW49-2206 29

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
6/29/22	1130	100	.5	18.80	2.46	22.69	6.03	43.2	20	0.83
	1135	100	1.0	18.86	2.46	22.20	5.97	39.5	24	0.55
	1140	100	1.5	18.90	2.46	21.80	5.92	36.7	26	0.47
	1145	100	2.0	18.92	2.47	21.75	5.91	36.2	27	0.47
	1150	100	2.5	18.94	2.47	21.70	5.91	35.6	27	0.46
	1155	100	3.0	18.96	2.47	21.64	5.91	35.1	27	0.46

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW51**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW51-2206 16 **DATE/TIME:** 6/16/22 0757 **Pump Inlet Depth:** 34.13

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 12.05

Depth to Well Bottom (ft) 44.54

Screen Interval (ft): 34.13-44.13

Approximate depth of pump inlet*(ft): 34.13

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/16/22 0805

Purge End Date/Time: 6/16/22 0835

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Pump Start Time: 0805

2ND DTW- 12.05

APTIM

Sample Collection Log

Location ID: 16WW51					Sample No: 16WW51-2206 16					
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
6/16/22	0810	100	.5	12.07	3.39	21.11	5.94	127	-2	0.95
	0815	100	1.0	12.12	3.46	20.17	5.95	118	-12	0.70
	0820	100	1.5	12.15	3.52	19.91	5.97	112	-15	0.49
	0825	100	2.0	12.17	3.52	19.86	5.98	111	-15	0.48
	0830	100	2.5	12.19	3.53	19.82	5.98	111	-16	0.47
	0835	100	3.0	12.20	3.53	19.77	5.98	110	-16	0.47

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW55**

Sampler(s): Scott Beasinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 16WW55-220623 **DATE/TIME:** 6/23/22 1039 **Pump Inlet Depth:** 24.92

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 20.25

Depth to Well Bottom (ft) ~~29.5~~ 30.40

Screen Interval (ft): 19.92 - 29.92

Approximate depth of pump inlet*(ft): ~~22~~ 24.92

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 6/23/22 1045

Purge End Date/Time: 6/23/22 1115

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1045

2ND DTW- 20.25

APTIM

Sample Collection Log

Location ID: 16WW55 Sample No: 16WW55-220623

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
6/23/22	1050	100	.5	20.32	4.37	30.05	6.54	16.4	71	0.96
↓	1055	100	1.0	20.38	4.39	29.11	6.50	12.0	85	0.73
	1100	100	1.5	20.42	4.40	28.61	6.50	9.7	87	0.55
	1105	100	2.0	20.45	4.41	28.56	6.50	9.4	88	0.54
	1110	100	2.5	20.47	4.41	28.50	6.50	8.9	88	0.54
	1115	100	3.0	20.49	4.41	28.44	6.50	8.5	88	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW56**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW56-220616 **DATE/TIME:** 6/16/22 0926 **Pump Inlet Depth:** 29.26

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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) 26.27

Depth to Well Bottom (ft) ~~34.0~~ 34.07

Screen Interval (ft): 24.26 - 34.26

Approximate depth of pump inlet*(ft): ~~26~~ 29.26

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 6/16/22 0935

Purge End Date/Time: 6/16/22 1005

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0935

2ND DTW - 26.27

APTIM

Sample Collection Log

Location ID: 16WW56 Sample No: 16WW56-220616

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
6/16/22	0940	100	.5	26.35	2.77	22.40	6.14	7.1	108	1.22
	0945	100	1.0	26.41	2.79	21.66	5.77	6.0	165	0.95
	0950	100	1.5	26.45	2.79	21.62	5.45	5.6	195	0.83
	0955	100	2.0	26.48	2.80	21.58	5.44	5.2	197	0.82
	1000	100	2.5	26.51	2.80	21.54	5.44	4.8	198	0.81
↓	1005	100	3.0	26.53	2.80	21.50	5.43	4.4	199	0.81

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW57**

Sampler(s): Scott Baggingar

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 16WW57-220623 **DATE/TIME:** 6/23/22 0711 **Pump Inlet Depth:** 34.94

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	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/23/22 0715

Depth to Water - Initial (DTWi) (ft) 5.80

Purge End Date/Time: 6/23/22 0745

Depth to Well Bottom (ft) 39.90

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 29.94-39.94

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 34.94

Pump Start Time: 0715

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 5.80

APTIM

Sample Collection Log

Location ID: 16WW57 Sample No: 16WW57-220623

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
6/23/22	0720	100	.5	5.87	3.76	22.78	5.68	77.6	-20	1.98
	0725	100	1.0	5.93	5.49	22.00	5.95	67.5	-33	1.62
	0730	100	1.5	5.97	5.72	21.41	5.98	63.2	-32	1.39
	0735	100	2.0	5.99	5.73	21.36	5.98	62.6	-31	1.37
	0740	100	2.5	6.01	5.74	21.33	5.98	61.9	-30	1.34
↓	0745	100	3.0	6.02	5.75	21.29	5.98	61.3	-30	1.32

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW58**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW58-220623 **DATE/TIME:** 6/23/22 0620 **Pump Inlet Depth:** 36.92

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		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.): 2"

Purge Start Date/Time: 6/23/22 0630

Depth to Water - Initial (DTWi) (ft) 7.58

Purge End Date/Time: 6/23/22 0700

Depth to Well Bottom (ft) ~~42~~ 42.80

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 31.92 - 41.92

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~36~~ 36.92

Pump Start Time: 0630

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 7.58

APTIM

Sample Collection Log

Location ID: 16WW58 Sample No: 16WW58-2206 23

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
6/23/22	0635	100	.5	7.65	1.97	24.86	6.13	70.6	-40	1.07
	0640	100	1.0	7.70	2.47	22.31	6.30	58.4	-89	0.85
	0645	100	1.5	7.73	2.62	21.91	6.38	50.1	-105	0.53
	0650	100	2.0	7.72	2.63	21.86	6.39	49.5	-106	0.52
	0655	100	2.5	7.74	2.63	21.82	6.39	48.8	-107	0.51
	0700	100	3.0	7.76	2.64	21.76	6.39	48.3	-107	0.50

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW01**

Sampler(s): Scott Baesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW01-230119 **DATE/TIME:** 1/19/23 1247 **Pump Inlet Depth:** 33.39

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 6

Depth to Water - Initial (DTWi) (ft) 25.08

Depth to Well Bottom (ft) 39.00

Screen Interval (ft): 30.89 - 35.89

Approximate depth of pump inlet*(ft): 33.39

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 1/19/23 1255

Purge End Date/Time: 1/19/23 1325

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 1255

2ND DTW - 25.08

APTIM

Sample Collection Log

Location ID: 16EW01		Sample No: 16EW01-2301 19								
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
1/19/23	1300	100	.5	25.15	7.84	16.16	6.90	12.7	-39	0.71
	1305	100	1.0	25.20	8.61	17.59	6.85	11.3	-20	0.25
	1310	100	1.5	25.23	8.71	17.89	6.79	10.2	-23	0.11
	1315	100	2.0	25.26	8.72	17.95	6.78	9.5	-24	0.11
	1320	100	2.5	25.28	8.73	18.02	6.78	8.7	-25	0.10
↓	1325	100	3.0	25.30	8.73	18.07	6.78	8.2	-25	0.10

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW02**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16EW02-230119 **DATE/TIME:** 1/19/23 1056 **Pump Inlet Depth:** 24.25

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 6

Purge Start Date/Time: 1/19/23 1105

Depth to Water - Initial (DTWi) (ft) 22.70

Purge End Date/Time: 1/19/23 1135

Depth to Well Bottom (ft) ~~29~~ 29.65

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.75-26.75

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~24~~ 24.25

Pump Start Time: 1105

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 22.70

APTIM

Sample Collection Log

Location ID: 16EW02 Sample No: 16EW02-230119

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
1/19/23	1110	100	.5	22.77	6.39	14.72	7.13	2.2	-35	0.65
	1115	100	1.0	22.83	6.52	16.51	6.75	1.1	-30	0.20
	1120	100	1.5	22.87	6.47	17.32	6.62	0.5	-27	0.04
	1125	100	2.0	22.90	6.46	17.39	6.61	0.0	-27	0.04
	1130	100	2.5	22.92	6.46	17.48	6.60	0.0	-26	0.03
✓	1135	100	3.0	22.94	6.45	17.56	6.60	0.0	-26	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW02**

Sampler(s): Scott Beggingar

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW02-230119-MS **DATE/TIME:** 1/19/23 1056 **Pump Inlet Depth:** 24.25

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: LowFlow/Bladder Pump

Casing ID (in.): 6

Purge Start Date/Time: 1/19/23 1105

Depth to Water - Initial (DTWi) (ft) 22.70

Purge End Date/Time: 1/19/23 1135

Depth to Well Bottom (ft) ~~30~~ 29.65

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.75-26.75

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~25~~ 24.25

Pump Start Time: 1105

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW- 22.70

APTIM

Sample Collection Log

Location ID: 16EW02		Sample No: 16EW02-2301[19]-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
1/19/23	1110	100	.5	22.77	6.39	14.72	7.13	2.2	-35	0.65
	1115	100	1.0	22.83	6.52	16.51	6.75	1.1	-30	0.20
	1120	100	1.5	22.87	6.47	17.32	6.62	0.5	-27	0.04
	1125	100	2.0	22.90	6.46	17.39	6.61	0.0	-27	0.04
	1130	100	2.5	22.92	6.46	17.48	6.60	0.0	-24	0.03
↓	1135	100	3.0	22.94	6.45	17.56	6.60	0.0	-26	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW02**

Sampler(s): Scott Beggs/NG42

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW02-230119-MSD **DATE/TIME:** 1/19/23 1056 **Pump Inlet Depth:** 24.25

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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.): 6

Purge Start Date/Time: 1/19/23 1105

Depth to Water - Initial (DTWi) (ft) 22.70

Purge End Date/Time: 1/19/23 1135

Depth to Well Bottom (ft) ~~30~~ 29.65

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.75 - 26.75

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~24.5~~ 24.25

Pump Start Time: 1105

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 22.70

APTIM

Sample Collection Log

Location ID: 16EW02		Sample No: 16EW02-2301_19_-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
1/19/23	1110	100	.5	22.77	6.39	14.72	7.13	2.2	-35	0.65
↓	1115	100	1.0	22.83	6.52	16.51	6.75	1.1	-30	0.20
	1120	100	1.5	22.87	6.47	17.32	6.62	0.5	-27	0.04
	1125	100	2.0	22.90	6.46	17.39	6.61	0.0	-27	0.04
	1130	100	2.5	22.92	6.46	17.48	6.60	0.0	-26	0.03
↓	1135	100	3.0	22.94	6.45	17.56	6.60	0.0	-26	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW03**

Sampler(s): Scott Beginnar

FIELD CONDITIONS ~~EP~~ CLEAR

SAMPLING INFORMATION

Sample No: 16EW03-230119 **DATE/TIME:** 1/19/23 1157 **Pump Inlet Depth:** 15.03

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 6

Depth to Water - Initial (DTWi) (ft) 12.35

Depth to Well Bottom (ft) ~~19.40~~ 19.40

Screen Interval (ft): 12.53 - 17.53

Approximate depth of pump inlet*(ft): ~~15.03~~ 15.03

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 1/19/23 1205

Purge End Date/Time: 1/19/23 1235

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Pump Start Time: 1205

2ND DTW- 12.35

APTIM

Sample Collection Log

Location ID: 16EW03		Sample No: 16EW03-2301 19								
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	-6	± 10% or 0.2 mg/L
1/19/23	1210	100	.5	12.42	6.00	17.32	7.26	50.5	[redacted]	0.61
↓	1215	100	1.0	12.47	6.08	17.00	7.05	45.1	8	0.18
	1220	100	1.5	12.50	6.12	16.88	6.92	40.8	11	0.03
	1225	100	2.0	12.52	6.13	16.83	6.91	40.3	11	0.03
	1230	100	2.5	12.54	6.13	16.79	6.91	39.5	12	0.02
↓	1235	100	3.0	12.56	6.14	16.75	6.90	39.0	12	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW04**

Sampler(s): Scott Beesinger

FIELD CONDITIONS ~~Cloudy~~ CLEAR

SAMPLING INFORMATION

Sample No: 16EW04-230121 **DATE/TIME:** 1/21/23 0832 **Pump Inlet Depth:** 16.45

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 6

Depth to Water - Initial (DTWi) (ft) 7.10

Depth to Well Bottom (ft) ~~22~~ 19.22

Screen Interval (ft): 13.95 - 18.95

Approximate depth of pump inlet*(ft): ~~18.5~~ 16.45

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 1/21/23 0840

Purge End Date/Time: 1/21/23 0910

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 0840

2ND DTW - 7.10

APTIM

Sample Collection Log

Location ID: 16EW04 Sample No: 16EW04-230121

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
1/21/23	0845	100	.5	7.17	5.17	12.74	6.23	84.6	21	0.60
	0850	100	1.0	7.22	6.51	13.90	6.20	75.9	35	0.19
	0855	100	1.5	7.25	6.61	13.99	6.20	72.7	38	0.03
	0900	100	2.0	7.27	6.62	14.06	6.19	72.3	38	0.03
	0905	100	2.5	7.29	6.63	14.13	6.19	71.6	39	0.03
↓	0910	100	3.0	7.31	6.63	14.17	6.19	71.3	39	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16EW08**

Sampler(s): Scott Beggs, Inger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16EW08-2301R1 **DATE/TIME:** 1/21/23 0748 **Pump Inlet Depth:** 36.26

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 6

Depth to Water - Initial (DTWi) (ft) 2.00

Depth to Well Bottom (ft) ~~42~~ 38.55

Screen Interval (ft): 33.76-38.76

Approximate depth of pump inlet*(ft): ~~36.5~~ 36.24

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 1/21/23 0755

Purge End Date/Time: 1/21/23 0825

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 0755

2ND DTW-2.00

APTIM

Sample Collection Log

Location ID: 16EW08		Sample No: 16EW08-230121								
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
1/21/23	0800	100	.5	2.08	0.571	13.01	6.92	139	-55	0.61
	0805	100	1.0	2.14	0.391	14.10	6.72	125	-59	0.20
	0810	100	1.5	2.20	0.371	14.31	6.59	116	-68	0.04
	0815	100	2.0	2.22	0.371	14.37	6.59	115	-69	0.04
	0820	100	2.5	2.24	0.370	14.41	6.58	115	-70	0.03
↓	0825	100	3.0	2.25	0.370	14.46	6.57	114	-70	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW03**

Sampler(s): Scott Baas, Nolan

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16IW03-230123 **DATE/TIME:** 1/23/23 1157 **Pump Inlet Depth:** 20.00

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 15.85

Depth to Well Bottom (ft) 25.07

Screen Interval (ft): 15.00-25.00

Approximate depth of pump inlet*(ft): 20.00

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow Bladder Pump

Purge Start Date/Time: 1/23/23 1205

Purge End Date/Time: 1/23/23 1235

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y (N)

Pump Start Time: 1205

2ND DTW- 15.85

APTIM

Sample Collection Log

Location ID: 16IW03		Sample No: 16IW03-230123								
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
1/23/23	1210	100	.5	15.92	5.19	13.55	6.56	170	-7	0.65
	1215	100	1.0	15.98	5.02	15.50	6.08	159	-22	0.23
	1220	100	1.5	16.02	4.87	15.69	6.01	151	-25	0.07
	1225	100	2.0	16.04	4.87	15.75	6.00	149	-25	0.07
	1230	100	2.5	16.06	4.86	15.80	6.00	147	-26	0.06
↓	1235	100	3.0	16.08	4.85	15.85	6.00	146	-26	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW03**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW03-230123-FD **DATE/TIME:** 1/23/23 1157 **Pump Inlet Depth:** 20.00

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 15.85

Depth to Well Bottom (ft) 25.07

Screen Interval (ft): 15.00 - 25.00

Approximate depth of pump inlet*(ft): 20.00

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 1/23/23 1205

Purge End Date/Time: 1/23/23 1235

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 1205

2ND DTW- 15.85

APTIM

Sample Collection Log

Location ID: 16IW03		Sample No: 16IW03-2301[23]-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
1/23/23	1210	100	.5	15.92	5.19	13.55	6.56	170	-7	0.65
	1215	100	1.0	15.98	5.02	15.50	6.08	159	-22	0.23
	1220	100	1.5	16.02	4.87	15.69	6.01	151	-25	0.07
	1225	100	2.0	16.04	4.87	15.75	6.00	149	-25	0.07
	1230	100	2.5	16.06	4.86	15.80	6.00	147	-26	0.06
↓	1235	100	3.0	16.08	4.86	15.85	6.00	146	-26	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW09**

Sampler(s): Scott Beasinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW09-230119 **DATE/TIME:** 1/19/23 0917 **Pump Inlet Depth:** 16.33

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	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 6.75

Depth to Well Bottom (ft) ~~13.25~~ 22.27

Screen Interval (ft): 11.33 – 21.33

Approximate depth of pump inlet*(ft): ~~13~~ 16.33

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 1/19/23 0925

Purge End Date/Time: 1/19/23 0955

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Pump Start Time: 0925

2ND DTW - 6.75

APTIM

Sample Collection Log

Location ID: 16IW09		Sample No: 16IW09-230119								
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
1/19/23	0930	100	.5	6.82	0.630	13.10	6.82	65.7	-83	0.67
	0935	100	1.0	6.88	0.615	14.39	6.77	58.6	-101	0.21
	0940	100	1.5	6.94	0.604	14.42	6.73	55.1	-109	0.08
	0945	100	2.0	6.97	0.603	14.48	6.73	54.5	-110	0.08
	0950	100	2.5	6.99	0.603	14.52	6.72	53.8	-110	0.08
↓	0955	100	3.0	7.00	0.603	14.56	6.72	53.2	-111	0.07

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 16IW10-230123 **DATE/TIME:** 1/23/23 1050 **Pump Inlet Depth:** 23.21

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 22.70

Depth to Well Bottom (ft) ~~28.5~~ 28.50

Screen Interval (ft): 18.21 - 28.21

Approximate depth of pump inlet*(ft): ~~28~~ 23.21

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 1/23/23 1105

Purge End Date/Time: 1/23/23 1135

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y /(N)

Pump Start Time: 1105

2ND DTW - 22.70

APTIM

Sample Collection Log

Location ID: 16IW10 Sample No: 16IW10-230123

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
1/23/23	1110	100	.5	22.78	4.97	12.24	7.30	171	-119	0.61
	1115	100	1.0	22.84	4.90	13.47	7.22	158	-136	0.18
	1120	100	1.5	22.88	4.79	13.70	7.18	145	-146	0.04
	1125	100	2.0	22.91	4.78	13.77	7.18	143	-147	0.04
	1130	100	2.5	22.94	4.78	13.83	7.18	141	-148	0.03
	1135	100	3.0	22.96	4.77	13.89	7.18	140	-148	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16IW10-230123-MS **DATE/TIME:** 1/23/23 1050 **Pump Inlet Depth:** 23.21

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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.): 2"

Purge Start Date/Time: 1/23/23 1105

Depth to Water - Initial (DTWi) (ft) 22.70

Purge End Date/Time: 1/23/23 1135

Depth to Well Bottom (ft) 28.50

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.21 - 28.21

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.21 Pump Start Time: 1105

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW- 22.70

APTIM

Sample Collection Log

Location ID: 16IW10		Sample No: 16IW10-230123-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
1/23/23	1110	100	.5	22.78	4.97	12.24	7.30	171	-119	0.61
	1115	100	1.0	22.84	4.90	13.47	7.22	158	-136	0.18
	1120	100	1.5	22.88	4.79	13.70	7.18	145	-146	0.04
	1125	100	2.0	22.91	4.78	13.77	7.18	143	-147	0.04
	1130	100	2.5	22.94	4.78	13.83	7.18	141	-148	0.03
	1135	100	3.0	22.96	4.77	13.89	7.18	140	-148	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **16IW10**

Project No: **501032**

Sampler(s): Scott Baginger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW10-230123-MSD **DATE/TIME:** 1/23/23 1050 **Pump Inlet Depth:** 23.21

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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.): 2"

Purge Start Date/Time: 1/23/23 1105

Depth to Water - Initial (DTWi) (ft) 22.70

Purge End Date/Time: 1/23/23 1135

Depth to Well Bottom (ft) ~~25.8~~ 28.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 18.21 - 28.21

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~26~~ 23.21

Pump Start Time: 1105

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 22.70

APTIM

Sample Collection Log

Location ID: 16IW10		Sample No: 16IW10-230123-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
1/23/23	1110	100	.5	22.78	4.97	12.24	7.30	171	-119	0.61
	1115	100	1.0	22.84	4.90	13.47	7.22	158	-136	0.18
	1120	100	1.5	22.88	4.79	13.70	7.18	145	-146	0.04
	1125	100	2.0	22.91	4.78	13.77	7.18	143	-147	0.04
	1130	100	2.5	22.94	4.78	13.83	7.18	141	-148	0.03
	1135	100	3.0	22.96	4.77	13.89	7.18	140	-148	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW20**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW20-230119 **DATE/TIME:** 1/19/23 1008 **Pump Inlet Depth:** 19.91

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/BLADDER Pump

Casing ID (in.):

Purge Start Date/Time: 1/19/23 1015

Depth to Water - Initial (DTWi) (ft) 17.08

Purge End Date/Time: 1/19/23 1045

Depth to Well Bottom (ft) 25.45

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 14.91-24.91

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / N

Approximate depth of pump inlet*(ft): 19.91

Pump Start Time: 1015

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 17.08

APTIM

Sample Collection Log

Location ID: 16IW20		Sample No: 16IW20-230119								
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
1/19/23	1020	100	.5	17.15	4.24	15.23	6.88	52.9	-78	0.63
	1025	100	1.0	17.20	4.19	16.51	6.89	46.5	-91	0.19
	1030	100	1.5	17.23	4.18	16.58	6.89	44.7	-101	0.05
	1035	100	2.0	17.26	4.19	16.64	6.90	44.3	-102	0.05
	1040	100	2.5	17.28	4.19	16.69	6.90	43.6	-103	0.04
✓	1045	100	3.0	17.30	4.19	16.73	6.90	43.2	-104	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16IW26**

Sampler(s): Scott Beggs: NCAR

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16IW26-2301 23 **DATE/TIME:** 1/23/23 1000 **Pump Inlet Depth:** 47.40

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	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2
		MI	DHC in Water-CENSUS-qPCR	1 x 1 L HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 27.05

Depth to Well Bottom (ft) ~~50~~ 51.43

Screen Interval (ft): 42.40 - 52.40

Approximate depth of pump inlet*(ft): ~~44.5~~ 47.40

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low Flow/BLADDER Pump

Purge Start Date/Time: 1/23/23 1010

Purge End Date/Time: 1/23/23 1040

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y/(N)

Pump Start Time: 1010

2ND DTW - 27.05

APTIM

Sample Collection Log

Location ID: 16IW26		Sample No: 16IW26-230123								
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
1/23/23	1015	100	.5	27.12	6.83	12.72	7.17	269	-106	0.73
↓	1020	100	1.0	27.18	6.55	15.92	7.26	248	-135	0.27
	1025	100	1.5	27.22	6.47	15.96	7.38	240	-147	0.11
	1030	100	2.0	27.25	6.47	16.00	7.39	239	-148	0.11
	1035	100	2.5	27.27	6.46	16.05	7.39	237	-149	0.10
↓	1040	100	3.0	27.29	6.46	16.08	7.40	236	-150	0.10

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM02**

Sampler(s): Derrick Berry

FIELD CONDITIONS Fair, cloudy 62°

SAMPLING INFORMATION

Sample No: 16PM02-230121 **DATE/TIME:** 1-21-23/1325 **Pump Inlet Depth:** 24.10

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): ~~99~~ 2in

Depth to Water - Initial (DTWi) (ft) 16.98

Purge Start Date/Time: 1-21-23/1300

Depth to Well Bottom (ft) ~~26~~ 28.31

Purge End Date/Time: 1-21-23/1325

Screen Interval (ft): 18.10-28.10

Discharge Tube Length: N/A

PID Reading: N/A

Approximate depth of pump inlet*(ft): ~~20~~ 24.10

Discharge Tube Diameter: 1/4

Immiscible Layer: Y / (N)

Pump Start Time: 1300

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 16.98

APTIM

Sample Collection Log

Location ID: 16PM02 Sample No: 16PM02-2301 21

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
1-21-23	1300	200	Initial	17.07	1.53	19.89	6.00	34	84	1.2
1-21	1305	200	1	17.24	1.60	19.85	5.85	31	80	0.8
1-21	1310	200	2	17.31	1.67	19.93	5.78	28	93	0.6
1-21	1315	200	3	17.34	1.73	20.09	5.73	24	102	0.6
1-21	1320	200	4	17.38	1.74	20.18	5.73	21	103	0.5
1-21	1325	200	5	17.41	1.73	20.26	5.73	18	104	0.5

Logged by: Derrick Berry Date: 1-21-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM03**

Sampler(s): Derrick Berry

FIELD CONDITIONS Fair, Warming

SAMPLING INFORMATION

Sample No: 16PM03-230121 **DATE/TIME:** 1-21-23/1140 **Pump Inlet Depth:** 24.36

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Slightly cloudy to clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): ~~99~~ 2 in

Purge Start Date/Time: 1-21-23/1115

Depth to Water - Initial (DTWi) (ft) 16.43

Purge End Date/Time: 1-21-23/1140

Depth to Well Bottom (ft) ~~25~~ 28.38

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 17.90 - 27.40

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~19.75~~ 24.36 Pump Start Time: 1115

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 16.43

APTIM

Sample Collection Log

Location ID: 16PM03 Sample No: 16PM03-2301 24

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
1-21-23	1115	200	Initial	16.48	3.81	17.30	6.54	49	72	2.4
1-21	1120	200	1	16.55	3.99	17.70	6.34	42	71	1.0
1-21	1125	200	2	16.61	4.26	17.76	6.36	37	99	0.6
1-21	1130	200	3	16.68	4.38	17.85	6.39	34	107	0.6
1-21	1135	200	4	16.70	4.42	17.88	6.39	31	109	0.5
1-21	1140	200	5	16.73	4.44	17.89	6.40	28	110	0.5

Logged by: Derrick Berry Date: 1-21-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM06**

Sampler(s): Derrick Berry

FIELD CONDITIONS Fair 62°

SAMPLING INFORMATION

Sample No: 16PM06-230121 **DATE/TIME:** 1-24-23/1230 **Pump Inlet Depth:** 25.34

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Cloudy to clearing

Assoc. QC Samples: None

Decontamination Procedures: Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): ~~-99~~ 2in

Depth to Water - Initial (DTWi) (ft) 15.62

Depth to Well Bottom (ft) ~~28~~ 27.53

Screen Interval (ft): 18.20-28.20

Approximate depth of pump inlet*(ft): ~~20~~ 25.34

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-24-23/1205

Purge End Date/Time: 1-24-23/1230

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y/(N)

Pump Start Time: 1205

2ND DTW - 15.62

APTIM

Sample Collection Log

Location ID: 16PM06 Sample No: 16PM06-2301 A1

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
1-21-23	1205	200	Init.	15.68	4.97	18.12	6.20	101	-11	2.1
1-21	1210	200	1	15.74	4.97	18.24	6.17	81	-25	1.6
1-21	1215	200	2	15.81	4.92	18.20	6.12	72	-18	1.0
1-21	1220	200	3	15.83	4.90	18.30	6.10	64	-17	0.7
1-21	1225	200	4	15.86	4.88	18.31	6.09	51	-18	0.6
1-21	1230	200	5	15.91	4.84	18.36	6.05	44	-18	0.6

Logged by: Derrick Berry Date: 1-21-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM09**

Sampler(s): Derrick Berry

FIELD CONDITIONS Warming 52°

SAMPLING INFORMATION

Sample No: 16PM09-230121 **DATE/TIME:** 1-21-23/ **Pump Inlet Depth:** 22.34

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Turbid to cloudy-clearing	None	liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): ~~2~~ 2 in

Depth to Water - Initial (DTWi) (ft) 14.12

Depth to Well Bottom (ft) ~~25~~ 27.04

Screen Interval (ft): 16.80-26.80

Approximate depth of pump inlet*(ft): ~~18~~ 22.34

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-21-23/1015

Purge End Date/Time: 1-21-23/1040

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Pump Start Time: 1015

2ND DTW - 14.12

APTIM

Sample Collection Log

Location ID: 16PM09 Sample No: 16PM09-2301 21

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
1-21-23	1015	200	Initial	14.18	2.93	17.52	6.70	189	81	4.4
1-21	1020	200	1	14.25	1.82	18.34	5.68	142	117	0.7
1-21	1025	200	2	14.31	1.84	18.27	5.68	115	120	0.6
1-21	1030	200	3	14.38	1.88	18.46	5.69	110	122	0.6
1-21	1035	200	4	14.41	1.90	18.41	5.70	91	121	0.6
1-21	1040	200	5	14.44	1.92	18.39	5.70	90	121	0.6

Logged by: Derrick Berry Date: 1-21-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16PM14**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cool, 49°

SAMPLING INFORMATION

Sample No: 16PM14-230121 **DATE/TIME:** 1-21-23/0945 **Pump Inlet Depth:** 24.28

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Clear **Assoc. QC Samples:** None **Decontamination Procedures:** Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): ~~99~~ 2 in

Depth to Water - Initial (DTWi) (ft) 17.39

Depth to Well Bottom (ft) ~~28~~ 28.15

Screen Interval (ft): 18-28

Approximate depth of pump inlet*(ft): ~~20~~ 24.28

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-21-23/0920

Purge End Date/Time: 1-21-23/0945

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Pump Start Time: 0920

2ND DTW - 17.39

APTIM

Sample Collection Log

Location ID: 16PM14		Sample No: 16PM14-2301 21								
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
1-21-23	0920	200	Initial	17.44	5.67	17.38	6.35	9	73	1.9
1-21	0925	200	1	17.58	5.89	17.68	6.41	9	90	0.8
1-21	0930	200	2	17.76	6.16	17.76	6.46	8	103	0.5
1-21	0935	200	3	17.78	6.18	17.82	6.46	8	104	0.5
1-21	0940	200	4	17.81	6.18	17.85	6.47	8	104	0.5
1-21	0945	200	5	17.88	6.18	17.84	6.47	8		0.4

Logged by: Derrick Berry Date: 1-21-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW01**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cold 35°

SAMPLING INFORMATION

Sample No: 16RW01-230123 **DATE/TIME:** 1-23/0925 **Pump Inlet Depth:** 26.18

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4in

Depth to Water - Initial (DTWi) (ft) 17.64

Depth to Well Bottom (ft) ~~25.8~~ 28.33

Screen Interval (ft): 18.21 - 28.21

Approximate depth of pump inlet*(ft): ~~20~~ 26.18

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-23-23/0906

Purge End Date/Time: 1-23/23/0925

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Pump Start Time: 0900

2ND DTW - 17.64

APTIM

Sample Collection Log

Location ID: 16RW01 Sample No: 16RW01-2301_23

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
1-23-23	0900	200	Initial	17.68	1.82	9.93	4.97	49	266	3.0
1-23	0905	200	1	17.79	1.81	10.32	4.95	40	266	2.8
1-23	0910	200	2	18.01	1.77	11.79	4.98	36	264	1.5
1-23	0915	200	3	18.11	1.74	12.64	5.06	31	261	1.1
1-23	0920	200	4	18.18	1.74	12.71	5.08	28	259	1.0
1-23	0925	200	5	18.24	1.74	12.73	5.08	24	258	1.0

Logged by: Derrick Berry Date: 1-23-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW04**

Sampler(s): Scott Baggenstoss

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16RW04-230119 **DATE/TIME:** 1/19/23 0833 **Pump Inlet Depth:** 21.90

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.):

Depth to Water - Initial (DTWi) (ft) 19.32

Depth to Well Bottom (ft) ~~27~~ 27.60

Screen Interval (ft): 16.90 - 26.90

Approximate depth of pump inlet*(ft): ~~19~~ 21.90

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 1/19/23 0840

Purge End Date/Time: 1/19/23 0910

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 0840

2ND DTW - 19.32

APTIM

Sample Collection Log

Location ID: 16RW04		Sample No: 16RW04-230119								
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
1/19/23	0845	100	.5	19.40	2.36	13.34	6.14	3.7	105	2.93
	0850	100	1.0	19.46	2.08	15.30	5.71	1.8	131	2.71
	0855	100	1.5	19.50	1.94	15.48	5.54	0.7	151	2.56
	0900	100	2.0	19.53	1.94	15.52	5.53	0.0	152	2.53
	0905	100	2.5	19.56	1.94	15.56	5.53	0.0	153	2.51
↓	0910	100	3.0	19.58	~~1.94~~ 1.94	15.60	5.52	0.0	153	2.49

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW05**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cold, 45°

SAMPLING INFORMATION

Sample No: 16RW05-2301 23

DATE/TIME: 1-23-23/1030

Pump Inlet Depth: 19.22

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample: Clear to Cloudy

Assoc. QC Samples: None

Decontamination Procedures: Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4in

Depth to Water - Initial (DTWi) (ft) 9.64

Depth to Well Bottom (ft) ~~28~~ 23.32

Screen Interval (ft): 13.09-23.09

Approximate depth of pump inlet*(ft): ~~15~~ 19.22

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-23-23/1005

Purge End Date/Time: 1-23-23/1030

Discharge Tube Length: N/A

PID Reading: N/A

Discharge Tube Diameter: 1/4

Immiscible Layer: Y / (N)

Pump Start Time: 1005

2ND DTW - 9.64

APTIM

Sample Collection Log

Location ID: 16RW05 Sample No: 16RW05-230123

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
1-23-23	1005	200	Initial	9.71	3.49	14.60	6.54	145	169	1.41
1-23	1010	200	1	9.84	3.52	14.24	6.81	140	162	3.7
1-23	1015	200	2	9.96	3.50	14.69	7.07	131	158	4.3
1-23	1020	200	3	10.04	3.58	15.14	6.67	75	80	1.0
1-23	1025	200	4	10.11	3.57	15.21	6.66	66	78	1.0
1-23	1030	200	5	10.16	3.56	15.24	6.66	59	76	1.0

Logged by: Derrick Berry Date: 1-23-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW06**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet, but Warming 51°

SAMPLING INFORMATION

Sample No: 16RW06-230119 **DATE/TIME:** 1-19-23/1010 **Pump Inlet Depth:** 25.91

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	No	Liquinox & DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4 in

Purge Start Date/Time: 0945/1-19-23

Depth to Water - Initial (DTWi) (ft) 24.28

Purge End Date/Time: 1-19-23/1010

Depth to Well Bottom (ft) ~~26~~ 29.21

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 18.52 - 28.52

Discharge Tube Diameter: ~~N/A~~ 1/4" Immiscible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~29.5~~ 25.91 Pump Start Time: 0945

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 24.28

APTIM

Sample Collection Log

Location ID: 16RW06 **Sample No: 16RW06-230119**

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
1-19-23	0945	200	Initial	24.34	2.58	20.26	6.28	3	152	4.2
1-19-23	0950	200	1	24.39	2.54	20.24	6.32	3	148	1.4
1-19-23	0955	200	2	24.41	2.41	19.81	6.44	3	135	1.0
1-19-23	1000	200	3	24.46	2.40	19.80	6.44	3	134	0.8
1-19-23	1005	200	4	24.48	2.38	19.79	6.44	3	134	0.8
1-19-23	1010	200	5	24.51	2.34	19.82	6.44	2	134	0.7

Logged by: Derrick Berry Date: 1-19-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW07**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet, Warming 54°

SAMPLING INFORMATION

Sample No: 16RW07-230119 **DATE/TIME:** 1-19-23/1115 **Pump Inlet Depth:** 26.84

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	N/A	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4in

Purge Start Date/Time: 1-19-23/1040

Depth to Water - Initial (DTWi) (ft) 22.19

Purge End Date/Time: 1-19-23/1115

Depth to Well Bottom (ft) ~~25.5~~ 28.73

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 18.28-28.28

Discharge Tube Diameter: 4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~20~~ 26.84

Pump Start Time: 1040

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 22.19

APTIM

Sample Collection Log

Location ID: 16RW07 Sample No: 16RW07-2301_19

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
1-19-23	1040	200	Initial	22.26	3.76	18.35	6.39	2	70	1.6
1-19-23	1045	200	1	22.28	3.56	18.85	6.50	4	33	1.0
1-19	1055	200	2	22.34	3.55	18.85	6.50	4	30	0.8
1-19	1100	200	3	22.38	3.51	18.84	6.68	4	28	0.6
1-19	1105	200	4	22.41	3.48	18.84	6.71	3	26	0.6
1-19	1110	200	5	22.44	3.44	18.83	6.72	3	26	0.5
1-19	1115	200	6	22.46	3.42	18.82	6.74	3	24	0.5

Logged by: Derrick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW09**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy / cold

SAMPLING INFORMATION

Sample No: 16RW09-230125 **DATE/TIME:** 1/25/23 0704 **Pump Inlet Depth:** [redacted] 25.50

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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: 1/25/23 0715

Depth to Water - Initial (DTWi) (ft) 24.89

Purge End Date/Time: 1/25/23 0745

Depth to Well Bottom (ft) [redacted] 30.63

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 19.67-29.67

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): [redacted] 25.50

Pump Start Time: 0715

Ferrous Iron (Required Y or (N)) _____ mg/L

2WD DTW- 24.89

APTIM

Sample Collection Log

Location ID: 16RW09 Sample No: 16RW09-2301 25

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
1/25/23	0720	100	.5	24.97	5.36	13.60	6.87	14.5	-20	0.75
	0725	100	1.0	25.03	5.15	13.31	7.00	10.6	-47	0.25
	0730	100	1.5	25.07	5.08	13.02	7.07	8.8	-64	0.09
	0735	100	2.0	25.10	5.07	13.96	7.08	8.4	-65	0.09
	0740	100	2.5	25.13	5.07	13.92	7.08	7.7	-66	0.09
	0745	100	3.0	25.16	5.07	12.88	7.08	7.3	-67	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW10**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy / cold

SAMPLING INFORMATION

Sample No: 16RW10-230125 **DATE/TIME:** 1/25/23 0752 **Pump Inlet Depth:** 22.98

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 22.17

Depth to Well Bottom (ft) ~~25~~ 28.15

Screen Interval (ft): 17.98 - 27.98

Approximate depth of pump inlet*(ft): ~~22~~ 22.98

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 1/25/23 0800

Purge End Date/Time: 1/25/23 0830

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 0800

2ND DTW - 22.17

APTIM

Sample Collection Log

Location ID: 16RW10		Sample No: 16RW10-2301 25								
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
1/25/23	0805	100	.5	22.25	5.50	13.39	7.62	2.9	-55	0.66
	0810	100	1.0	22.31	5.45	15.02	7.21	1.3	-21	0.26
	0815	100	1.5	22.35	5.41	14.88	7.07	0.3	-16	0.13
	0820	100	2.0	22.37	5.41	14.84	7.05	0.0	-16	0.13
	0825	100	2.5	22.39	5.41	14.80	7.05	0.0	-15	0.12
↓	0830	100	3.0	22.41	5.41	14.77	7.04	0.0	-15	0.12

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16RW12**

Sampler(s): Derrick Berry

FIELD CONDITIONS Sunny 64°

SAMPLING INFORMATION

Sample No: 16RW12-230120 **DATE/TIME:** 1-20-23/1200 **Pump Inlet Depth:** 25.86

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
	FD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4in

Purge Start Date/Time: 1-20-23/1135

Depth to Water - Initial (DTWi) (ft) 24.34

Purge End Date/Time: 1-20-23/1200

Depth to Well Bottom (ft) ~~29~~ 32.58

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 21.49-31.49

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~23.5~~ 25.86

Pump Start Time: 1135

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW- 24.34

APTIM

Sample Collection Log

Location ID: 16RW12 Sample No: 16RW12-230120 → Reg

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
1-20-23	1135	200	Initial	24.59	3.55	18.29	6.31	11	7	1.3
1-20	1140	200	1	24.67	3.55	18.45	6.36	1	43	0.8
1-20	1145	200	2	24.77	3.55	18.43	6.36	2	44	0.6
1-20	1150	200	3	24.81	3.58	18.32	6.37	3	51	0.6
1-20	1155	200	4	24.84	3.61	18.26	6.37	3	53	0.5
1-20	1200	200	5	24.88	3.62	18.25	6.38	2	54	0.5

Logged by: Derrick Berry Date: 1-20-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**
Location ID: **16RW12**
Project No: **501032**
Sampler(s): Derrick Berry

FIELD CONDITIONS Sunny 60°

SAMPLING INFORMATION

Sample No: 16RW12-230120-FD **DATE/TIME:** 1-20-23/1200 **Pump Inlet Depth:** 25.86
Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	FD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing
Purging Method/Equipment: Peristaltic Pump
Casing ID (in.): 4in
Purge Start Date/Time: 1-20-23/1135
Depth to Water - Initial (DTWi) (ft) 24.34
Purge End Date/Time: 1-20-23/1200
Depth to Well Bottom (ft) ~~28~~ 32.58
Discharge Tube Length: N/A PID Reading: N/A
Screen Interval (ft): 21.49-31.49
Discharge Tube Diameter: 1/4 Immiscible Layer: Y/(N)
Approximate depth of pump inlet*(ft): ~~23.5~~ 25.86 Pump Start Time: 1135
Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW- 24.34

APTIM

Sample Collection Log

Location ID: 16RW12 Sample No: 16RW12-230120-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
1-20-23	1135	200	Initial	24.59	3.55	18.29	6.31	11	7	1.3
1-20	1140	200	1	24.67	3.55	18.45	6.36	1	43	0.8
1-20	1145	200	2	24.77	3.55	18.43	6.36	2	44	0.6
1-20	1150	200	3	24.81	3.58	18.32	6.37	3	51	0.6
1-20	1155	200	4	24.84	3.61	18.26	6.37	3	53	0.5
1-20	1200	200	5	24.88	3.62	18.25	6.38	2	54	0.5

Logged by: Derrick Berry Date: 1-20-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW12**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy/Cold

SAMPLING INFORMATION

Sample No: 16WW12-230125 **DATE/TIME:** 1/25/23 0933 **Pump Inlet Depth:** 21.64

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/25/23 0940

Depth to Water - Initial (DTWi) (ft) 16.63

Purge End Date/Time: 1/25/23 1010

Depth to Well Bottom (ft) 26.97

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.64 - 26.64

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Approximate depth of pump inlet*(ft): 21.64

Pump Start Time: 0940

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 16.63

APTIM

Sample Collection Log

Location ID: 16WW12		Sample No: 16WW12-2301 25								
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
1/25/23	0945	100	0.5	16.70	5.63	12.71	7.44	26.6	22	0.58
	0950	100	1.0	16.76	5.57	13.41	7.03	22.0	37	0.15
	0955	100	1.5	16.80	5.57	13.47	6.87	18.7	48	0.03
	1000	100	2.0	16.82	5.58	13.54	6.87	18.3	49	0.03
	1005	100	2.5	16.84	5.59	13.69	6.86	17.6	49	0.03
	1010	100	3.0	16.85	5.59	13.63	6.85	17.1	50	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW13**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW13-230121 **DATE/TIME:** 1/21/23 1250 **Pump Inlet Depth:** 21.73

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 4.42

Depth to Well Bottom (ft) ~~25~~ 24.90

Screen Interval (ft): 16.73-26.73

Approximate depth of pump inlet*(ft): ~~19~~ 21.73

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 1/21/23 1255

Purge End Date/Time: 1/21/23 1325

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Pump Start Time: 1255

2ND DTW- 4.42

APTIM

Sample Collection Log

Location ID: 16WW13		Sample No: 16WW13-230121								
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
1/21/23	1300	100	.5	4.50	2.80	15.33	5.70	14.7	189	0.68
	1305	100	1.0	4.55	4.02	16.38	5.79	13.9	148	0.27
	1310	100	1.5	4.58	4.19	16.62	5.87	13.4	125	0.08
	1315	100	2.0	4.61	4.19	16.68	5.88	13.0	123	0.07
	1320	100	2.5	4.63	4.20	16.73	5.88	12.5	122	0.07
↓	1325	100	3.0	4.65	4.21	16.76	5.88	12.1	121	0.07

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **16WW16**

Project No: **501032**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet Warming, 65°

SAMPLING INFORMATION

Sample No: 16WW16-230119 **DATE/TIME:** 1-19-23/1430 **Pump Inlet Depth:** 28.81

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	FD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4

Purge Start Date/Time: 1-19-23/1405

Depth to Water - Initial (DTWi) (ft) 21.78

Purge End Date/Time: 1-19-23/1430

Depth to Well Bottom (ft) ~~29~~ 31.56

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 21.62-31.62

Discharge Tube Diameter: 4" Immiscible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~24~~ 28.81

Pump Start Time: 1405

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 21.78

APTIM

Sample Collection Log

Location ID: 16WW16		Sample No: 16WW16-2301 19								
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
1-19-23	1405	200	Initial	21.84	2.52	19.86	6.82	8	165	4.9
1-19	1410	200	1	21.88	2.49	19.75	6.77	7	169	2.0
1-19	1415	200	2	21.91	2.48	19.67	6.78	7	170	1.5
1-19	1420	200	3	21.93	2.57	19.62	6.78	6	173	1.0
1-19	1425	200	4	21.96	2.61	19.58	6.78	6	174	1.0
1-19	1430	200	5	21.98	2.65	19.54	6.77	5	175	0.9

Logged by: Derrick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW16**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet Warming, 65°

SAMPLING INFORMATION

Sample No: 16WW16-230119-FD **DATE/TIME:** 1-19-23/1430 **Pump Inlet Depth:** 28.81

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	FD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4

Purge Start Date/Time: 1-19-23/1405

Depth to Water - Initial (DTWi) (ft) 21.78

Purge End Date/Time: 1-19-23/1430

Depth to Well Bottom (ft) ~~29~~ 31.56

Discharge Tube Length: N/A

PID Reading: N/A

Screen Interval (ft): 21.62-31.62

Discharge Tube Diameter: 1/4

Immiscible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~24~~ 28.81

Pump Start Time: 1405

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 21.78

APTIM

Sample Collection Log

Location ID: 16WW16 Sample No: 16WW16-2301 19-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
1-19-23	1405	200	Initial	21.84	2.52	19.86	6.82	8	165	4.9
1-19	1410	200	1	21.88	2.49	19.75	6.77	7	169	2.0
1-19	1415	200	2	21.91	2.48	19.67	6.78	7	170	1.5
1-19	1420	200	3	21.93	2.57	19.62	6.78	6	173	1.0
1-19	1425	200	4	21.96	2.61	19.58	6.78	6	174	1.0
1-19	1430	200	5	21.98	2.65	19.54	6.77	5	175	0.9

Logged by: Derrick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW22**

Sampler(s): Derrick Berry

FIELD CONDITIONS Fair 64°

SAMPLING INFORMATION

Sample No: 16WW22-2301 20 **DATE/TIME:** 1-20-23/1255 **Pump Inlet Depth:** 31.12

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 27.71

Depth to Well Bottom (ft) ~~31~~ 34.31

Screen Interval (ft): 23.94-33.94

Approximate depth of pump inlet*(ft): ~~26~~ 31.12

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-20-23/1230

Purge End Date/Time: 1-20-23/1255

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Pump Start Time: 1230

2ND DTW - 27.71

APTIM

Sample Collection Log

Location ID: 16WW22 Sample No: 16WW22-2301 20

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
1-20-23	1230	200	Init	27.76	3.45	18.15	6.27	74	8	1.2
1-20	1235	200	1	27.81	3.47	18.23	6.29	72	10	1.0
1-20	1240	200	2	27.84	3.54	18.24	6.34	71	11	0.8
1-20	1245	200	3	27.88	3.56	18.12	6.35	68	11	0.8
1-20	1250	200	4	27.89	3.58	18.16	6.36	64	12	0.7
1-20	1255	200	5	27.94	3.59	18.21	6.37	61	13	0.7

Logged by: Derrick Berry Date: 1-20-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW23**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW23-230121 **DATE/TIME:** 1/21/23 1120 **Pump Inlet Depth:** 32.20

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/21/23 1125

Depth to Water - Initial (DTWi) (ft) 5.66

Purge End Date/Time: 1/21/23 1155

Depth to Well Bottom (ft) ~~2nd~~ 37.13

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 27.20 - 37.20

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~25~~ 32.20

Pump Start Time: 1125

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 5.66

APTIM

Sample Collection Log

Location ID: 16WW23 Sample No: 16WW23-2301 21

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
1/21/23	1130	100	.5	5.73	2.40	14.59	6.14	108	-30	0.70
	1135	100	1.0	5.78	3.69	15.07	6.28	100	-38	0.25
	1140	100	1.5	5.81	3.90	15.20	6.37	97.1	-42	0.09
	1145	100	2.0	5.82	3.91	15.25	6.38	96.5	-43	0.09
	1150	100	2.5	5.84	3.91	15.29	6.39	95.8	-44	0.08
↓	1155	100	3.0	5.86	3.92	15.34	6.40	95.0	-44	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW23**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW23-230121-FD **DATE/TIME:** 1/21/23 1120 **Pump Inlet Depth:** 32.20

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/21/23 1125

Depth to Water - Initial (DTWi) (ft) 5.66

Purge End Date/Time: 1/21/23 1155

Depth to Well Bottom (ft) ~~35~~ 37.13

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 27.20 - 37.20

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~28~~ 32.20

Pump Start Time: 1125

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 5.66

APTIM

Sample Collection Log

Location ID: 16WW23		Sample No: 16WW23-230121-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
1/21/23	1130	100	.5	5.73	2.40	14.59	6.14	108	-30	0.70
	1135	100	1.0	5.78	3.69	15.07	6.28	100	-38	0.25
	1140	100	1.5	5.81	3.90	15.20	6.37	97.1	-42	0.09
	1145	100	2.0	5.82	3.91	15.25	6.38	96.5	-43	0.09
	1150	100	2.5	5.84	3.91	15.29	6.39	95.8	-44	0.08
↓	1155	100	3.0	5.86	3.92	15.34	6.40	95.0	-44	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW24-230121 **DATE/TIME:** 1/21/23 1203 **Pump Inlet Depth:** 16.79

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	Metals (Mn) by 6020A (W)	1 x 125 mL HPDE	HN03<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/21/23 1210

Depth to Water - Initial (DTWi) (ft) 3.85

Purge End Date/Time: 1/21/23 1240

Depth to Well Bottom (ft) 19.22

Discharge Tube Length: NA

PID Reading: N

Screen Interval (ft): 14.29 - 19.29

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 16.79

Pump Start Time: 1210

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 3.85

APTIM

Sample Collection Log

Location ID: 16WW24		Sample No: 16WW24-230121								
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
1/24/23	1215	100	.5	3.91	2.36	15.31	5.17	3.7	309	0.60
	1220	100	1.0	3.95	2.39	15.20	3.95	1.9	420	0.19
	1225	100	1.5	3.97	2.42	15.29	3.76	0.8	443	0.05
	1230	100	2.0	3.99	2.42	15.35	3.75	0.0	445	0.05
	1235	100	2.5	4.01	2.43	15.39	3.74	0.0	446	0.04
↓	1240	100	3.0	4.02	2.43	15.43	3.74	0.0	447	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW24-2301 21 -MS **DATE/TIME:** 1/21/23 1203 **Pump Inlet Depth:** 16.79

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	Metals (Mn) by 6020A (W)	1 x 125 mL HPDE	HN03<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/21/23 1210

Depth to Water - Initial (DTWi) (ft) 3.85

Purge End Date/Time: 1/21/23 1240

Depth to Well Bottom (ft) ~~19~~ 19.22

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 14.29-19.29

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~18.5~~ 16.79

Pump Start Time: 1210

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 3.85

APTIM

Sample Collection Log

Location ID: 16WW24		Sample No: 16WW24-230121-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
1/21/23	1215	100	.5	3.91	2.36	15.31	5.17	3.7	309	0.60
	1220	100	1.0	3.95	2.39	15.20	3.95	1.9	420	0.19
	1225	100	1.5	3.97	2.42	15.29	3.76	0.8	443	0.05
	1230	100	2.0	3.99	2.42	15.35	3.75	0.0	445	0.05
	1235	100	2.5	4.01	2.43	15.39	3.74	0.0	446	0.04
↓	1240	100	3.0	4.02	2.43	15.43	3.74	0.0	447	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW24**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW24-230121-MSD **DATE/TIME:** 1/21/23 1203 **Pump Inlet Depth:** 16.79

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	Metals (Mn) by 6020A (W)	1 x 125 mL HPDE	HN03<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/21/23 1210

Depth to Water - Initial (DTWi) (ft) 3.85

Purge End Date/Time: 1/21/23 1240

Depth to Well Bottom (ft) ~~19~~ 19.22

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 14.29-19.29

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~19.5~~ 16.79

Pump Start Time: 1210

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 3.85

APTIM

Sample Collection Log

Location ID: 16WW24 Sample No: 16WW24-230121-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
1/21/23	1215	100	15	3.91	2.36	15:31	5.17	3.7	309	0.60
	1220	100	1.0	3.95	2.39	15:20	3.95	1.9	420	0.19
	1225	100	1.5	3.97	2.42	15:29	3.76	0.8	443	0.05
	1230	100	2.0	3.99	2.42	15:35	3.75	0.0	445	0.05
	1235	100	2.5	4.01	2.43	15:39	3.74	0.0	446	0.04
↓	1240	100	3.0	4.02	2.43	15:43	3.74	0.0	447	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW25**

Sampler(s): Derrick Berry

FIELD CONDITIONS Warming, Sunny 58°

SAMPLING INFORMATION

Sample No: 16WW25-230123 **DATE/TIME:** 1-23-23/1245 **Pump Inlet Depth:** 46.88

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 16.04

Depth to Well Bottom (ft) ~~48~~ 52.31

Screen Interval (ft): 42.25-52.25

Approximate depth of pump inlet*(ft): ~~44~~ 46.88

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-23-23/1215

Purge End Date/Time: 1-23-23/1245

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Pump Start Time: 1215

2ND DTW - 16.04

APTIM

Sample Collection Log

Location ID: 16WW25		Sample No: 16WW25-230123								
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
1-23-23	1215	200	Initial	16.11	4.26	20.02	5.82	18	49	0.7
1-23	1220	200	1	16.16	4.26	20.09	5.82	17	49	0.7
1-23	1225	200	2	16.21	4.28	20.69	5.82	16	48	0.7
1-23	1230	200	3	16.24	4.28	20.81	5.82	15	47	0.7
1-23	1235	200	4	16.25	4.33	20.20	5.86	14	43	0.4
1-23	1240	200	5	16.26	4.34	20.18	5.87	12	42	0.4
1-23	1245	200	6	16.28	4.38	20.15	5.87	10	40	0.4

Logged by: Derrick Berry Date: 1-23-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW26**

Sampler(s): Derrick Berry

FIELD CONDITIONS Warming 53°

SAMPLING INFORMATION

Sample No: 16WW26-230123 **DATE/TIME:** 1-23-23/1125 **Pump Inlet Depth:** 18.11

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Slightly cloudy to clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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) 16.71

Depth to Well Bottom (ft) ~~175~~ 21.78

Screen Interval (ft): 15.97-20.97

Approximate depth of pump inlet*(ft): ~~15~~ 18.11

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-23-23/1100

Purge End Date/Time: 1-23-23/1125

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y/(N)

Pump Start Time: 1100

2ND DTW - 16.71

APTIM

Sample Collection Log

Location ID: 16WW26 Sample No: 16WW26-230123

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
1-23-23	1100	200	Init'd	16.89	0.946	17.35	5.10	44	206	1.3
1-23	1105	200	1	17.11	0.912	17.31	5.00	41	227	1.0
1-23	1110	200	2	17.18	0.884	17.55	4.98	37	259	0.8
1-23	1115	200	3	17.24	0.910	17.69	4.97	33	249	0.7
1-23	1120	200	4	17.31	0.880	17.89	4.99	31	202	0.7
1-23	1125	200	5	17.34	0.877	17.79	5.00	28	196	0.7

Logged by: Derrick Berry Date: 1-23-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW27**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 16WW27-230121 **DATE/TIME:** 1/21/23 0930 **Pump Inlet Depth:** 34.10

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 5.48

Depth to Well Bottom (ft) ~~39~~ 39.32

Screen Interval (ft): 29.10 - 39.10

Approximate depth of pump inlet*(ft): ~~34~~ 34.10

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow / Bladder Pump

Purge Start Date/Time: 1/21/23 1000

Purge End Date/Time: 1/21/23 1030

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Pump Start Time: 1000

2ND DTW - 5.48

APTIM

Sample Collection Log

Location ID: 16WW27					Sample No: 16WW27-2301 21					
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
1/21/23	1005	100	1.5	5.55	2.92	12.30	6.68	63.7	-46	0.71
	1010	100	1.0	5.60	4.39	13.18	6.57	56.2	-57	0.29
	1015	100	1.5	5.63	4.53	13.91	6.48	53.9	-74	0.10
	1020	100	2.0	5.65	4.54	13.97	6.47	53.4	-75	0.10
	1025	100	2.5	5.66	4.55	14.03	6.47	52.6	-76	0.09
↓	1030	100	3.0	5.67	4.56	14.09	6.46	52.1	-77	0.09

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **16WW29**

Project No: **501032** Sampler(s): Derrick Berry

FIELD CONDITIONS Sunny 60°s

SAMPLING INFORMATION

Sample No: 16WW29-230123 **DATE/TIME:** 1-23-23 1345 **Pump Inlet Depth:** 42.16

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox & DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4

Purge Start Date/Time: 1-23-23/1320

Depth to Water - Initial (DTWi) (ft) 5.92

Purge End Date/Time: 1-23-23/1345

Depth to Well Bottom (ft) ~~42~~ 44.93

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 40.08-45.08

Discharge Tube Diameter: 4 Immiscible Layer: Y/(N)

Approximate depth of pump inlet*(ft): ~~39.5~~ 42.16

Pump Start Time: 1320

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 5.92

APTIM

Sample Collection Log

Location ID: 16WW29		Sample No: 16WW29-230123								
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
1-23-23	1320	200	Initial	5.96	3.20	19.04	6.24	27	-47	0.6
1-23	1325	200	1	5.99	3.38	18.18	6.25	25	-51	0.6
1-23	1330	200	2	6.04	3.51	17.71	6.26	23	-52	0.6
1-23	1335	200	3	6.06	3.54	17.87	6.27	21	-56	0.6
1-23	1340	200	4	6.10	3.53	17.88	6.27	18	-56	0.5
1-23	1345	200	5	6.11	3.54	17.86	6.27	12	-56	0.4

Logged by: Derrick Berry Date: 1-23-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW30**

Sampler(s): Derrick Berry

FIELD CONDITIONS Sunny, 60s

SAMPLING INFORMATION

Sample No: 16WW30-230123 **DATE/TIME:** 1-23-23/1435 **Pump Inlet Depth:** 30.08

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4

Purge Start Date/Time: 1-23-23/1410

Depth to Water - Initial (DTWi) (ft) 6.12

Purge End Date/Time: 1-23-23/1435

Depth to Well Bottom (ft) ~~30~~ 32.98

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 28.14-33.14

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~27.5~~ 30.08 Pump Start Time: 1410

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 6.12

APTIM

Sample Collection Log

Location ID: 16WW30 Sample No: 16WW30-2301 23

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
1-23-23	1410	200	Initial	6.18	1.87	16.88	6.47	62	29	3.6
1-23	1415	200	1	6.24	1.86	16.84	6.48	55	51	2.4
1-23	1420	200	2	6.30	1.87	16.93	6.48	42	78	2.2
1-23	1425	200	3	6.33	1.87	16.87	6.49	39	87	2.1
1-23	1430	200	4	6.34	1.87	16.88	6.49	35	89	2.1
1-23	1435	200	5	6.38	1.87	16.91	6.49	31	93	2.1

Logged by: Derrick Berry Date: 1-23-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW31**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet Cold 44°

SAMPLING INFORMATION

Sample No: 16WW31-230125 **DATE/TIME:** 1-25-23/1005 **Pump Inlet Depth:** 46.18

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Turbid to cloudy to clear

Assoc. QC Samples: None

Decontamination Procedures: Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 30.19

Depth to Well Bottom (ft) ~~48~~ 51.81

Screen Interval (ft): 41.78-51.78

Approximate depth of pump inlet*(ft): ~~44~~ 46.18

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Geo-sub

Purge Start Date/Time: 1-25-23/0940

Purge End Date/Time: 1-25/1005

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 5/8 Immiscible Layer: Y / (N)

Pump Start Time: 0940

2nd DTW - 30.19

APTIM

Sample Collection Log

Location ID: 16WW31 Sample No: 16WW31-2301 23

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
1-25-23	0940	200	Initial	30.29	0.986	11.84	6.36	76	155	5.0
1-25	0945	200	1	30.36	0.959	12.09	6.15	91	146	1.1
1-25	0950	200	2	30.41	0.959	12.72	6.17	80	136	0.7
1-25	0955	200	3	30.44	0.944	13.01	6.18	62	130	0.7
1-25	1000	200	4	30.46	0.945	13.14	6.18	54	129	0.6
1-25	1005	200	5	30.51	0.941	13.10	6.17	48	128	0.5

Logged by: Derrick Berry Date: 1-25-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW32**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet Cold 40°s

SAMPLING INFORMATION

Sample No: 16WW32-2301 ~~25~~ **DATE/TIME:** 1-25-23/1050 **Pump Inlet Depth:** 29.84

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Turbid to cloudy	No	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 30.24

Depth to Well Bottom (ft) ~~32~~ 35.02

Screen Interval (ft): 25.01-35.01

Approximate depth of pump inlet*(ft): ~~27~~ 29.84

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Geo-sub (Stainless Steel)

Purge Start Date/Time: 1-25-23/1025

Purge End Date/Time: 1-25-23/ 1050

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 5/8 Immiscible Layer: Y / N

Pump Start Time: 1025

2nd DTW - 30.24

APTIM

Sample Collection Log

Location ID: 16WW32 Sample No: 16WW32-2301 23

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
1-25-23	1025	200	Initial	30.36	1.29	11.23	6.61	382	83	3.3
1-25	1030	200	1	30.51	1.25	10.82	6.39	284	28	1.9
1-25	1035	200	2	30.54	1.25	10.86	6.39	206	21	1.4
1-25	1040	200	3	3058	1.24	10.26	6.42	184	16	1.0
1-25	1045	200	4	30.60	1.23	10.21	6.44	169	17	1.0
1-25	1050	200	5	30.62	1.23	10.18	6.44	134	18	1.0

Logged by: Derrick Berry Date: 1-25-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW33**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet cold 40°

SAMPLING INFORMATION

Sample No: 16WW33-2301 ~~25~~ **DATE/TIME:** 1-25-23/1140 **Pump Inlet Depth:** 46.19

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample Cloudy to clearing **Assoc. QC Samples** None **Decontamination Procedures** Liqui-nox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 30.09

Depth to Well Bottom (ft) ~~49~~ 51.98

Screen Interval (ft): 42.17-52.17

Approximate depth of pump inlet*(ft): ~~44~~ 46.19

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Geo-sub (Stainless Steel)

Purge Start Date/Time: 1-25-23/1115

Purge End Date/Time: 1-25/1140

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 5/8 Immiscible Layer: Y / (N)

Pump Start Time: 1115

2ND DTW - 30.09

APTIM

Sample Collection Log

Location ID: 16WW33 Sample No: 16WW33-2301 23

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
1-25-23	1115	200	Initial	31.84	2.08	16.72	6.34	159	112	3.0
1-25	1120	200	1	31.92	2.06	17.36	6.31	138	127	0.7
1-25	1125	200	2	32.01	2.03	17.28	6.33	121	124	0.5
1-25	1130	200	3	32.11	2.08	16.75	6.34	84	92	0.5
1-25	1135	200	4	32.16	2.08	16.70	6.34	69	91	0.4
1-25	1140	200	5	32.19	2.09	16.68	6.33	55	88	0.4

Logged by: Derrick Berry Date: 1-25-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW34**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet Cool 50°

SAMPLING INFORMATION

Sample No: 16WW34-230125 **DATE/TIME:** 1-25-23/1230 **Pump Inlet Depth:** 32.67

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Turbid to cloudy	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 30.03

Depth to Well Bottom (ft) ~~32~~ 34.81

Screen Interval (ft): 29.81-34.81

Approximate depth of pump inlet*(ft): ~~29.5~~ 32.67

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Geo-sub stainless Steel

Purge Start Date/Time: 1-25-23/1205

Purge End Date/Time: 1-25-23/1230

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 5/8 Immiscible Layer: Y / (N)

Pump Start Time: 1205

2ND DTW - 30.03

APTIM

Sample Collection Log

Location ID: 16WW34 Sample No: 16WW34-230125

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
1-25-23	1205	200	Initial	30.39	1.33	15.99	6.14	422	15	2.4
1-25	1210	200	1	30.44	1.33	14.85	6.13	405	7	0.8
1-25	1215	200	2	30.56	1.32	14.40	6.15	337	6	0.7
1-25	1220	200	3	30.61	1.30	14.15	6.17	284	8	0.6
1-25	1225	200	4	30.64	1.29	14.27	6.18	241	8	0.6
1-25	1230	200	5	30.68	1.28	14.38	6.19	196	10	0.6

Logged by: Derrick Berry Date: 1-25-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW35**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet, Warming 61°

SAMPLING INFORMATION

Sample No: 16WW35-2301_19 **DATE/TIME:** 1-19-23/1255 **Pump Inlet Depth:** 44.58

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
clear to brownish orange	MS, MSD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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) 17.94

Depth to Well Bottom (ft) ~~43.5~~ 46.49

Screen Interval (ft): 36.58 - 46.58

Approximate depth of pump inlet*(ft): ~~38.5~~ 44.58

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1230/1-19-23

Purge End Date/Time: 1-19-23/1255

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Pump Start Time: 1230

2ND DTW - 17.94

APTIM

Sample Collection Log

Location ID: 16WW35		Sample No: 16WW35-230119								
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
1-19-23	1230	Initial	Initial	18.01	12.0	19.07	6.97	22	146	4.7
1-19	1235	200	1	18.06	12.3	18.76	6.81	19	155	1.0
1-19	1240	200	2	18.10	12.4	18.52	6.76	16	159	0.7
1-19	1245	200	3	18.12	12.6	18.00	6.67	15	161	0.7
1-19	1250	200	4	18.18	12.8	17.99	6.67	12	164	0.5
1-19	1255	200	5	18.24	12.7	17.98	6.65	10	167	0.5

Logged by: Derrick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW35**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet, Warming 610

SAMPLING INFORMATION

Sample No: 16WW35-230119-MS **DATE/TIME:** 1-19-23/1255 **Pump Inlet Depth:** 44.58

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample: Clear to brownish orange

Assoc. QC Samples: MS, MSD

Decontamination Procedures: Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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) 17.94

Depth to Well Bottom (ft) ~~45.5~~ 46.49

Screen Interval (ft): 36.58-46.58

Approximate depth of pump inlet*(ft): ~~38.5~~ 44.58

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-19-23/1230

Purge End Date/Time: 1-19-23/1255

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Pump Start Time: 1230

2ND DTW - 17.94

APTIM

Sample Collection Log

Location ID: 16WW35 Sample No: 16WW35-230119-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
1-19-23	1230	Initial	Initial	18.01	12.0	19.07	6.97	22	146	4.7
1-19	1235	200	1	18.06	12.3	18.76	6.81	19	155	1.0
1-19	1240	200	2	18.10	12.4	18.52	6.76	16	159	0.7
1-19	1245	200	3	18.12	12.6	18.00	6.67	15	161	0.7
1-19	1250	200	4	18.18	12.8	17.99	6.67	12	164	0.5
1-19	1255	200	5	18.24	12.7	17.98	6.65	10	167	0.5

Logged by: Derrick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW35**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet, Warming 60°

SAMPLING INFORMATION

Sample No: 16WW35-230119-MSD **DATE/TIME:** 1-19-23/1255 **Pump Inlet Depth:** 44.58

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear to brownish orange	MS, MSD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4

Purge Start Date/Time: 1-19-23/1230

Depth to Water - Initial (DTWi) (ft) 17.94

Purge End Date/Time: 1-19-23/1255

Depth to Well Bottom (ft) ~~43.5~~ 46.49

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 36.58-46.58

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~38.5~~ 44.58

Pump Start Time: 1230

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 17.94

APTIM

Sample Collection Log

Location ID: 16WW35 Sample No: 16WW35-230119-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
1-19-23	1230	Initial	Initial	18.01	12.0	19.07	6.97	22	146	4.7
1-19	1235	200	1	18.06	12.3	18.76	6.81	19	155	1.0
1-19	1240	200	2	18.10	12.4	18.52	6.76	16	159	0.7
1-19	1245	200	3	18.12	12.6	18.00	6.67	15	161	0.7
1-19	1250	200	4	18.18	12.8	17.99	6.67	12	164	0.5
1-19	1255	200	5	18.24	12.7	17.98	6.65	10	167	0.5

Logged by: Derick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW36**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy / Cold

SAMPLING INFORMATION

Sample No: 16WW36-230125 **DATE/TIME:** 1/25/23 1105 **Pump Inlet Depth:** 21.99

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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: 1/25/23 1115

Depth to Water - Initial (DTWi) (ft) 17.33

Purge End Date/Time: 1/25/23 1145

Depth to Well Bottom (ft) ~~24.5~~ 24.88

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 19.49 - 24.49

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~19~~ 21.99

Pump Start Time: 1115

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW - 17.33

APTIM

Sample Collection Log

Location ID: 16WW36		Sample No: 16WW36-230125								
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
1/25/23	1120	100	.5	17.40	10.3	14.55	6.75	1.3	13	0.61
	1125	100	1.0	17.46	10.4	14.86	6.72	[illegible]0.0	28	0.19
	1130	100	1.5	17.50	10.4	15.18	6.68	0.0	37	0.05
	1135	100	2.0	17.52	10.4	15.25	6.67	0.0	37	0.05
	1140	100	2.5	17.54	10.3	15.30	6.67	0.0	38	0.05
	1145	100	3.0	17.56	10.3	15.36	6.67	0.0	39	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW36**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy/Cold

SAMPLING INFORMATION

Sample No: 16WW36-230125-FD **DATE/TIME:** 1/25/23 1105 **Pump Inlet Depth:** 21.99

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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) 17.33

Depth to Well Bottom (ft) ~~24.5~~ 24.88

Screen Interval (ft): 19.49 - 24.49

Approximate depth of pump inlet*(ft): ~~19~~ 21.99

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 1/25/23 1115

Purge End Date/Time: 1/25/23 1145

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y (N)

Pump Start Time: 1115

2nd DTW - [redacted]
17.33

APTIM

Sample Collection Log

Location ID: 16WW36		Sample No: 16WW36-230125-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
1/25/23	1120	100	.5	17.40	10.3	14.55	6.75	1.3	13	0.61
	1125	100	1.0	17.46	10.4	14.86	6.72	0.0	28	0.19
	1130	100	1.5	17.50	10.4	15.18	6.68	0.0	37	0.05
	1135	100	2.0	17.52	10.4	15.25	6.67	0.0	37	0.05
	1140	100	2.5	17.54	10.3	15.30	6.67	0.0	38	0.05
	1145	100	3.0	17.56	10.3	15.36	6.67	0.0	39	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW37**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cold 41°

SAMPLING INFORMATION

Sample No: 16WW37-230120 **DATE/TIME:** 1-20-23/1000 **Pump Inlet Depth:** 46.84

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Cloudy to clear	NO	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 27.72

Depth to Well Bottom (ft) ~~45.5~~ 48.08

Screen Interval (ft): 43.72-48.72

Approximate depth of pump inlet*(ft): ~~48~~ 46.84

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Geo-sub

Purge Start Date/Time: 1-20-23/0935

Purge End Date/Time: 1-20-23/1000

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 3/8 Immiscible Layer: Y (N)

Pump Start Time: 0935

2ND DTW - 27.72

APTIM

Sample Collection Log

Location ID: 16WW37 Sample No: 16WW37-2301_20

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
1-20-23	0935	200	Initial	28.84	4.29	17.78	6.29	56	75	4.4
1-20	0940	200	1	28.91	4.25	19.21	6.25	51	75	1.0
1-20	0945	200	2	29.11	4.24	19.47	6.26	48	77	0.8
1-20	0950	200	3	29.18	4.24	19.57	6.28	41	79	0.8
1-20	0955	200	4	29.21	4.28	17.61	6.31	40	79	0.9
1-20	1000	200	5	29.29	4.31	17.64	6.32	35	79	1.0

Logged by: Derrick Berry Date: 1-20-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW38**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cold 36°

SAMPLING INFORMATION

Sample No: 16WW38-230120 **DATE/TIME:** 1-20-23/0910 **Pump Inlet Depth:** 29.67

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Cloudy to clear	FD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 27.67

Depth to Well Bottom (ft) ~~28~~ 32.31

Screen Interval (ft): 22.30-32.30

Approximate depth of pump inlet*(ft): ~~24~~ 29.67

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-20-23/0845

Purge End Date/Time: 1-20-23/0910

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Pump Start Time: 0845

2ND DTW - 27.67

APTIM

Sample Collection Log

Location ID: 16WW38				Sample No: 16WW38-2301 20						
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
1-20-23	0845	200	Initial	27.77	2.52	17.35	6.08	69	-48	3.5
1-20	0850	200	1	27.78	2.54	17.78	5.97	44	-50	2.1
1-20	0855	200	2	27.81	2.52	17.90	5.96	34	-52	1.8
1-20	0900	200	3	27.84	2.28	18.11	5.99	31	-50	1.2
1-20	0905	200	4	27.85	2.25	18.14	6.01	28	-49	1.1
1-20	0910	200	5	27.94	2.21	18.16	6.04	24	-48	1.1

Logged by: Derrick Berry Date: 1-20-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW38**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cold 36°

SAMPLING INFORMATION

Sample No: 16WW38-230120-FD **DATE/TIME:** 1-2023/0910 **Pump Inlet Depth:** 29.67

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Cloudy to clear	FD	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 27.67

Depth to Well Bottom (ft) ~~29~~ 32.31

Screen Interval (ft): 27.30-32.30

Approximate depth of pump inlet*(ft): ~~24~~ 29.67

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Geo-Sub

Purge Start Date/Time: 1-20-23/0845

Purge End Date/Time: 1-20-23/0910

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: ~~3/8~~ 1/4 Immiscible Layer: Y / (N)

Pump Start Time: ~~0845~~ 0845

2ND DTW - 27.67

APTIM

Sample Collection Log

Location ID: 16WW38 Sample No: 16WW38-2301 20-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
1-20-23	0845	200	Initial	27.77	2.52	17.35	6.08	69	-48	3.5
1-20	0850	200	1	27.78	2.54	17.78	5.97	44	-50	2.1
1-20	0855	200	2	27.81	2.52	17.90	5.96	34	-52	1.8
1-20	0900	200	3	27.84	2.28	18.11	5.99	31	-50	1.2
1-20	0905	200	4	27.84	2.25	18.14	6.01	28	-49	1.1
1-20	0910	200	5	27.94	2.21	18.16	6.04	24	-48	1.1

Logged by: Derrick Berry Date: 1-20-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW39**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet Cold 41°

SAMPLING INFORMATION

Sample No: 16WW39-230126S **DATE/TIME:** 1-25-23/0910 **Pump Inlet Depth:** 24.0

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 2

Purge Start Date/Time: 1-25-23/0845

Depth to Water - Initial (DTWi) (ft) 19.92

Purge End Date/Time: 1-25-23/0910

Depth to Well Bottom (ft) ~~26.5~~ 29.4

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 18.00-28.00

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~20~~ 24.0

Pump Start Time: 0845

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 19.92

APTIM

Sample Collection Log

Location ID: 16WW39 Sample No: 16WW39-2301 25

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
1-25-23	0845	200	Initial	20.04	5.16	13.24	6.28	35	200	3.1
1-25	0850	200	1	20.18	5.22	13.69	6.31	31	170	1.7
1-25	0855	200	2	20.22	5.34	14.07	6.34	25	151	1.0
1-25	0900	200	3	20.34	5.36	14.28	6.35	21	150	1.0
1-25	0905	200	4	20.38	5.38	14.30	6.36	18	147	0.8
1-25	0910	200	5	20.41	5.40	14.32	6.36	15	146	0.8

Logged by: Derrick Berry Date: 1-25-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW40**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW40-230121 **DATE/TIME:** 1/21/23 0700 **Pump Inlet Depth:** 15.80

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	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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.): 2

Purge Start Date/Time: 1/21/23 0710

Depth to Water - Initial (DTWi) (ft) 10.83

Purge End Date/Time: 1/21/23 0740

Depth to Well Bottom (ft) ~~18.80~~ 18.81

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~19~~ 15.80

Pump Start Time: 0710

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DTW- 10.83

APTIM

Sample Collection Log

Location ID: 16WW40				Sample No: 16WW40-230121						
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
1/21/23	0715	100	.5	10.90	6.07	13.01	7.07	150	22	0.66
	0720	100	1.0	10.95	5.60	14.55	6.77	138	38	0.21
	0725	100	1.5	10.99	5.32	14.97	6.71	125	36	0.05
	0730	100	2.0	11.01	5.31	15.03	6.71	124	35	0.05
	0735	100	2.5	11.03	5.30	15.09	6.70	122	34	0.05
↓	0740	100	3.0	11.05	5.29	15.15	6.70	121	34	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **16WW41**

Project No: **501032** Sampler(s): Derrick-Berry

FIELD CONDITIONS Wet, Cold 44°

SAMPLING INFORMATION

Sample No: 16WW41-230119 **DATE/TIME:** 1-19-23/0900 **Pump Inlet Depth:** 46.19

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Clear to brownish orange **Assoc. QC Samples:** NO **Decontamination Procedures:** Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing Purging Method/Equipment: Geo-sub

Casing ID (in.): 4 Purge Start Date/Time: 1-19-23/0835

Depth to Water - Initial (DTWi) (ft) 26.08 Purge End Date/Time: 1-19-23/0900

Depth to Well Bottom (ft) ~~51~~ 52.78 Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 42.60 - 52.60 Discharge Tube Diameter: ~~1~~ 1/4 Immiscible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~45~~ 46.19 Pump Start Time: 0835

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW - 26.08

APTIM

Sample Collection Log

Location ID: 16WW41		Sample No: 16WW41-2301_19								
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
1-19-23	0835	200	Initial	26.11	11.2	17.04	6.91	24	181	1.3
1-19-23	0840	200	1	26.16	11.4	17.28	6.81	21	185	1.0
1-19-23	0845	200	2	26.20	11.5	17.31	6.78	18	191	0.9
1-19-23	0850	200	3	26.22	11.6	17.33	6.75	18	191	0.8
1-19-23	0855	200	4	26.28	11.6	17.35	6.73	15	196	0.8
1-19-23	0900	200	5	26.31	11.9	17.38	6.71	12	197	0.8

Logged by: Derrick Berry Date: 1-19-23

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW42**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW42-230121 **DATE/TIME:** 1/21/23 1332 **Pump Inlet Depth:** 11.57

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/21/23 1335

Depth to Water - Initial (DTWi) (ft) 4.28

Purge End Date/Time: 1/21/23 1405

Depth to Well Bottom (ft) 15.42

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 6.57-16.57

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Approximate depth of pump inlet*(ft): 11.57

Pump Start Time: 1335

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 4.28

APTIM

Sample Collection Log

Location ID: 16WW42 Sample No: 16WW42-230121

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
1/24/23	1340	100	.5	4.35	0.349	15.46	5.92	61.3	107	0.59
	1345	100	1.0	4.40	0.265	15.31	5.75	58.7	181	0.18
	1350	100	1.5	4.43	0.257	15.26	5.67	56.7	212	0.03
	1355	100	2.0	4.45	0.256	15.23	5.67	56.2	213	0.03
	1400	100	2.5	4.47	0.256	15.20	5.66	55.6	214	0.02
↓	1405	100	3.0	4.49	0.256	15.18	5.65	55.2	215	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW43**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 16WW43-230121 **DATE/TIME:** 1/21/23 1037 **Pump Inlet Depth:** 9.59

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 4.18

Depth to Well Bottom (ft) 14.58

Screen Interval (ft): 4.59 - 14.59

Approximate depth of pump inlet*(ft): 9.59

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow/BLADDER Pump

Purge Start Date/Time: 1/21/23 1045

Purge End Date/Time: 1/21/23 1115

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Pump Start Time: 1045

2ND DTW - 4.18

APTIM

Sample Collection Log

Location ID: 16WW43		Sample No: 16WW43-230121								
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
1/21/23	1050	100	0.5	4.25	0.467	14.11	6.69	36.6	-39	0.61
	1055	100	1.0	4.31	0.355	14.63	6.72	29.1	12[redacted]	0.22
	1100	100	1.5	4.35	0.296	14.65	6.72	26.7	29	0.08
	1105	100	2.0	4.37	0.295	14.67	6.73	26.4	30	0.08
	1110	100	2.5	4.39	0.294	14.69	6.73	25.8	30	0.08
	1115	100	3.0	4.40	0.294	14.71	6.73	25.3	31	0.07

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW44**

Sampler(s): Derrick Berry

FIELD CONDITIONS Cold 46°

SAMPLING INFORMATION

Sample No: 16WW44-230121 **DATE/TIME:** 1-21-23/0845 **Pump Inlet Depth:** 29.78

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Cloudy to clearing **Assoc. QC Samples:** None **Decontamination Procedures:** Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 23.84

Depth to Well Bottom (ft) ~~30~~ 32.98

Screen Interval (ft): 22.18-32.18

Approximate depth of pump inlet*(ft): ~~25~~ 29.78

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-21-23/0820

Purge End Date/Time: 1-21-23/0845

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Pump Start Time: 0820

2ND DTW - 23.84

APTIM

Sample Collection Log

Location ID: 16WW44 Sample No: 16WW44-2301 21

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
1-21-23	0820	200	Init	24.01	0.392	15.89	6.30	30	-36	3.00
1-21	0825	200	1	24.12	0.302	16.68	5.97	26	-5	1.81
1-21	0830	200	2	24.18	0.239	17.40	5.77	24	19	1.1
1-21	0835	200	3	24.24	0.229	17.76	5.71	22	36	0.8
1-21	0840	200	4	24.22	0.229	17.78	5.72	20	34	0.7
1-21	0845	200	5	24.24	0.229	17.80	5.71	18	34	0.7

Logged by: Derrick Berry Date: 1-21-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW46**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy / cold

SAMPLING INFORMATION

Sample No: 16WW46-230125 **DATE/TIME:** 1/25/23 0839 **Pump Inlet Depth:** 17.29

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 14.26

Depth to Well Bottom (ft) 22.18

Screen Interval (ft): 12.29 - 22.29

Approximate depth of pump inlet*(ft): 17.29

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 1/25/23 0850

Purge End Date/Time: 1/25/23 0920

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Pump Start Time: 0850

2ND DTW- 14.26

APTIM

Sample Collection Log

Location ID: 16WW46		Sample No: 16WW46-230125								
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
1/25/23	0855	100	.5	14.33	1.89	12.58	7.37	134	-18	0.60
	0900	100	1.0	14.39	1.81	12.60	7.21	125	4	0.17
	0905	100	1.5	14.43	1.77	12.37	7.13	120	10	0.05
	0910	100	2.0	14.45	1.77	12.32	7.12	120	10	0.04
	0915	100	2.5	14.47	1.77	12.27	7.11	119	11	0.04
↓	0920	100	3.0	14.49	1.76	12.23	7.11	118	11	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW48**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 16WW48-230119 **DATE/TIME:** 1/19/23 0747 **Pump Inlet Depth:** 17.45

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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: 1/19/23 0755

Depth to Water - Initial (DTWi) (ft) 12.45

Purge End Date/Time: 1/19/23 0825

Depth to Well Bottom (ft) ~~25~~ 22.47

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.95-22.95

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~15~~ 17.95

Pump Start Time: 0755

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW ~ 12.45

APTIM

Sample Collection Log

Location ID: 16WW48		Sample No: 16WW48-230119								
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
1/19/23	0800	100	.5	12.52	7.57	~~11.77~~	7.06	0.5	111	0.77
↓	0805	100	1.0	12.58	7.76	12.33	6.88	0.0	115	0.22
	0810	100	1.5	12.62	7.85	12.59	6.67	0.0	118	0.07
	0815	100	2.0	12.65	7.86	12.64	6.66	0.0	119	0.07
	0820	100	2.5	12.67	7.86	12.68	6.65	0.0	119	0.06
↓	0825	100	3.0	12.69	7.87	12.72	6.65	0.0	119	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW49**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy/Cold

SAMPLING INFORMATION

Sample No: 16WW49-230125 **DATE/TIME:** 1/25/23 **Pump Inlet Depth:** 50.03

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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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.):

Purge Start Date/Time: 1/25/23 1025

Depth to Water - Initial (DTWi) (ft) 18.55

Purge End Date/Time: 1/25/23 1055

Depth to Well Bottom (ft) ~~52~~ 54.89

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 45.03 - 55.03

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~47~~ 50.03

Pump Start Time: 1025

Ferrous Iron (Required Y or (N) _____ mg/L

RND DTW- 18.55

APTIM

Sample Collection Log

Location ID: 16WW49		Sample No: 16WW49-230125								
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
1/25/23	1030	100	.5	18.62	2.89	13.39	7.35	27.7	13	0.73
	1035	100	1.0	18.68	2.80	15.59	6.79	25.3	16	0.28
	1040	100	1.5	18.72	2.75	16.17	6.69	24.7	10	0.14
	1045	100	2.0	18.75	2.74	16.23	6.67	24.4	9	0.14
	1050	100	2.5	18.77	2.74	16.28	6.65	23.8	8	0.13
↓	1055	100	3.0	18.79	2.73	16.31	6.65	23.0	8	0.13

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW51**

Sampler(s): Derrick Berry

FIELD CONDITIONS Warming, sunny 55°

SAMPLING INFORMATION

Sample No: 16WW51-230120 **DATE/TIME:** 1-20-23/1105 **Pump Inlet Depth:** 41.69

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Clear **Assoc. QC Samples:** ND **Decontamination Procedures:** Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 11.32

Depth to Well Bottom (ft) ~~41.5~~ 44.43

Screen Interval (ft): 34.13 - 44.13

Approximate depth of pump inlet*(ft): ~~38~~ 41.69

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-20-23/1040

Purge End Date/Time: 1-20-23/1105

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Pump Start Time: 1040

2ND DTW - 11.32

APTIM

Sample Collection Log

Location ID: 16WW51		Sample No: 16WW51-2301_20								
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
1-20-23	1040	200	Initial	11.67	4.03	15.66	6.07	54	0	2.3
1-20	1045	200	1	11.74	4.06	15.82	6.12	39	-13	1.2
1-20	1050	200	2	11.81	4.07	15.86	6.13	34	-18	1.1
1-20	1055	200	3	11.84	4.14	16.03	6.21	31	-39	1.0
1-20	1100	200	4	11.88	4.15	16.05	6.22	28	-40	0.9
1-20	1105	200	5	11.91	4.16	16.06	6.22	26	-41	0.9

Logged by: Derrick Berry Date: 1-20-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW55**

Sampler(s): Derrick Berry

FIELD CONDITIONS Wet, Warming 58°

SAMPLING INFORMATION

Sample No: 16WW55-230119 **DATE/TIME:** 1-19-23/1205 **Pump Inlet Depth:** 28.41

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample: Clear **Assoc. QC Samples:** None **Decontamination Procedures:** Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Peristaltic Pump

Casing ID (in.): 4

Purge Start Date/Time: 1140/1-19-23

Depth to Water - Initial (DTWi) (ft) 21.49

Purge End Date/Time: 1-19-23/1205

Depth to Well Bottom (ft) ~~27.5~~ 30.39

Discharge Tube Length: N/A PID Reading: N/A

Screen Interval (ft): 19.92-29.92

Discharge Tube Diameter: 1/4 Immiscible Layer: Y (N)

Approximate depth of pump inlet*(ft): ~~22~~ 28.41

Pump Start Time: 1140

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DTW – 21.49

APTIM

Sample Collection Log

Location ID: 16WW55					Sample No: 16WW55-2301 19					
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
1-19-23	1140	200	Initial	21.56	4.48	18.27	6.92	4	100	0.7
1-19	1145	200	1	21.58	4.51	18.31	6.91	4	106	0.7
1-19	1150	200	2	21.62	4.52	18.33	6.90	5	110	0.6
1-19	1155	200	3	21.64	4.54	18.32	6.88	5	126	0.6
1-19	1200	200	4	21.65	4.56	18.34	6.86	5	128	0.5
1-19	1205	200	5	21.66	4.58	18.36	6.82	4	131	0.5

Logged by: Derrick Berry Date: 1-19-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW56**

Sampler(s): Derrick Berry

FIELD CONDITIONS Fair 68°

SAMPLING INFORMATION

Sample No: 16WW56-230120 **DATE/TIME:** 1-20-23/1355 **Pump Inlet Depth:** 31.88

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures
Clear	None	Liquinox + DI Water

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	VOCs in Water by 8260C	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) 26.71

Depth to Well Bottom (ft) ~~31.5~~ 34.08

Screen Interval (ft): 24.26-34.26

Approximate depth of pump inlet*(ft): ~~26~~ 31.88

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Peristaltic Pump

Purge Start Date/Time: 1-20-23/1330

Purge End Date/Time: 1-20-23/1355

Discharge Tube Length: N/A PID Reading: N/A

Discharge Tube Diameter: 1/4 Immiscible Layer: Y / (N)

Pump Start Time: 1330

2ND DTW - 24.71

APTIM

Sample Collection Log

Location ID: 16WW56 Sample No: 16WW56-2301 20

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
1-20-23	1330	200	Intial	26.74	3.00	18.38	6.32	11	80	1.7
1-20	1335	200	1	26.77	2.98	18.46	6.30	6	83	1.1
1-20	1340	200	2	26.84	2.97	18.48	6.28	3	92	0.8
1-20	1345	200	3	26.88	2.96	18.57	6.28	2	104	0.8
1-20	1350	200	4	26.94	2.95	18.55	6.28	1	105	0.8
1-20	1355	200	5	26.96	2.95	18.61	6.27	0	107	0.8

Logged by: Derrick Berry Date: 1-20-2023

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW57**

Sampler(s): Scott Beasinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 16WW57-2301 ~~23~~

DATE/TIME: 1/~~23~~/23 0901

Pump Inlet Depth: 34.94

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	Anions-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.):

Depth to Water - Initial (DTWi) (ft) 5.72

Depth to Well Bottom (ft) ~~39~~ 39.87

Screen Interval (ft): 29.94-39.94

Approximate depth of pump inlet*(ft): ~~34~~ 34.94

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 1/~~23~~/23 0910

Purge End Date/Time: 1/~~23~~/23 0940

Discharge Tube Length: NA

PID Reading: NA

Discharge Tube Diameter: 1/4"

Immiscible Layer: Y (N)

Pump Start Time: 0910

2ND DTW- 5.72

APTIM

Sample Collection Log

Location ID: 16WW57 Sample No: 16WW57-230123

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
1/23/23	0915	100	.5	5.80	3.82	13.03	6.32	307	-10	0.69
	0920	100	1.0	5.85	6.31	13.87	6.35	288	-20	0.22
	0925	100	1.5	5.89	6.48	14.68	6.37	276	-23	0.09
	0930	100	2.0	5.91	6.49	14.74	6.37	274	-24	0.09
	0935	100	2.5	5.93	6.50	14.79	6.37	272	-24	0.08
↓	0940	100	3.0	5.95	6.51	14.84	6.37	271	-24	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **16WW58**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 16WW58-2301.23 **DATE/TIME:** 1/23/23 0810 **Pump Inlet Depth:** ~~35~~ 36.92

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-Nitrate,Sulfate by 9056-125ml	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	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260C	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.): 2"

Purge Start Date/Time: 1/23/23 0820

Depth to Water - Initial (DTWi) (ft) 6.33

Purge End Date/Time: 1/23/23 0850

Depth to Well Bottom (ft) ~~42~~ 42.80

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): ~~21.92 - 41.92~~ 31.92 - 41.92

Discharge Tube Diameter: 1/4" Immiscible Layer: Y / N

Approximate depth of pump inlet*(ft): ~~35~~ 36.92 Pump Start Time: 0820

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 6.33

APTIM

Sample Collection Log

Location ID: 16WW58		Sample No: 16WW58-230123								
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
1/23/23	0825	100	.5	6.40	2.74	11.59	5.99	302	[redacted]	0.63
	0830	100	1.0	6.45	3.61	12.16	6.33	283	-65	0.21
	0835	100	1.5	6.48	3.63	13.55	6.50	275	-86	0.06
	0840	100	2.0	6.50	3.64	13.64	6.51	273	-87	0.06
	0845	100	2.5	6.52	3.65	13.70	6.52	271	-87	0.05
	0850	100	3.0	6.53	3.65	13.75	6.52	269	-88	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Appendix D

Laboratory Analytical Data Package

(Provided electronically on the Portal)

Appendix E

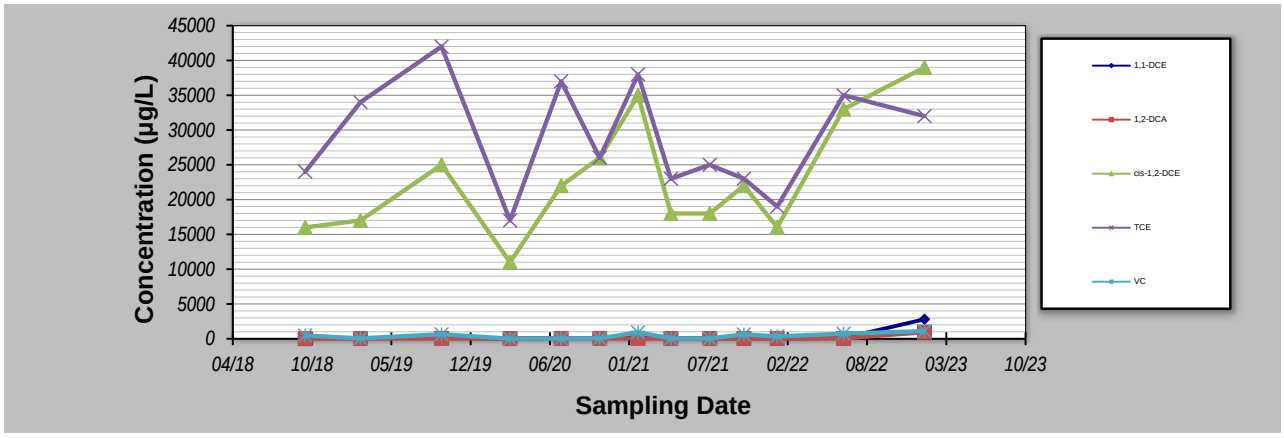
Mann-Kendall Analysis

16EW02 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16 Well 16EW02**
Conducted By: **Allison Rogers**
Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	1,1-DCE	1,2-DCA	cis-1,2-DCE	TCE	VC		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	9-Oct-18	100	12.5	16000	24000	470		
2	26-Feb-19	86	34	17000	34000	51		
3	18-Sep-19	110	51	25000	42000	650		
4	9-Mar-20	37	22	11000	17000	6		
5	16-Jul-20	97	43	22000	37000	39		
6	21-Oct-20	110	48	26000	26000	51		
7	26-Jan-21	140	55	35000	38000	930		
8	19-Apr-21	64	35	18000	23000	45		
9	26-Jul-21	58	29	18000	25000	42		
10	20-Oct-21	65	37	22000	23000	630		
11	12-Jan-22	50	35	16000	19000	340		
12	29-Jun-22	99	45	33000	35000	730		
13	19-Jan-23	2800	950	39000	32000	1100		
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		2.57	2.36	0.37	0.27	0.99		
Mann-Kendall Statistic (S):		1	25	27	-9	23		
Confidence Factor:		50.0%	92.7%	94.3%	68.4%	90.8%		
Concentration Trend:		No Trend	Prob. Increasing	Prob. Increasing	Stable	Prob. 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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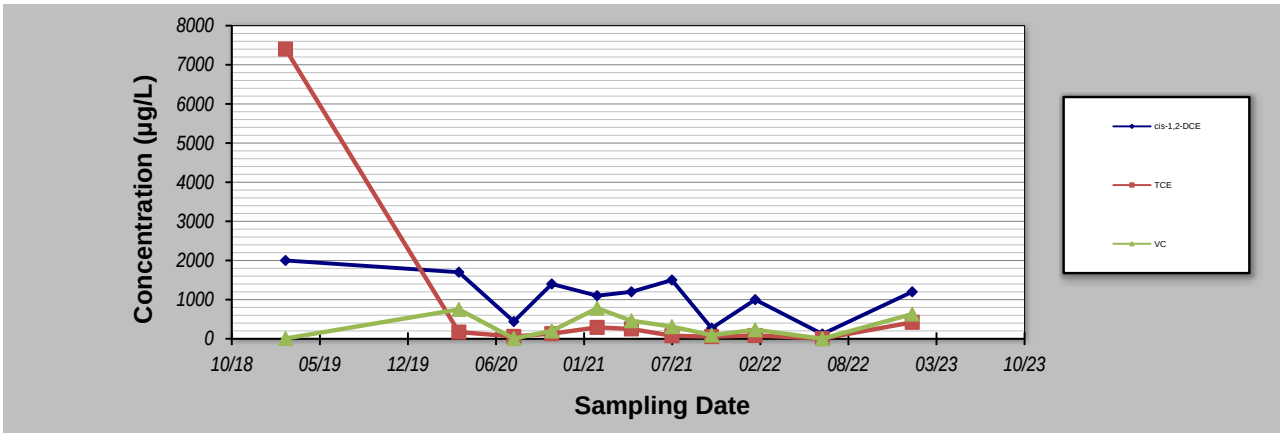
16EW03 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16 Well 16EW03**
Conducted By: **Allison Rogers**
Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	cis-1,2-DCE	TCE	VC				
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	26-Feb-19	2000	7400	7.5				
2	25-Mar-20	1700	170	750				
3	28-Jul-20	440	60	6				
4	22-Oct-20	1400	130	200				
5	2-Feb-21	1100	290	780				
6	21-Apr-21	1200	250	460				
7	22-Jul-21	1500	77	310				
8	20-Oct-21	270	54	92				
9	27-Jan-22	1000	84	230				
10	29-Jun-22	120	3.8	1.25				
11	19-Jan-23	1200	420	630				
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.55	2.69	0.94				
Mann-Kendall Statistic (S):		-24	-15	-1				
Confidence Factor:		96.4%	85.9%	50.0%				
Concentration Trend:		Decreasing	No Trend	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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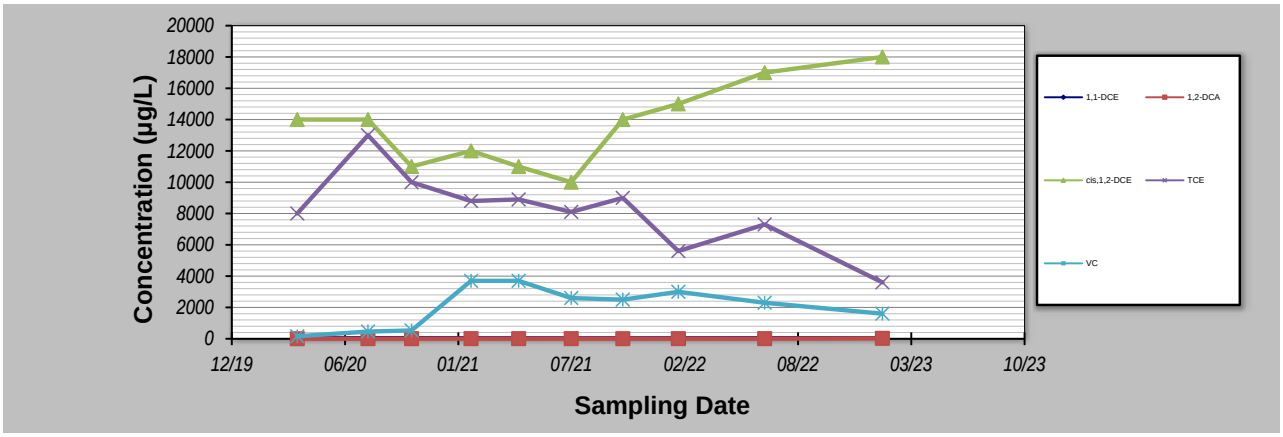
16IW03 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16 Well 16IW03	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID:	1,1-DCE	1,2-DCA	cis,1,2-DCE	TCE	VC		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	25-Mar-20	37	2.5	14000	8000	160		
2	28-Jul-20	51	6	14000	13000	460		
3	13-Oct-20	38	5.4	11000	10000	530		
4	26-Jan-21	49	5.9	12000	8800	3700		
5	20-Apr-21	46	6.2	11000	8900	3700		
6	22-Jul-21	38	6.7	10000	8100	2600		
7	21-Oct-21	38	5	14000	9000	2500		
8	27-Jan-22	42	6	15000	5600	3000		
9	29-Jun-22	44	6	17000	7300	2300		
10	23-Jan-23	48	25	18000	3600	1600		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.84	0.19	0.30	0.64		
Mann-Kendall Statistic (S):		6	20	17	-23	8		
Confidence Factor:		66.8%	95.5%	92.2%	97.7%	72.9%		
Concentration Trend:		No Trend	Increasing	Prob. Increasing	Decreasing	No Trend		



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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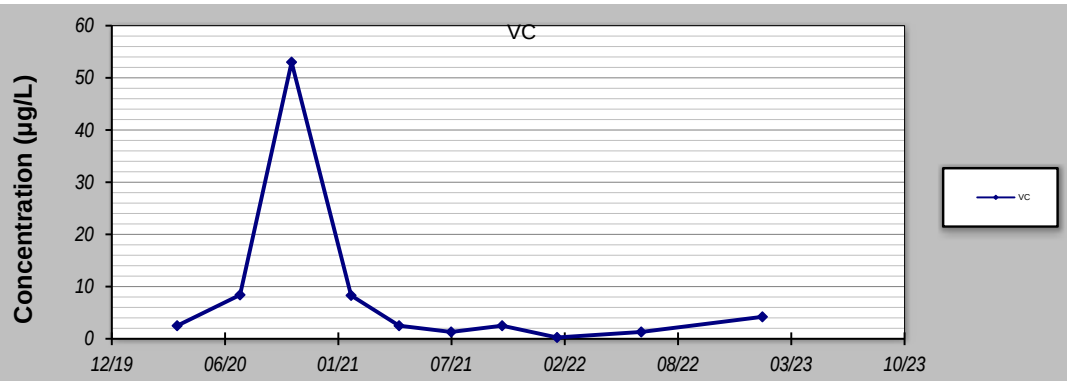
16IW10 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16 Well 16IW10	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID:	VC

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	25-Mar-20	2.5
2	14-Jul-20	8.4
3	13-Oct-20	53
4	26-Jan-21	8.3
5	21-Apr-21	2.5
6	22-Jul-21	1.3
7	20-Oct-21	2.5
8	25-Jan-22	0.25
9	23-Jun-22	1.3
10	23-Jan-23	4.2
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.89
Mann-Kendall Statistic (S):		-17
Confidence Factor:		92.2%
Concentration Trend:		Prob. 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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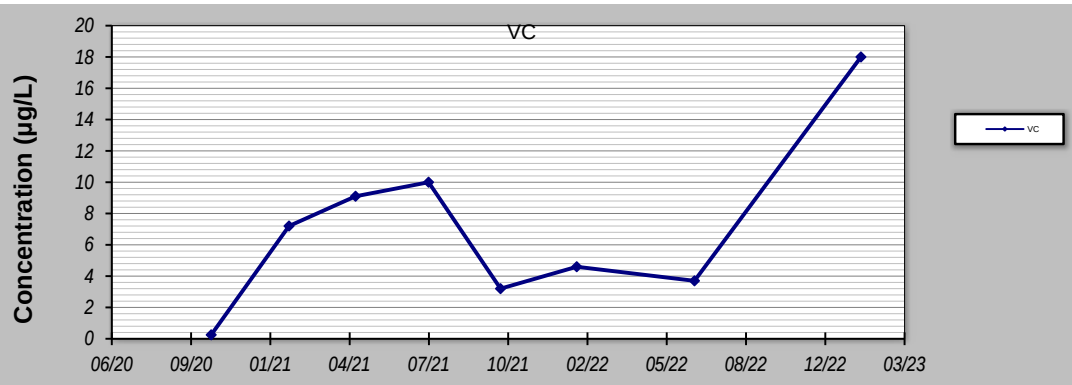
16IW20 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16 Well 16IW20	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID:	VC						

Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	21-Oct-20	0.25						
2	27-Jan-21	7.2						
3	21-Apr-21	9.1						
4	22-Jul-21	10						
5	21-Oct-21	3.2						
6	25-Jan-22	4.6						
7	23-Jun-22	3.7						
8	19-Jan-23	18						
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.78						
Mann-Kendall Statistic (S):		8						
Confidence Factor:		80.1%						
Concentration Trend:		No Trend						



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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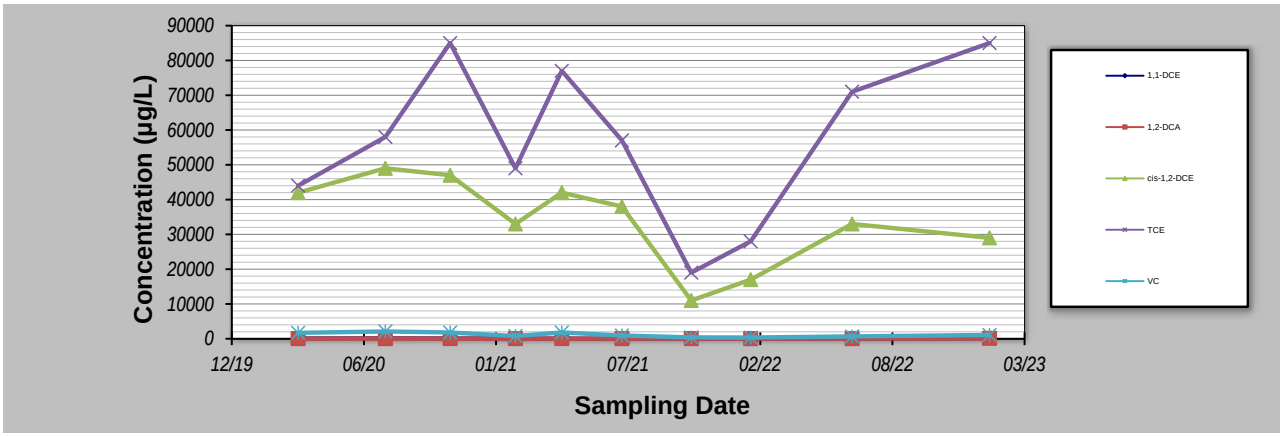
16PM06 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16 Well 16PM06	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID:	1,1-DCE	1,2-DCA	cis-1,2-DCE	TCE	VC		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	10-Mar-20	120	45	42000	44000	1700		
2	20-Jul-20	150	50	49000	58000	2100		
3	26-Oct-20	140	55	47000	85000	1800		
4	2-Feb-21	65	40	33000	49000	790		
5	13-Apr-21	120	54	42000	77000	1800		
6	13-Jul-21	100	35	38000	57000	930		
7	26-Oct-21	36	40	11000	19000	390		
8	24-Jan-22	36	33	17000	28000	350		
9	27-Jun-22	73	33	33000	71000	670		
10	21-Jan-23	125	125	29000	85000	1100		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.43	0.53	0.36	0.40	0.55		
Mann-Kendall Statistic (S):		-15	-11	-25	4	-20		
Confidence Factor:		89.2%	81.0%	98.6%	60.3%	95.5%		
Concentration Trend:		Stable	Stable	Decreasing	No Trend	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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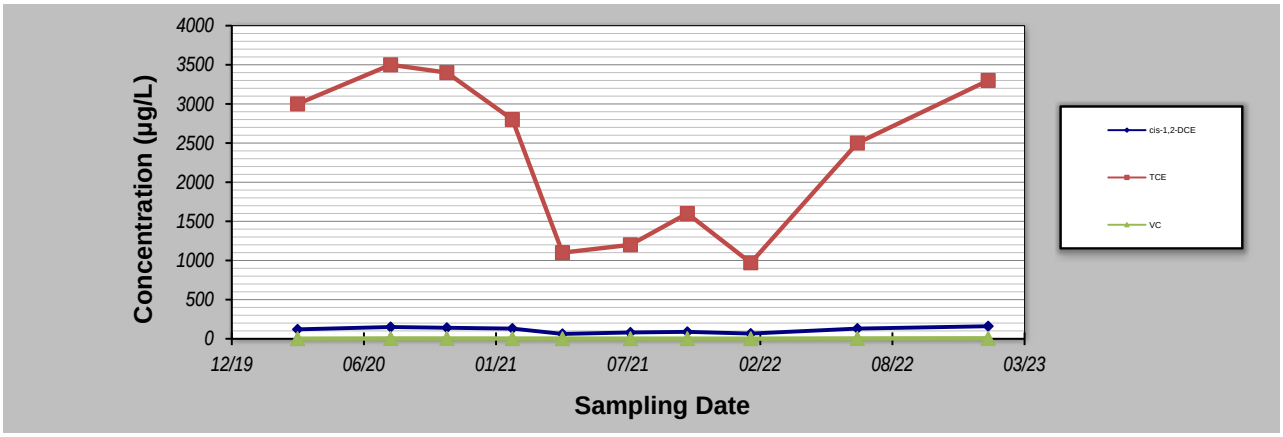
16RW04 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 19-Jul-23
Facility Name: LHAAP-16 Well 16RW04
Conducted By: Allison Rogers

Job ID: 501032
Constituent:
Concentration Units: µg/L

Sampling Point ID:	cis-1,2-DCE	TCE	VC				
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	9-Mar-20	120	3000	1.25				
2	28-Jul-20	150	3500	4.1				
3	21-Oct-20	140	3400	5.3				
4	28-Jan-21	130	2800	2.5				
5	14-Apr-21	62	1100	1.25				
6	26-Jul-21	80	1200	2				
7	20-Oct-21	88	1600	2.5				
8	24-Jan-22	66	970	1.2				
9	5-Jul-22	130	2500	4.3				
10	19-Jan-23	160	3300	6.2				
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.32	0.44	0.59				
Mann-Kendall Statistic (S):		-2	-13	7				
Confidence Factor:		53.5%	85.4%	70.0%				
Concentration Trend:		Stable	Stable	No Trend				



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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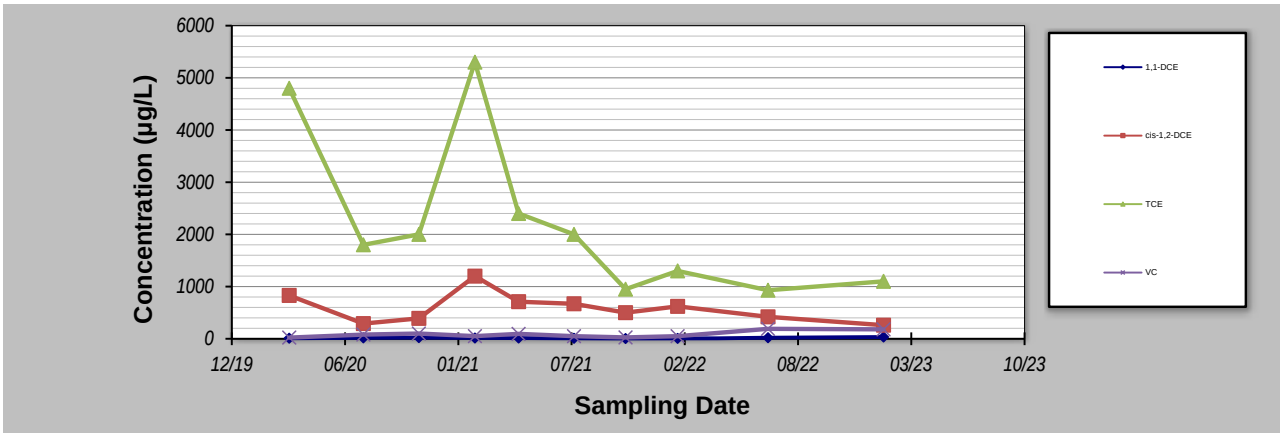
16RW10 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16 Well 16RW10**
Conducted By: **Allison Rogers**
Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	1,1-DCE	cis-1,2-DCE	TCE	VC			
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	11-Mar-20	10	830	4800	22			
2	20-Jul-20	17	290	1800	80			
3	26-Oct-20	21	390	2000	100			
4	2-Feb-21	14	1200	5300	50			
5	20-Apr-21	14	710	2400	93			
6	27-Jul-21	8.5	670	2000	49			
7	26-Oct-21	3.9	500	950	25			
8	26-Jan-22	6.7	620	1300	49			
9	5-Jul-22	20	420	930	190			
10	25-Jan-23	33	260	1100	180			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.57	0.48	0.69	0.71			
Mann-Kendall Statistic (S):		0	-15	-24	10			
Confidence Factor:		45.6%	89.2%	98.2%	78.4%			
Concentration Trend:		Stable	Stable	Decreasing	No Trend			



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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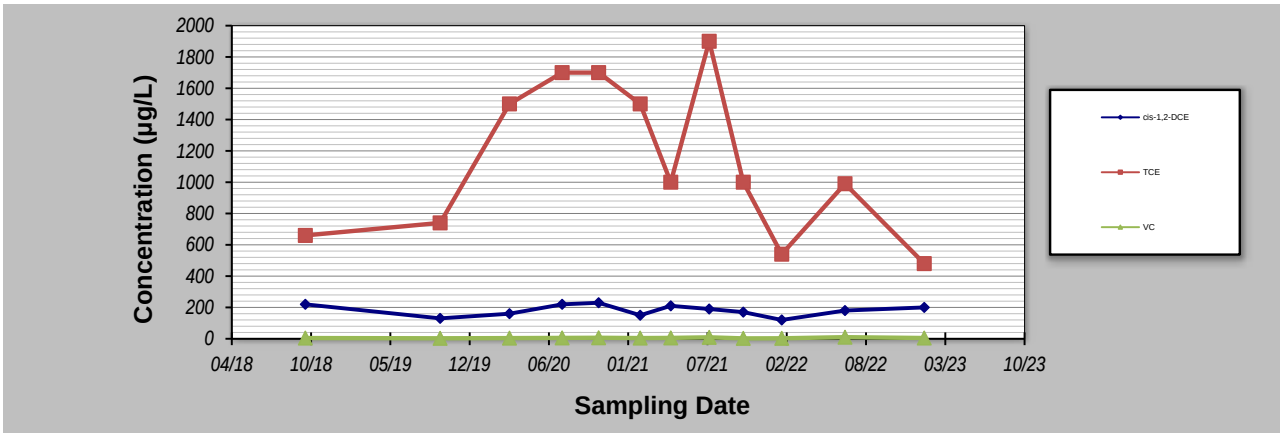
16WW40 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 19-Jul-23
Facility Name: LHAAP-16 Well 16WW40
Conducted By: Allison Rogers
Job ID: 501032
Constituent:
Concentration Units: µg/L

Sampling Point ID:	cis-1,2-DCE	TCE	VC				
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	12-Oct-18	220	660	4.5				
2	17-Sep-19	130	740	3				
3	10-Mar-20	160	1500	4.1				
4	21-Jul-20	220	1700	5.3				
5	21-Oct-20	230	1700	6.3				
6	3-Feb-21	150	1500	4.4				
7	21-Apr-21	210	1000	5.4				
8	27-Jul-21	190	1900	9				
9	21-Oct-21	170	1000	2.5				
10	26-Jan-22	120	540	2.9				
11	5-Jul-22	180	990	10				
12	21-Jan-23	200	480	4.7				
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.20	0.43	0.45				
Mann-Kendall Statistic (S):		-7	-13	12				
Confidence Factor:		65.6%	79.0%	77.0%				
Concentration Trend:		Stable	Stable	No Trend				



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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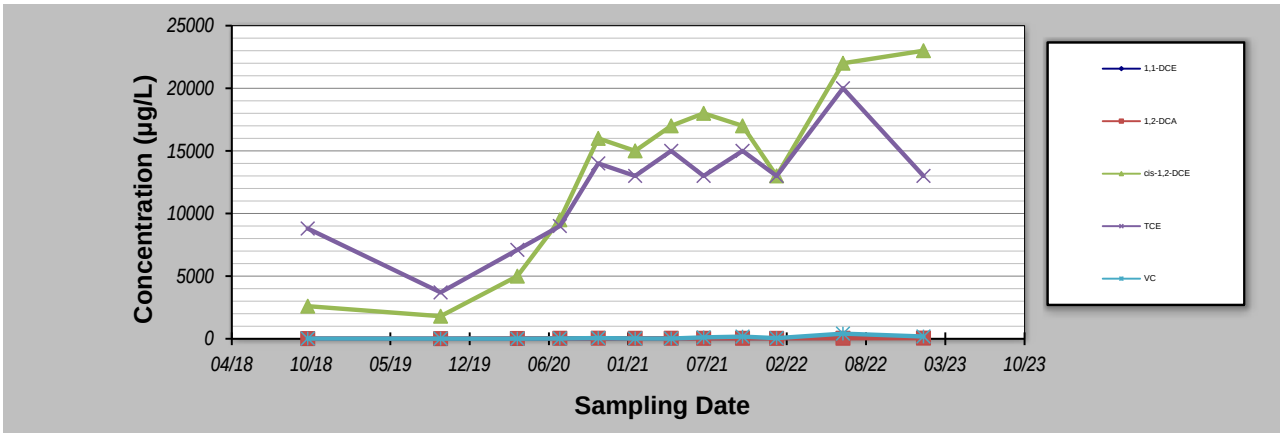
16WW48 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16 Well 16WW48	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID:	1,1-DCE	1,2-DCA	cis-1,2-DCE	TCE	VC		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	18-Oct-18	11	12	2600	8800	15		
2	18-Sep-19	7	7	1800	3700	7.4		
3	30-Mar-20	12	19	5000	7100	5		
4	15-Jul-20	27	34	9500	9000	22		
5	20-Oct-20	32	44	16000	14000	57		
6	21-Jan-21	36	36	15000	13000	20		
7	22-Apr-21	38	39	17000	15000	16		
8	13-Jul-21	40	34	18000	13000	110		
9	19-Oct-21	37	35	17000	15000	170		
10	13-Jan-22	29	33	13000	13000	48		
11	30-Jun-22	53	39	22000	20000	410		
12	19-Jan-23	60	50	23000	13000	180		
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.51	0.40	0.54	0.36	1.34		
Mann-Kendall Statistic (S):		50	32	49	35	42		
Confidence Factor:		>99.9%	98.4%	>99.9%	99.2%	99.8%		
Concentration Trend:		Increasing	Increasing	Increasing	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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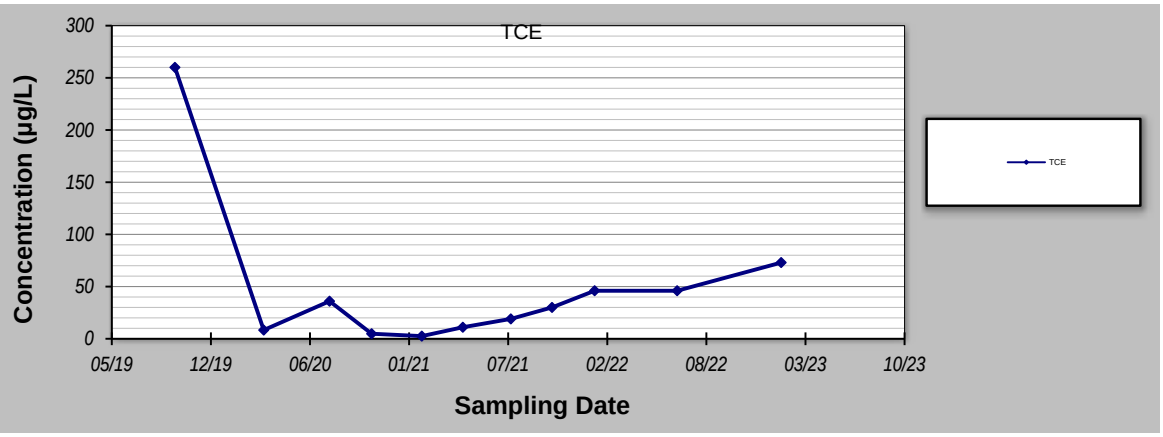
16WW49 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16 Well 16WW49	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	19-Sep-19	260
2	16-Mar-20	8.3
3	27-Jul-20	36
4	20-Oct-20	4.8
5	29-Jan-21	2.5
6	22-Apr-21	11
7	28-Jul-21	19
8	19-Oct-21	30
9	13-Jan-22	46
10	29-Jun-22	46
11	25-Jan-23	73
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.50
Mann-Kendall Statistic (S):		18
Confidence Factor:		90.5%
Concentration Trend:		Prob. 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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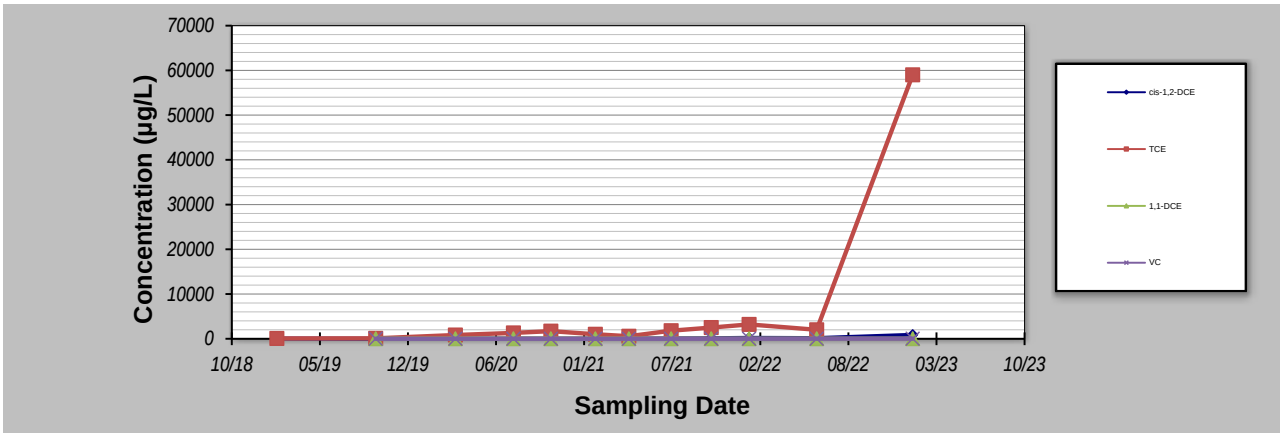
16WW51 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16 Well 16WW51**
Conducted By: **Allison Rogers**
Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	cis-1,2-DCE	TCE	1,1-DCE	VC			
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	6-Feb-19	58	68					
2	18-Sep-19	9.1	90	0.25	0.25			
3	17-Mar-20	25	830	1.4	0.25			
4	27-Jul-20	54	1300	2.8	1.25			
5	20-Oct-20	50	1700	1.25	1.25			
6	29-Jan-21	86	1000	1.3	0.25			
7	15-Apr-21	44	560	0.83	0.25			
8	20-Jul-21	71	1800	2.6	1.25			
9	19-Oct-21	140	2500	1.25	1.25			
10	13-Jan-22	220	3200	2.5	2.5			
11	16-Jun-22	170	2000	2.6	2.7			
12	20-Jan-23	900	59000	9.5	17			
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.60	2.70	1.05	1.90			
Mann-Kendall Statistic (S):		44	50	21	35			
Confidence Factor:		99.9%	>99.9%	94.0%	99.7%			
Concentration Trend:		Increasing	Increasing	Prob. 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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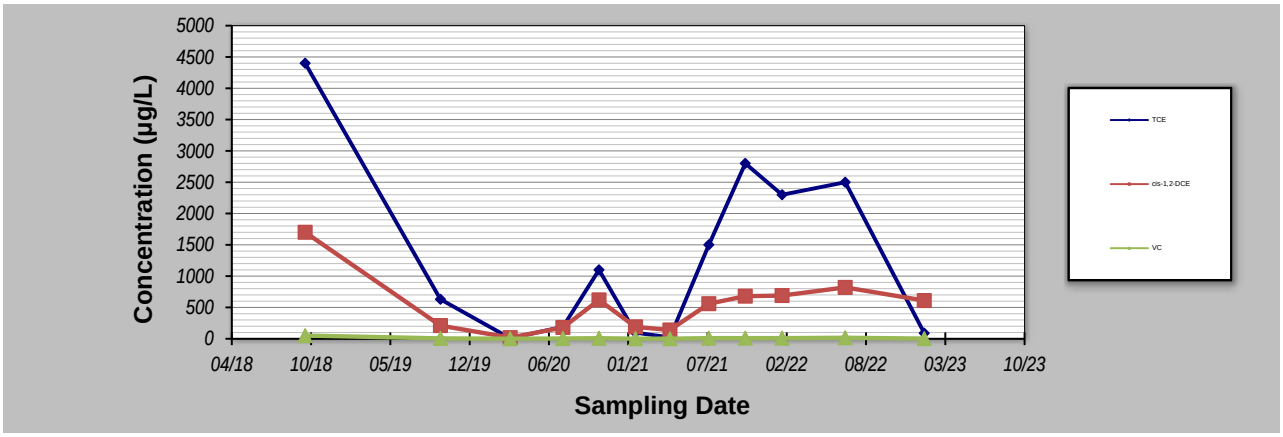
16WW13 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**
Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC				
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	12-Oct-18	4400	1700	51				
2	18-Sep-19	630	210	5.6				
3	12-Mar-20	7.5	18	0.25				
4	23-Jul-20	190	180	4				
5	22-Oct-20	1100	620	8.8				
6	22-Jan-21	97	190	1.1				
7	19-Apr-21	22	140	0.87				
8	26-Jul-21	1500	560	9.6				
9	26-Oct-21	2800	680	10				
10	27-Jan-22	2300	690	10				
11	5-Jul-22	2500	820	16				
12	21-Jan-23	89	610	2.9				
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.09	0.85	1.37				
Mann-Kendall Statistic (S):		6	18	11				
Confidence Factor:		63.1%	87.5%	74.9%				
Concentration Trend:		No Trend	No Trend	No Trend				



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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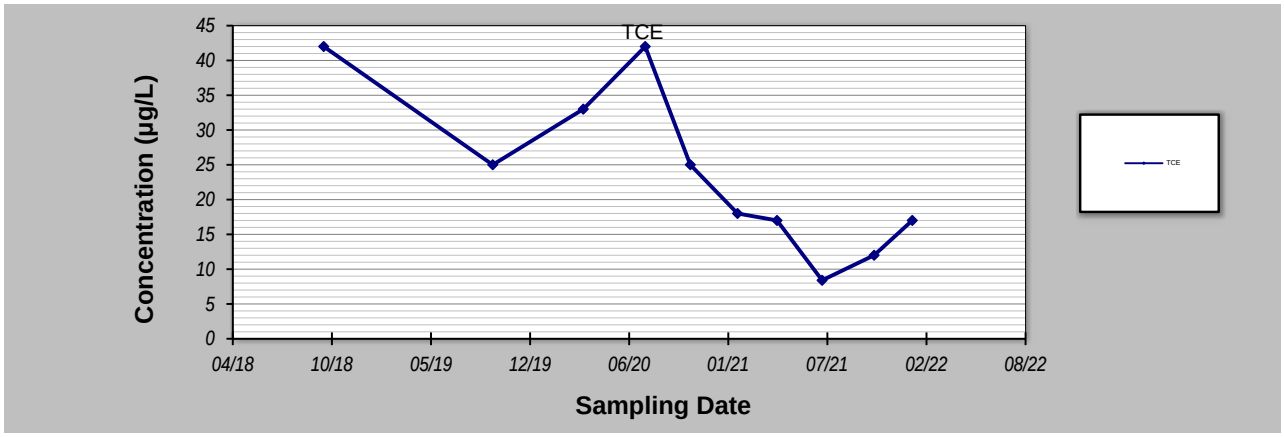
16WW14 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	29-Sep-22	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	L. George	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	########	42
2	########	25
3	########	33
4	########	42
5	########	25
6	########	18
7	########	17
8	########	8.4
9	########	12
10	########	17
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.49
Mann-Kendall Statistic (S):		-30
Confidence Factor:		99.7%
Concentration Trend:		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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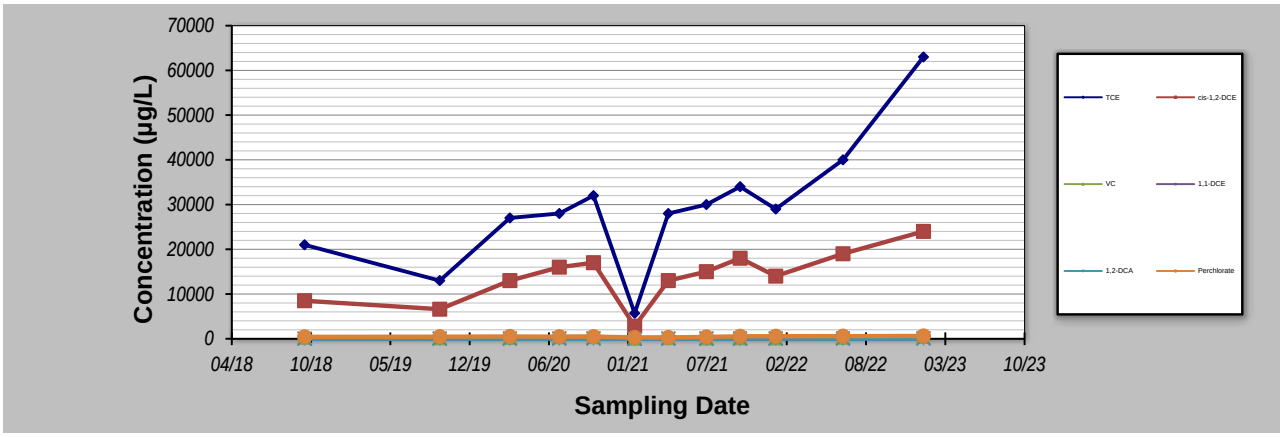
16WW16 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	1,1-DCE	1,2-DCA	Perchlorate
Sampling Event	Sampling Date	CONCENTRATION (µg/L)					
1	10-Oct-18	21000	8500	330	12.5	12.5	420
2	16-Sep-19	13000	6600	220	25	19	460
3	11-Mar-20	27000	13000	300	37	30	510
4	14-Jul-20	28000	16000	430	50	32	442
5	08-Oct-20	32000	17000	470	59	33	480
6	20-Jan-21	5700	2800	110	12	8.6	309
7	15-Apr-21	28000	13000	260	33	32	288
8	20-Jul-21	30000	15000	170	29	33	408
9	13-Oct-21	34000	18000	200	33	41	555
10	11-Jan-22	29000	14000	170	25	35	561
11	30-Jun-22	40000	19000	310	52	36	581
12	19-Jan-23	63000	24000	520	87	64	630
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.48	0.42	0.44	0.56	0.45	0.22
Mann-Kendall Statistic (S):		43	37	-1	20	48	28
Confidence Factor:		99.9%	99.5%	50.0%	90.2%	>99.9%	96.9%
Concentration Trend:		Increasing	Increasing	Stable	Prob. Increasing	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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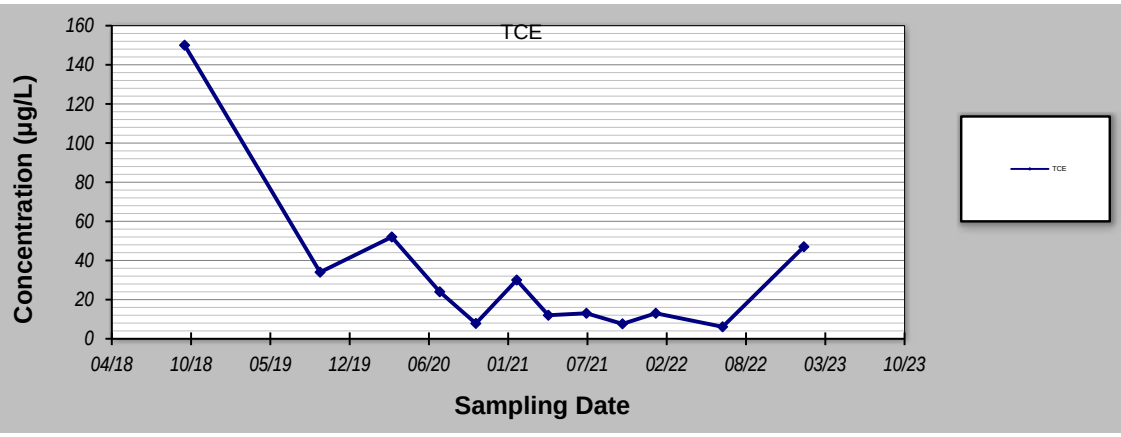
16WW22 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	10-Oct-18	150
2	17-Sep-19	34
3	16-Mar-20	52
4	15-Jul-20	24
5	14-Oct-20	7.8
6	25-Jan-21	30
7	15-Apr-21	12
8	20-Jul-21	13
9	19-Oct-21	7.6
10	11-Jan-22	13
11	29-Jun-22	6.1
12	20-Jan-23	47
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.21
Mann-Kendall Statistic (S):		-29
Confidence Factor:		97.4%
Concentration Trend:		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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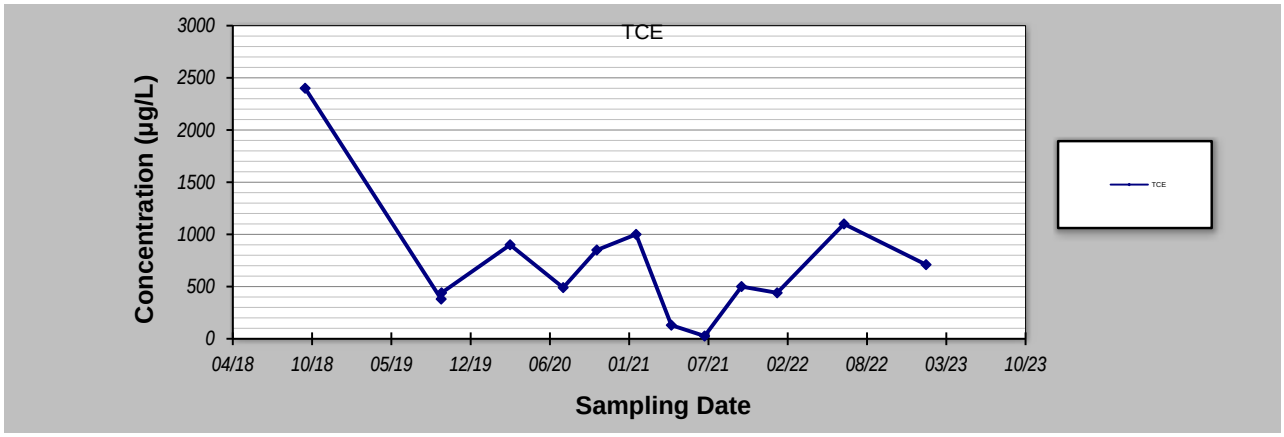
16WW26 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	9-Oct-18	2400
2	17-Sep-19	380
3	18-Sep-19	440
4	9-Mar-20	900
5	21-Jul-20	490
6	14-Oct-20	850
7	21-Jan-21	1000
8	20-Apr-21	130
9	13-Jul-21	26
10	14-Oct-21	500
11	12-Jan-22	440
12	30-Jun-22	1100
13	23-Jan-23	710
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.83
Mann-Kendall Statistic (S):		-1
Confidence Factor:		50.0%
Concentration Trend:		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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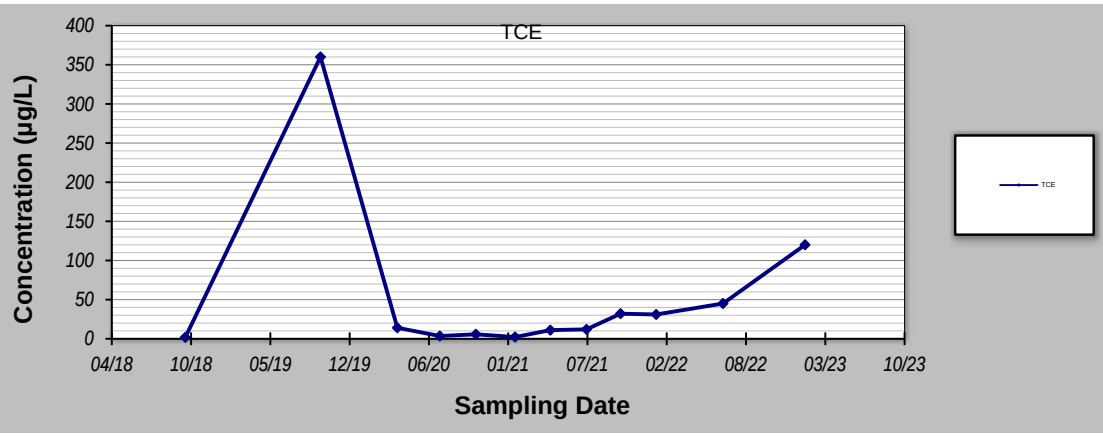
16WW30 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	12-Oct-18	1.8
2	18-Sep-19	360
3	30-Mar-20	14
4	15-Jul-20	3.5
5	14-Oct-20	5.7
6	21-Jan-21	2.2
7	20-Apr-21	11
8	20-Jul-21	12
9	14-Oct-21	32
10	12-Jan-22	31
11	30-Jun-22	45
12	23-Jan-23	120
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.92
Mann-Kendall Statistic (S):		30
Confidence Factor:		97.8%
Concentration Trend:		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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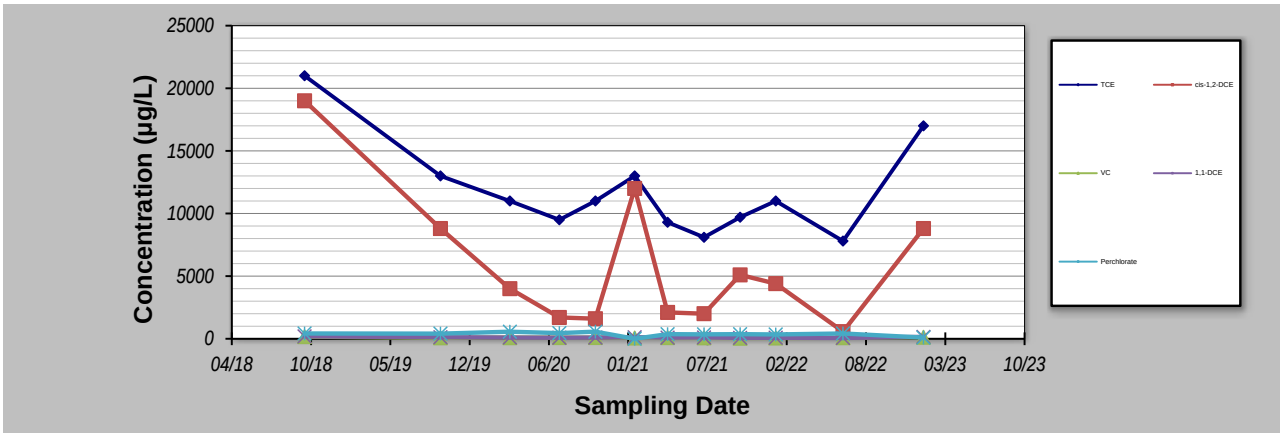
16WW35 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	1,1-DCE	Perchlorate		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	10-Oct-18	21000	19000	170	190	420		
2	18-Sep-19	13000	8800	75	120	410		
3	11-Mar-20	11000	4000	82	96	560		
4	14-Jul-20	9500	1700	93	81	451		
5	13-Oct-20	11000	1600	97	93	565		
6	20-Jan-21	13000	12000	60	120	0.25		
7	13-Apr-21	9300	2100	90	85	367		
8	14-Jul-21	8100	2000	74	100	352		
9	13-Oct-21	9700	5100	39	72	366		
10	11-Jan-22	11000	4400	58	77	342		
11	30-Jun-22	7800	570	83	65	419		
12	19-Jan-23	17000	8800	120	150	94.9		
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.33	0.93	0.39	0.35	0.46		
Mann-Kendall Statistic (S):		-20	-13	-12	-25	-26		
Confidence Factor:		90.2%	79.0%	77.0%	95.0%	95.7%		
Concentration Trend:		Prob. Decreasing	Stable	Stable	Prob. 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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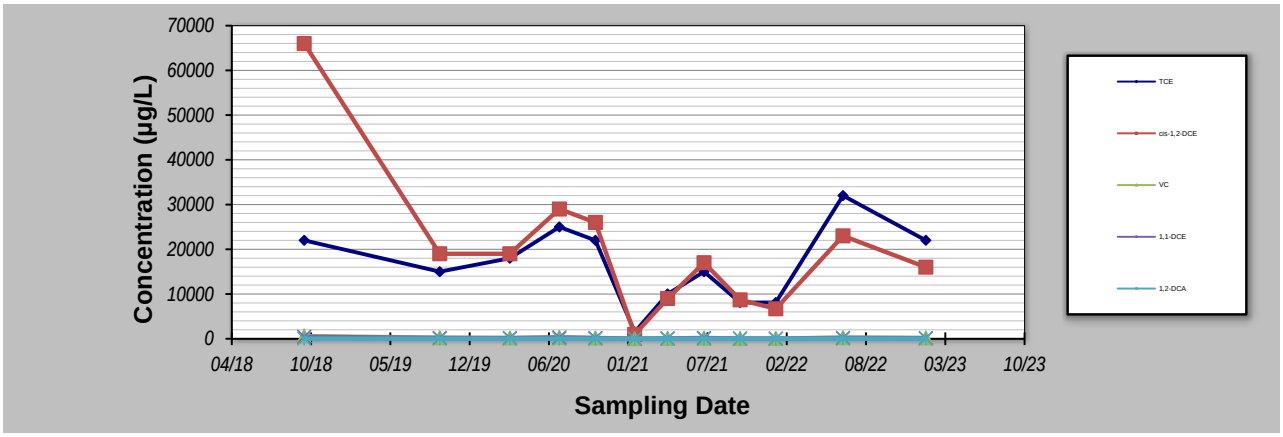
16WW36 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	1,1-DCE	1,2-DCA		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	9-Oct-18	22000	66000	610	450	34		
2	16-Sep-19	15000	19000	230	190	13		
3	11-Mar-20	18000	19000	180	160	13		
4	14-Jul-20	25000	29000	320	290	20		
5	13-Oct-20	22000	26000	180	170	12.5		
6	20-Jan-21	1500	980	17	15	0.85		
7	13-Apr-21	10000	9000	78	74	6		
8	14-Jul-21	15000	17000	140	180	13		
9	13-Oct-21	8100	8700	43	39	10		
10	11-Jan-22	8100	6700	49	39	8		
11	30-Jun-22	32000	23000	260	200	21		
12	25-Jan-23	22000	16000	190	140	25		
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.52	0.83	0.84	0.75	0.61		
Mann-Kendall Statistic (S):		-5	-25	-19	-21	-5		
Confidence Factor:		60.6%	95.0%	88.9%	91.3%	60.6%		
Concentration Trend:		Stable	Prob. Decreasing	Stable	Prob. Decreasing	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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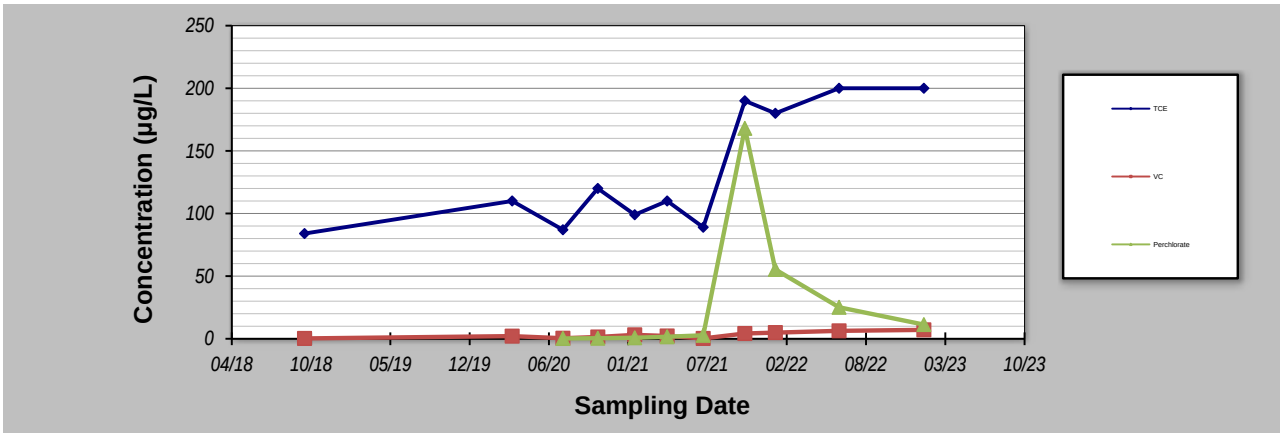
16WW37 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	VC	Perchlorate				
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	10-Oct-18	84	0.25					
2	17-Mar-20	110	2.1					
3	23-Jul-20	87	0.41	0.25				
4	19-Oct-20	120	1.4	0.393				
5	20-Jan-21	99	3.1	0.786				
6	12-Apr-21	110	2.2	1.6				
7	12-Jul-21	89	0.25	2.74				
8	25-Oct-21	190	4.2	168				
9	10-Jan-22	180	4.9	55.3				
10	20-Jun-22	200	6.3	25.1				
11	20-Jan-23	200	7.1	11.3				
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.36	0.83	1.87				
Mann-Kendall Statistic (S):		35	38	24				
Confidence Factor:		99.7%	99.9%	99.4%				
Concentration Trend:		Increasing	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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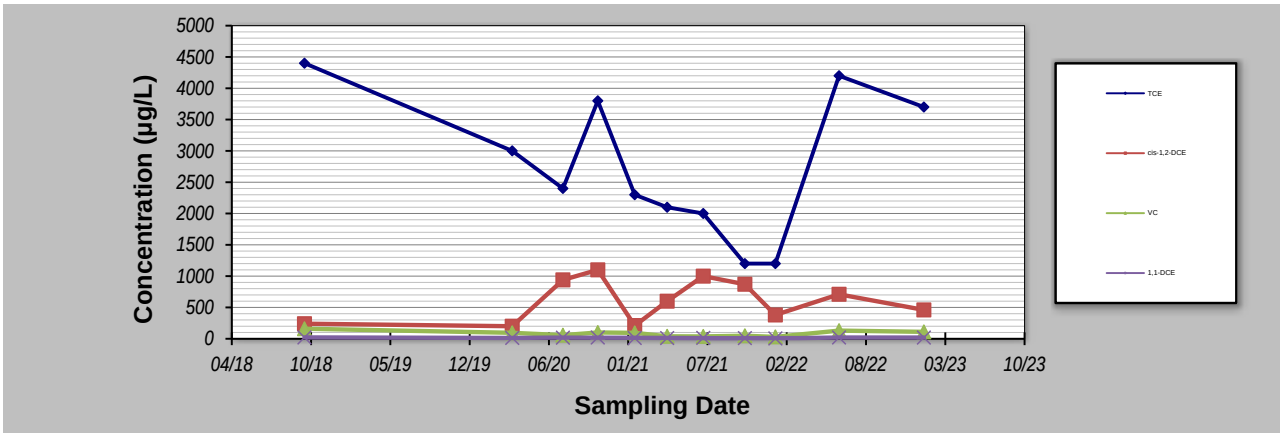
16WW38 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	1,1-DCE			
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	10-Oct-18	4400	240	160	21			
2	17-Mar-20	3000	200	95	13			
3	23-Jul-20	2400	940	57	17			
4	19-Oct-20	3800	1100	100	20			
5	20-Jan-21	2300	210	94	12			
6	12-Apr-21	2100	600	39	11			
7	12-Jul-21	2000	1000	37	14			
8	25-Oct-21	1200	870	48	10			
9	10-Jan-22	1200	380	30	5.1			
10	20-Jun-22	4200	710	130	20			
11	20-Jan-23	3700	460	110	19			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.41	0.55	0.52	0.34			
Mann-Kendall Statistic (S):		-20	5	-13	-14			
Confidence Factor:		92.9%	61.9%	82.1%	84.0%			
Concentration Trend:		Prob. Decreasing	No 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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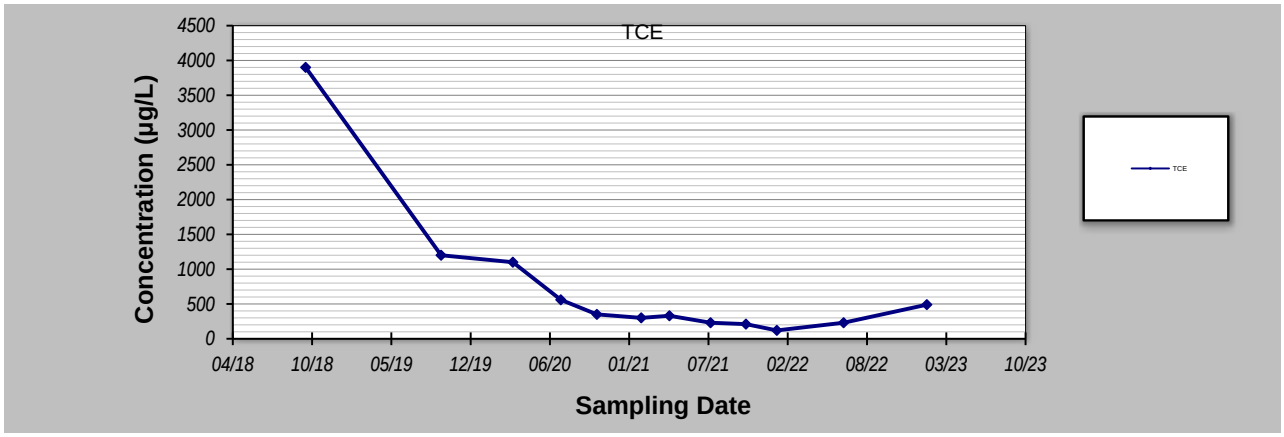
16WW39 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	10-Oct-18	3900
2	17-Sep-19	1200
3	16-Mar-20	1100
4	15-Jul-20	560
5	14-Oct-20	350
6	3-Feb-21	300
7	15-Apr-21	330
8	28-Jul-21	230
9	25-Oct-21	210
10	11-Jan-22	120
11	29-Jun-22	230
12	25-Jan-23	490
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.40
Mann-Kendall Statistic (S):		-45
Confidence Factor:		100.0%
Concentration Trend:		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.
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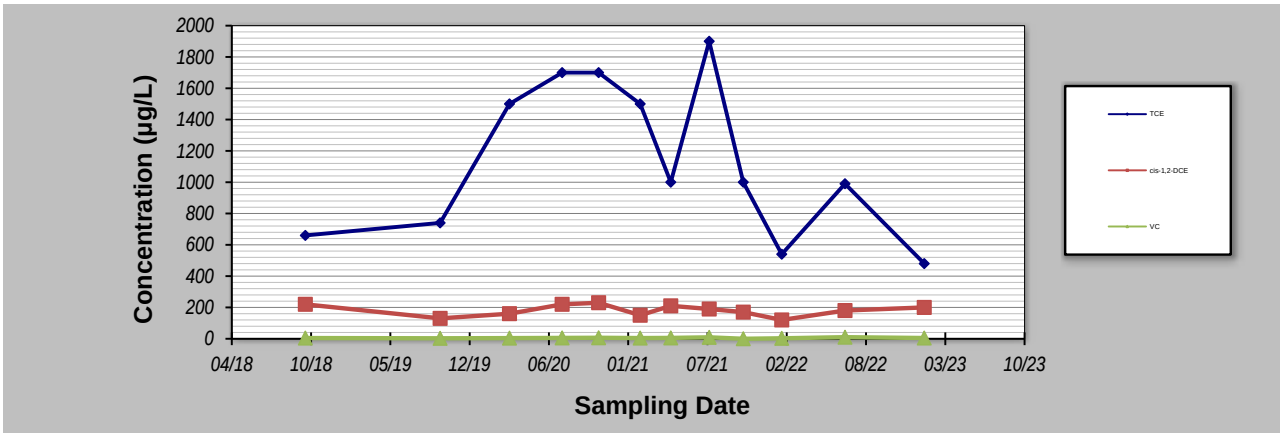
16WW40 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC				
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	12-Oct-18	660	220	4.5				
2	17-Sep-19	740	130	3				
3	10-Mar-20	1500	160	4.1				
4	21-Jul-20	1700	220	5.3				
5	21-Oct-20	1700	230	6.3				
6	3-Feb-21	1500	150	4.4				
7	21-Apr-21	1000	210	5.4				
8	27-Jul-21	1900	190	9				
9	21-Oct-21	1000	170	0				
10	26-Jan-22	540	120	2.9				
11	5-Jul-22	990	180	10				
12	21-Jan-23	480	200	4.7				
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.43	0.20	0.54				
Mann-Kendall Statistic (S):		-13	-7	12				
Confidence Factor:		79.0%	65.6%	77.0%				
Concentration Trend:		Stable	Stable	No Trend				



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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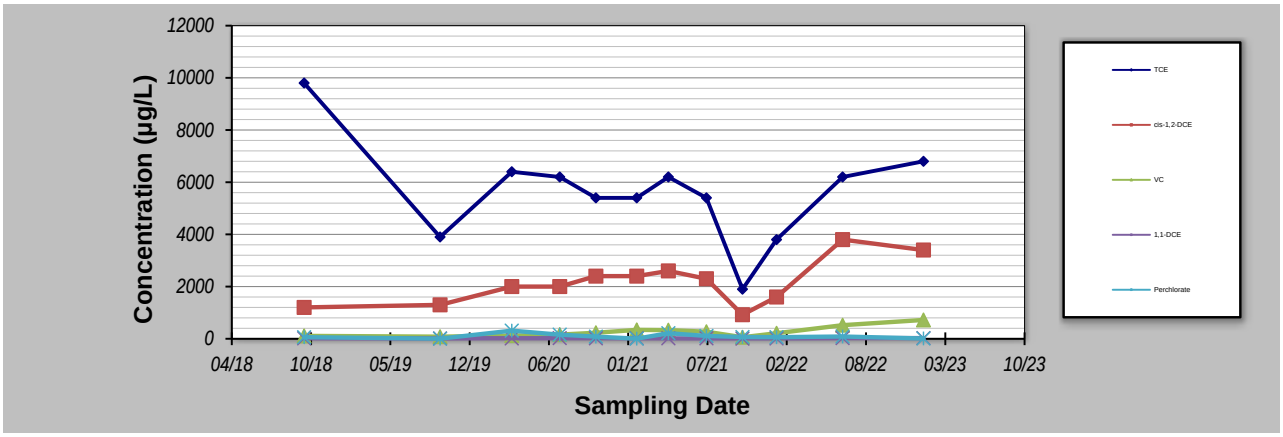
16WW41 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**
Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	1,1-DCE	Perchlorate		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	9-Oct-18	9800	1200	110	17	60		
2	17-Sep-19	3900	1300	80	11	2.5		
3	16-Mar-20	6400	2000	120	14	310		
4	15-Jul-20	6200	2000	160	24	155		
5	14-Oct-20	5400	2400	230	17	81.2		
6	25-Jan-21	5400	2400	340	20	3.71		
7	15-Apr-21	6200	2600	330	19	212		
8	20-Jul-21	5400	2300	270	17	107		
9	19-Oct-21	1900	920	59	2.5	66.5		
10	13-Jan-22	3800	1600	210	12	59.1		
11	29-Jun-22	6200	3800	520	24	85		
12	19-Jan-23	6800	3400	720	25	11		
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.34	0.40	0.74	0.38	0.95		
Mann-Kendall Statistic (S):		-10	28	34	14	-8		
Confidence Factor:		72.7%	96.9%	99.0%	81.0%	68.1%		
Concentration Trend:		Stable	Increasing	Increasing	No Trend	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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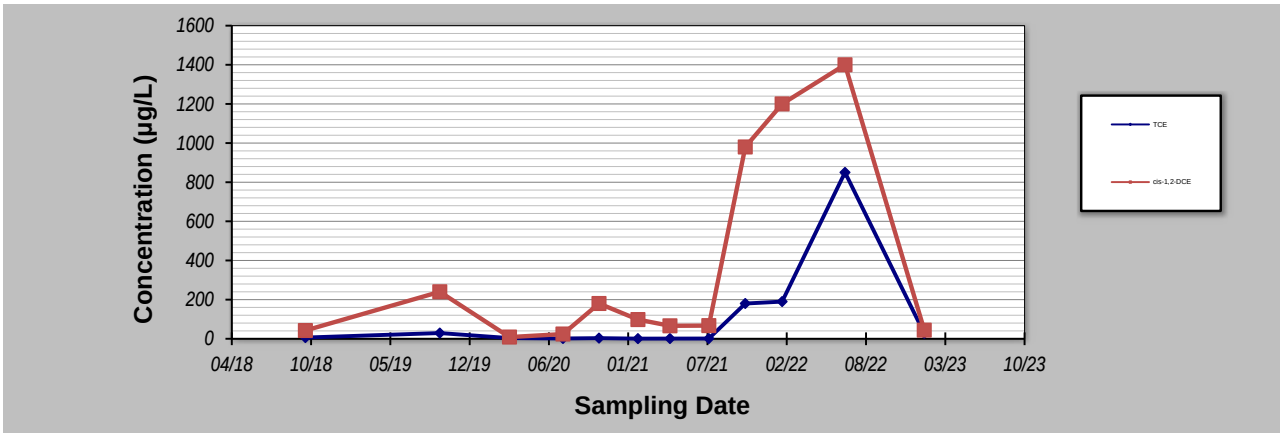
16WW42 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE					
Sampling Event	Sampling Date	CONCENTRATION (µg/L)					
1	12-Oct-18	6	42				
2	16-Sep-19	29	240				
3	10-Mar-20	3.3	8.6				
4	23-Jul-20	1.3	24				
5	22-Oct-20	3.2	180				
6	28-Jan-21	0.59	98				
7	19-Apr-21	0.97	66				
8	26-Jul-21	1.1	67				
9	26-Oct-21	180	980				
10	27-Jan-22	190	1200				
11	05-Jul-22	850	1400				
12	21-Jan-23	27	44				
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		2.26	1.42				
Mann-Kendall Statistic (S):		12	24				
Confidence Factor:		77.0%	94.2%				
Concentration Trend:		No Trend	Prob. 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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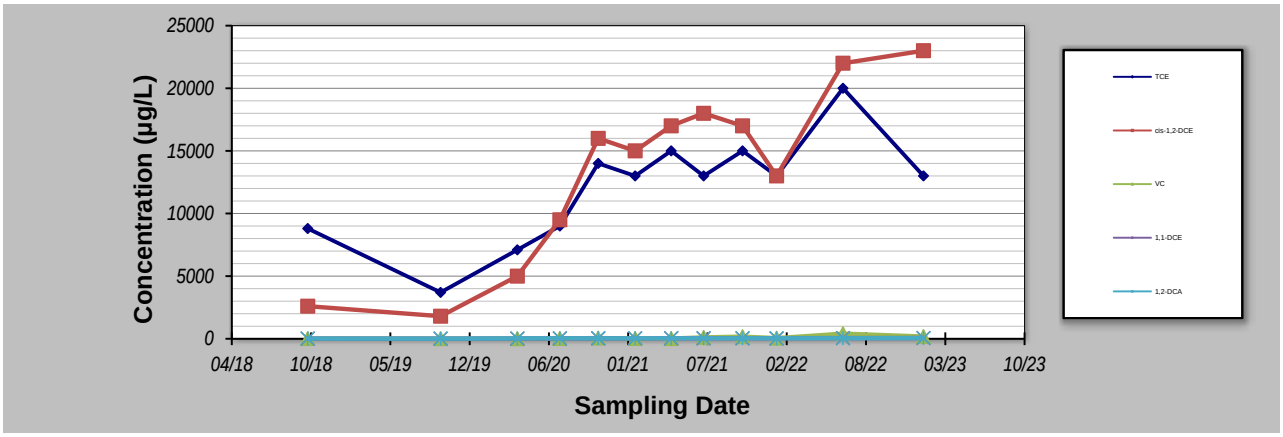
16WW48 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	1,1-DCE	1,2-DCA		
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	18-Oct-18	8800	2600	15	11	12		
2	18-Sep-19	3700	1800	7.4	7	7		
3	30-Mar-20	7100	5000	5	12	19		
4	15-Jul-20	9000	9500	22	27	34		
5	20-Oct-20	14000	16000	57	32	44		
6	21-Jan-21	13000	15000	20	36	36		
7	22-Apr-21	15000	17000	16	38	39		
8	13-Jul-21	13000	18000	110	40	34		
9	19-Oct-21	15000	17000	170	37	35		
10	13-Jan-22	13000	13000	48	29	33		
11	30-Jun-22	20000	22000	410	53	39		
12	19-Jan-23	13000	23000	180	60	50		
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.36	0.54	1.34	0.51	0.40		
Mann-Kendall Statistic (S):		35	49	42	50	32		
Confidence Factor:		99.2%	>99.9%	99.8%	>99.9%	98.4%		
Concentration Trend:		Increasing	Increasing	Increasing	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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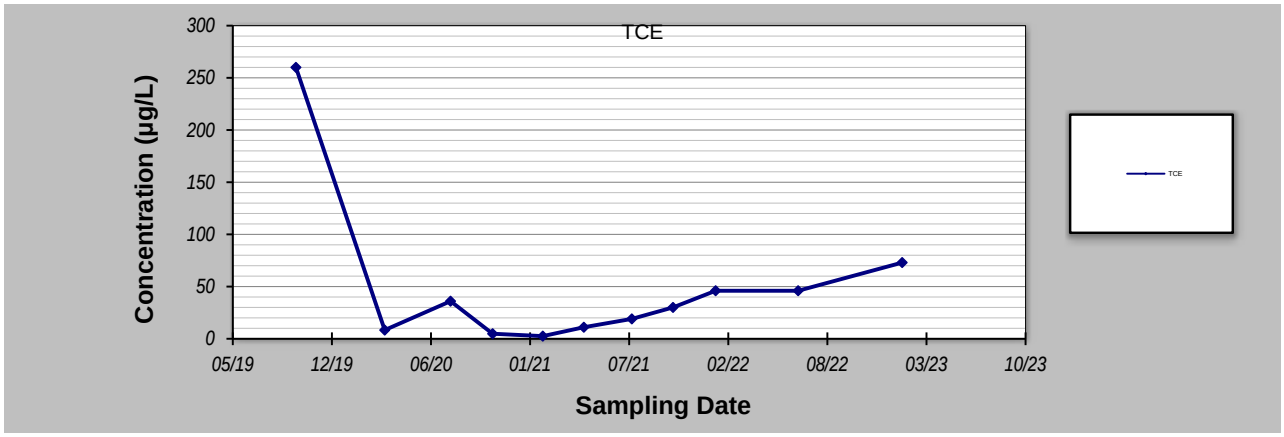
16WW49 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	19-Sep-19	260
2	16-Mar-20	8.3
3	27-Jul-20	36
4	20-Oct-20	4.8
5	29-Jan-21	2.5
6	22-Apr-21	11
7	28-Jul-21	19
8	19-Oct-21	30
9	13-Jan-22	46
10	29-Jun-22	46
11	25-Jan-23	73
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.50
Mann-Kendall Statistic (S):		18
Confidence Factor:		90.5%
Concentration Trend:		Prob. 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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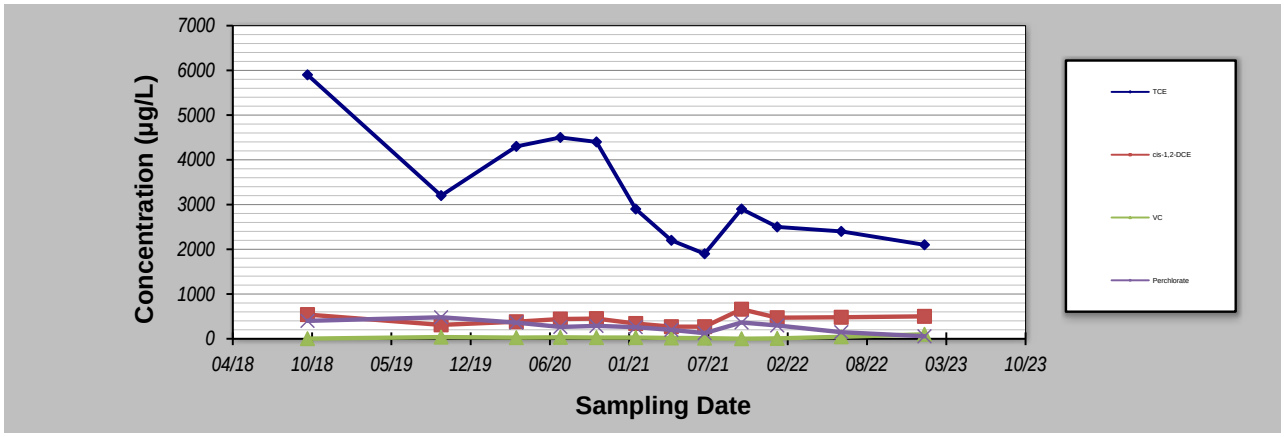
16WW55 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **19-Jul-23**
Facility Name: **LHAAP-16**
Conducted By: **Allison Rogers**

Job ID: **501032**
Constituent:
Concentration Units: **µg/L**

Sampling Point ID:	TCE	cis-1,2-DCE	VC	Perchlorate			
Sampling Event	Sampling Date	CONCENTRATION (µg/L)						
1	15-Oct-18	5900	540	2.5	400			
2	17-Sep-19	3200	310	37	480			
3	25-Mar-20	4300	380	25	360			
4	14-Jul-20	4500	440	32	263			
5	13-Oct-20	4400	450	26	287			
6	20-Jan-21	2900	340	26	259			
7	20-Apr-21	2200	270	18	198			
8	13-Jul-21	1900	270	14	125			
9	14-Oct-21	2900	660	1.25	363			
10	12-Jan-22	2500	470	8.2	297			
11	23-Jun-22	2400	480	44	147			
12	19-Jan-23	2100	500	100	55.5			
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.38	0.27	0.94	0.46			
Mann-Kendall Statistic (S):		-41	13	1	-38			
Confidence Factor:		99.8%	79.0%	50.0%	99.6%			
Concentration Trend:		Decreasing	No Trend	No Trend	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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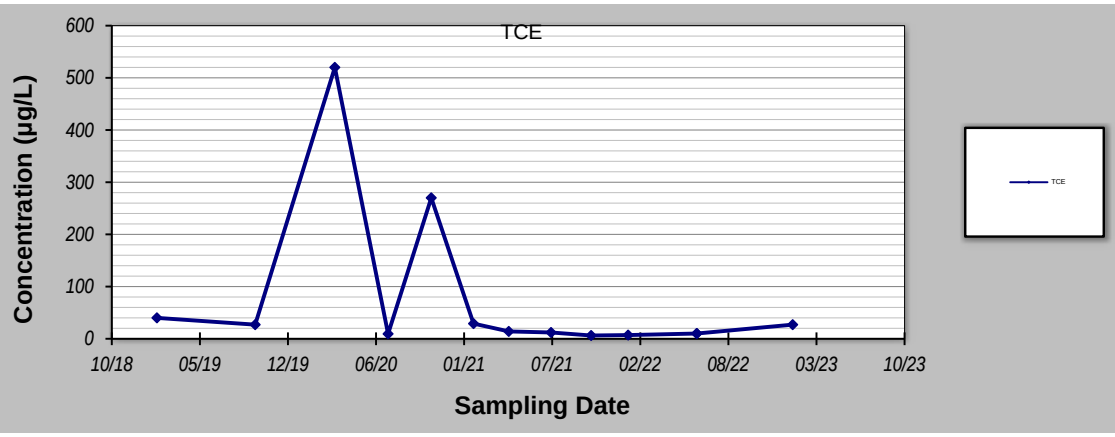
16WW56 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: TCE

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	6-Feb-19	40
2	17-Sep-19	27
3	16-Mar-20	520
4	15-Jul-20	9.3
5	21-Oct-20	270
6	25-Jan-21	29
7	15-Apr-21	14
8	20-Jul-21	12
9	19-Oct-21	6.2
10	11-Jan-22	7
11	16-Jun-22	10
12	16-Jun-22	10
13	20-Jan-23	27
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		2.00
Mann-Kendall Statistic (S):		-30
Confidence Factor:		96.2%
Concentration Trend:		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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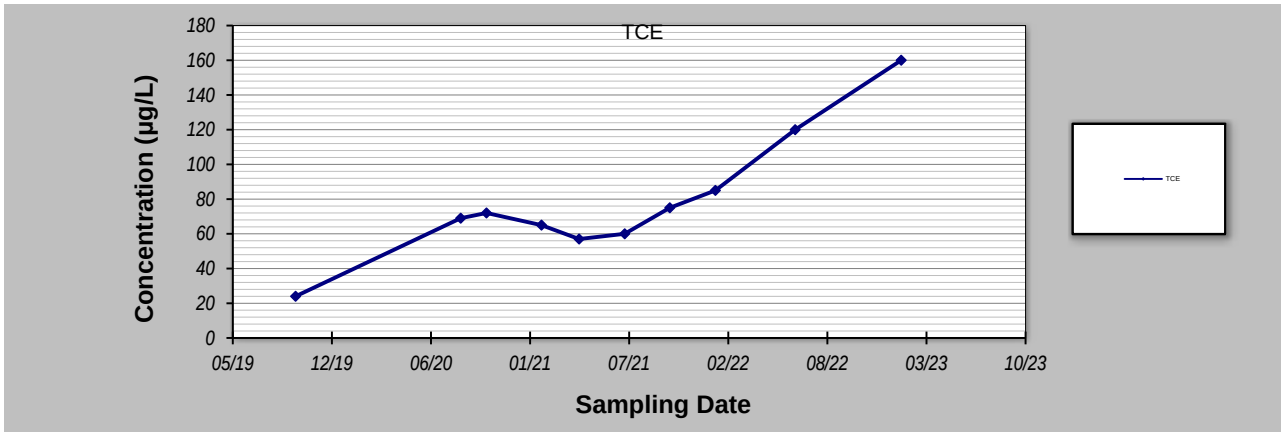
16WW57 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID: **TCE**

Sampling Event	Sampling Date	CONCENTRATION (µg/L)
1	18-Sep-19	24
2	17-Aug-20	69
3	08-Oct-20	72
4	27-Jan-21	65
5	13-Apr-21	57
6	14-Jul-21	60
7	13-Oct-21	75
8	13-Jan-22	85
9	23-Jun-22	120
10	23-Jan-23	160
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.47
Mann-Kendall Statistic (S):		29
Confidence Factor:		99.5%
Concentration Trend:		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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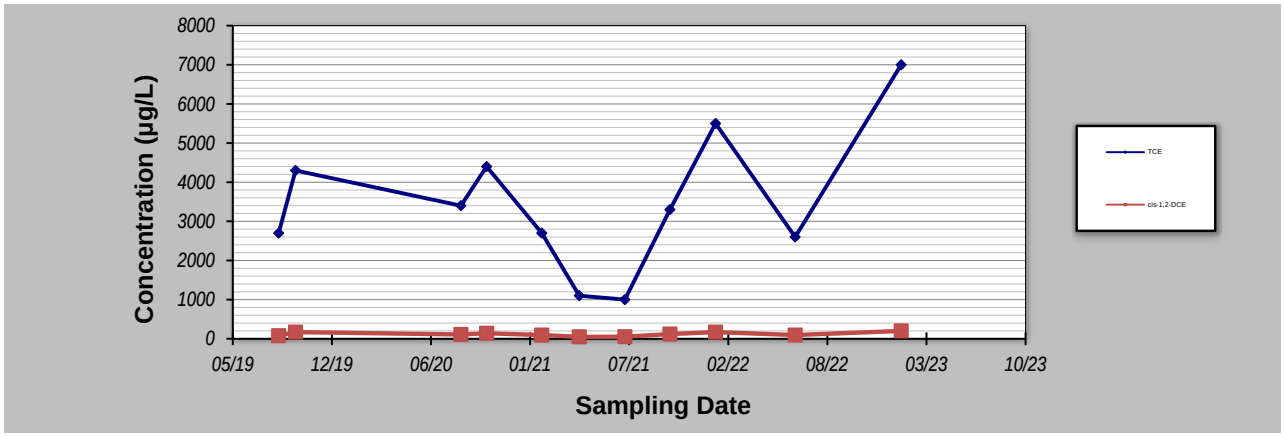
16WW58 Mann-Kendall Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jul-23	Job ID:	501032
Facility Name:	LHAAP-16	Constituent:	
Conducted By:	Allison Rogers	Concentration Units:	µg/L

Sampling Point ID:	TCE	cis-1,2-DCE					
Sampling Event	Sampling Date	CONCENTRATION (µg/L)					
1	15-Aug-19	2700	78				
2	18-Sep-19	4300	170				
3	17-Aug-20	3400	110				
4	08-Oct-20	4400	140				
5	27-Jan-21	2700	94				
6	13-Apr-21	1100	49				
7	14-Jul-21	1000	52				
8	13-Oct-21	3300	120				
9	13-Jan-22	5500	170				
10	23-Jun-22	2600	95				
11	23-Jan-23	7000	200				
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.52	0.43				
Mann-Kendall Statistic (S):		4	10				
Confidence Factor:		59.0%	75.3%				
Concentration Trend:		No Trend	No Trend				



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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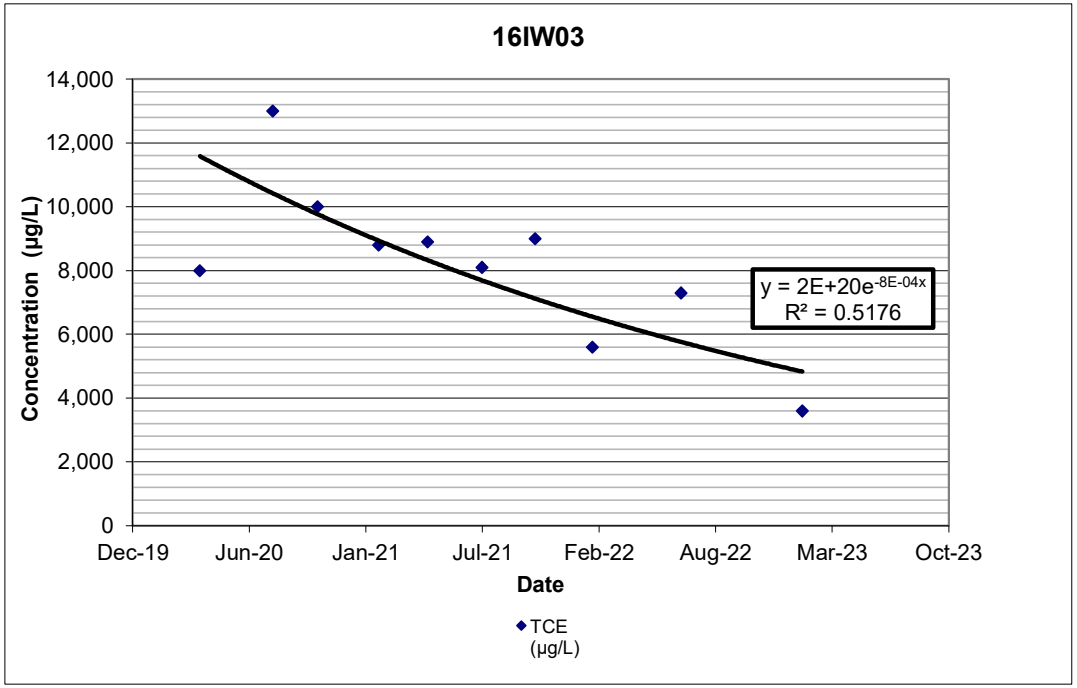
Appendix F

Degradation Rate Calculations

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
Landfill Biobarrier #2 Well 16IW03

Date	TCE (µg/L)
25-Mar-20	8,000
28-Jul-20	13,000
13-Oct-20	10,000
26-Jan-21	8,800
20-Apr-21	8,900
22-Jul-21	8,100
21-Oct-21	9,000
27-Jan-22	5,600
29-Jun-22	7,300
23-Jan-23	3,600

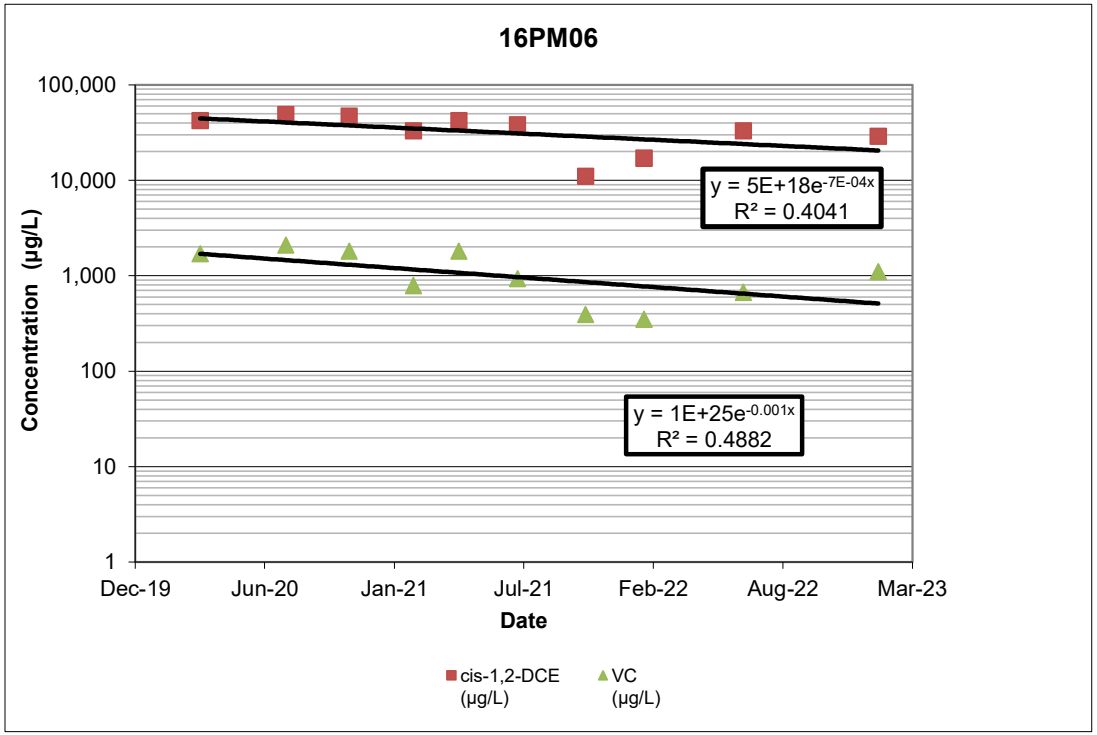


Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Concentration (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	0.0008	866.4	2.4	3,600	5	22.5

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected contaminant of concern concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
TCE - trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
Landfill Biobarrier #2 Well 16PM06

Date	cis-1,2-DCE (µg/L)	VC (µg/L)
10-Mar-20	42,000	1,700
20-Jul-20	49,000	2,100
26-Oct-20	47,000	1,800
2-Feb-21	33,000	790
13-Apr-21	42,000	1,800
13-Jul-21	38,000	930
26-Oct-21	11,000	390
24-Jan-22	17,000	350
27-Jun-22	33,000	670
21-Jan-23	29,000	1,100

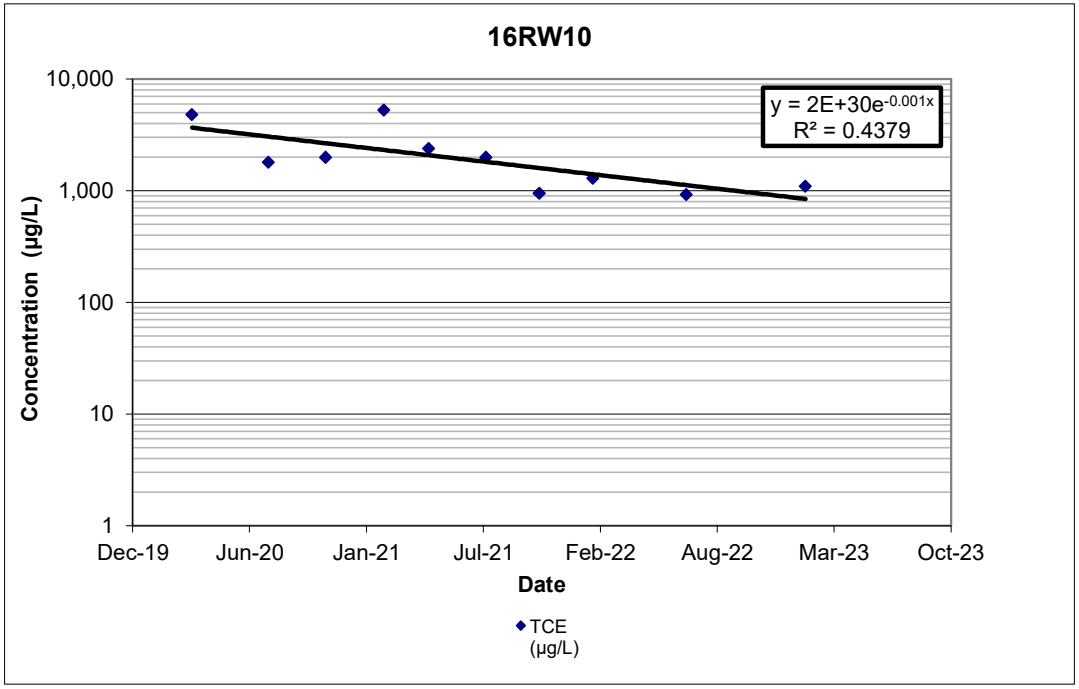


Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Concentration (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
cis-1,2-DCE	0.0007	990.2	2.7	29,000	70	23.6
VC	0.001	693.1	1.9	1,100	2	17.3

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected contaminant of concern concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
DCE - dichloroethene
VC - vinyl chloride

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
Landfill Biobarrier #3 Well 16RW10

Date	TCE (µg/L)
11-Mar-20	4,800
20-Jul-20	1,800
26-Oct-20	2,000
2-Feb-21	5,300
20-Apr-21	2,400
27-Jul-21	2,000
26-Oct-21	950
26-Jan-22	1,300
5-Jul-22	930
25-Jan-23	1,100

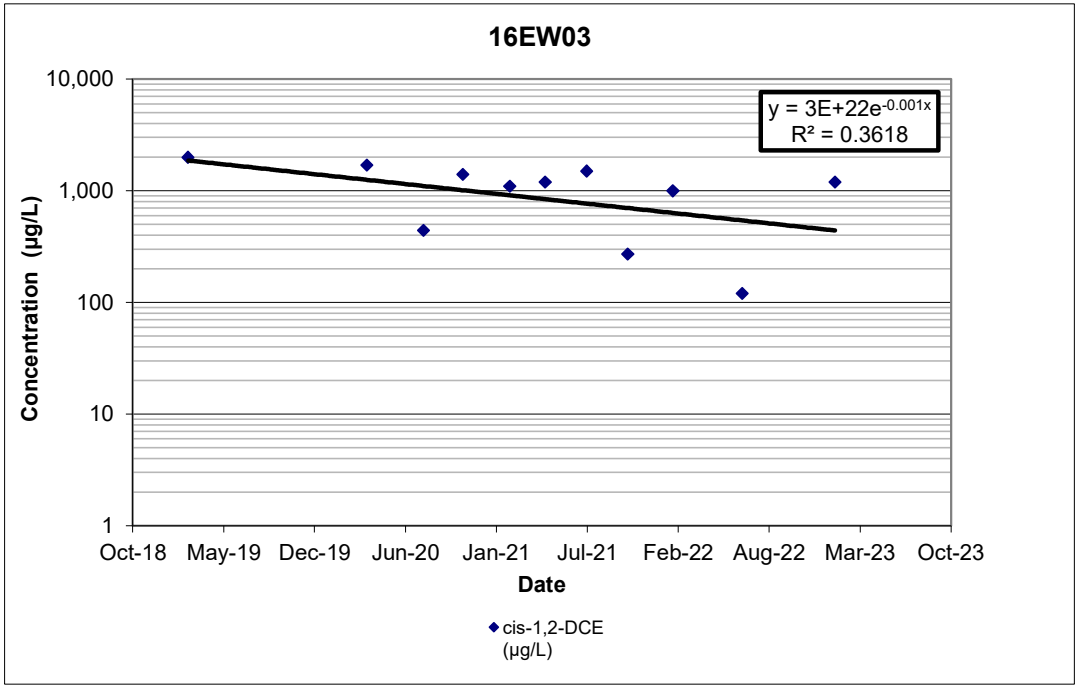


Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Concentration (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	0.001	693.1	1.9	1,100	5	14.8

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected contaminant of concern concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
TCE - trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
Mid-Plume ISB (Shallow Zone) Well 16EW03

Date	cis-1,2-DCE (µg/L)
26-Feb-19	2,000
25-Mar-20	1,700
28-Jul-20	440
22-Oct-20	1,400
2-Feb-21	1,100
21-Apr-21	1,200
22-Jul-21	1,500
20-Oct-21	270
27-Jan-22	1,000
29-Jun-22	120
19-Jan-23	1,200



Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Concentration (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
cis-1,2-DCE	0.001	693.1	1.9	1,200	70	7.8

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected contaminant of concern concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level

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WorkOrder: HS22061145

LHAAP 16 June 2022

Aptim Environmental & Infrastucture, Inc.

Vicki Graves
10333 Richmond Ave Ste 1030
Houston TX 77042

21-Jul-2022

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ALS Group USA, Corp
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HS22061145 LHAAP 16 June 2022 Final

ALS WO# HS22061145

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July 11, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS22061145**

Laboratory Results for: **LHAAP 16 June 2022**

Dear Vicki Graves ,

ALS Environmental received 9 sample(s) on Jun 22, 2022 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
Dane J. Wacasey

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Work Order: HS22061145

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22061145-01	16WW37-220620	Groundwater		20-Jun-2022 07:20	22-Jun-2022 09:35	☐
HS22061145-02	16WW38-220620	Groundwater		20-Jun-2022 08:05	22-Jun-2022 09:35	☐
HS22061145-03	16WW34-220620	Groundwater		20-Jun-2022 10:35	22-Jun-2022 09:35	☐
HS22061145-04	16WW34-220620-FD	Groundwater		20-Jun-2022 10:35	22-Jun-2022 09:35	☐
HS22061145-05	16WW33-220620	Groundwater		20-Jun-2022 11:20	22-Jun-2022 09:35	☐
HS22061145-06	16WW31-220620	Groundwater		20-Jun-2022 12:50	22-Jun-2022 09:35	☐
HS22061145-07	16WW32-220620	Groundwater		20-Jun-2022 12:05	22-Jun-2022 09:35	☐
HS22061145-08	16WW46-220620	Groundwater		20-Jun-2022 13:35	22-Jun-2022 09:35	☐
HS22061145-09	Trip Blank-220620	Water	CG-061322-03	20-Jun-2022 00:00	22-Jun-2022 09:35	☐

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 16 June 2022
Work Order: HS22061145

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston Specialty Lab. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R411321

Sample ID: HS22061142-01MS(HS22061142-01MS)

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW37-220620
Collection Date: 20-Jun-2022 07:20

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 15:28
1,1-Dichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Jun-2022 15:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 15:28
cis-1,2-Dichloroethene	**14**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Jun-2022 15:28
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 15:28
Trichloroethene	**200**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Jun-2022 17:13
Vinyl chloride	**6.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Jun-2022 15:28
Surr: 1,2-Dichloroethane-d4	*90.4*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 15:28*
Surr: 1,2-Dichloroethane-d4	*88.8*			**0**	*81-118*	*%REC*	*5*	*22-Jun-2022 17:13*
Surr: 4-Bromofluorobenzene	*93.9*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 15:28*
Surr: 4-Bromofluorobenzene	*91.8*			**0**	*85-114*	*%REC*	*5*	*22-Jun-2022 17:13*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 15:28*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*5*	*22-Jun-2022 17:13*
Surr: Toluene-d8	*99.1*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 15:28*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*5*	*22-Jun-2022 17:13*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW38-220620
Collection Date: 20-Jun-2022 08:05

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	22-Jun-2022 15:49
1,1-Dichloroethene	**20**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Jun-2022 15:49
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	22-Jun-2022 15:49
cis-1,2-Dichloroethene	**710**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Jun-2022 15:49
Methylene chloride	**8.4**	J	**2.0**	**10**	**10**	**ug/L**	5	22-Jun-2022 15:49
Trichloroethene	**4,200**		**5.0**	**12**	**25**	**ug/L**	25	22-Jun-2022 16:52
Vinyl chloride	**130**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Jun-2022 15:49
Surr: 1,2-Dichloroethane-d4	*88.6*			**0**	*81-118*	*%REC*	*5*	*22-Jun-2022 15:49*
Surr: 1,2-Dichloroethane-d4	*89.4*			**0**	*81-118*	*%REC*	*25*	*22-Jun-2022 16:52*
Surr: 4-Bromofluorobenzene	*92.9*			**0**	*85-114*	*%REC*	*5*	*22-Jun-2022 15:49*
Surr: 4-Bromofluorobenzene	*91.5*			**0**	*85-114*	*%REC*	*25*	*22-Jun-2022 16:52*
Surr: Dibromofluoromethane	*92.6*			**0**	*80-119*	*%REC*	*5*	*22-Jun-2022 15:49*
Surr: Dibromofluoromethane	*93.3*			**0**	*80-119*	*%REC*	*25*	*22-Jun-2022 16:52*
Surr: Toluene-d8	*97.8*			**0**	*89-112*	*%REC*	*5*	*22-Jun-2022 15:49*
Surr: Toluene-d8	*98.2*			**0**	*89-112*	*%REC*	*25*	*22-Jun-2022 16:52*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW34-220620
Collection Date: 20-Jun-2022 10:35

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 14:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:46
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:46
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 14:46
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:46
Surr: 1,2-Dichloroethane-d4	*88.3*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 14:46*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 14:46*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 14:46*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 14:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW34-220620-FD
Collection Date: 20-Jun-2022 10:35

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 15:07
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 15:07
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 15:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 15:07
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 15:07
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 15:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 15:07
Surr: 1,2-Dichloroethane-d4	*88.0*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 15:07*
Surr: 4-Bromofluorobenzene	*91.5*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 15:07*
Surr: Dibromofluoromethane	*92.2*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 15:07*
Surr: Toluene-d8	*99.0*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 15:07*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW33-220620
Collection Date: 20-Jun-2022 11:20

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 17:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:34
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 17:34
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:34
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 17:34*
Surr: 4-Bromofluorobenzene	*91.0*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 17:34*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 17:34*
Surr: Toluene-d8	*99.2*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 17:34*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW31-220620
Collection Date: 20-Jun-2022 12:50

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 17:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:55
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:55
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:55
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 17:55
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 17:55
Surr: 1,2-Dichloroethane-d4	*89.4*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 17:55*
Surr: 4-Bromofluorobenzene	*92.0*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 17:55*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 17:55*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 17:55*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW32-220620
Collection Date: 20-Jun-2022 12:05

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 18:17
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:17
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:17
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:17
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 18:17
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:17
Surr: 1,2-Dichloroethane-d4	*89.3*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 18:17*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 18:17*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 18:17*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 18:17*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW46-220620
Collection Date: 20-Jun-2022 13:35

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 18:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:38
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 18:38
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 18:38
Surr: 1,2-Dichloroethane-d4	*88.6*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 18:38*
Surr: 4-Bromofluorobenzene	*91.8*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 18:38*
Surr: Dibromofluoromethane	*92.9*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 18:38*
Surr: Toluene-d8	*98.2*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 18:38*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See attached		0	0	0	NA	1	24-Jun-2022 12:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: Trip Blank-220620
Collection Date: 20-Jun-2022 00:00

ANALYTICAL REPORT
WorkOrder:HS22061145
Lab ID:HS22061145-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Jun-2022 14:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:04
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Jun-2022 14:04
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Jun-2022 14:04
Surr: 1,2-Dichloroethane-d4	*88.1*			**0**	*81-118*	*%REC*	*1*	*22-Jun-2022 14:04*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*1*	*22-Jun-2022 14:04*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*1*	*22-Jun-2022 14:04*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*1*	*22-Jun-2022 14:04*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061145

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R411321 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS22061145-09	Trip Blank-220620	20 Jun 2022 00:00			22 Jun 2022 14:04	1
Batch ID: R411321 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS22061145-01	16WW37-220620	20 Jun 2022 07:20			22 Jun 2022 17:13	5
HS22061145-01	16WW37-220620	20 Jun 2022 07:20			22 Jun 2022 15:28	1
HS22061145-02	16WW38-220620	20 Jun 2022 08:05			22 Jun 2022 16:52	25
HS22061145-02	16WW38-220620	20 Jun 2022 08:05			22 Jun 2022 15:49	5
HS22061145-03	16WW34-220620	20 Jun 2022 10:35			22 Jun 2022 14:46	1
HS22061145-04	16WW34-220620-FD	20 Jun 2022 10:35			22 Jun 2022 15:07	1
HS22061145-05	16WW33-220620	20 Jun 2022 11:20			22 Jun 2022 17:34	1
HS22061145-06	16WW31-220620	20 Jun 2022 12:50			22 Jun 2022 17:55	1
HS22061145-07	16WW32-220620	20 Jun 2022 12:05			22 Jun 2022 18:17	1
HS22061145-08	16WW46-220620	20 Jun 2022 13:35			22 Jun 2022 18:38	1
Batch ID: R412573 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS22061145-01	16WW37-220620	20 Jun 2022 07:20			24 Jun 2022 12:00	1
HS22061145-02	16WW38-220620	20 Jun 2022 08:05			24 Jun 2022 12:00	1
HS22061145-03	16WW34-220620	20 Jun 2022 10:35			24 Jun 2022 12:00	1
HS22061145-04	16WW34-220620-FD	20 Jun 2022 10:35			24 Jun 2022 12:00	1
HS22061145-05	16WW33-220620	20 Jun 2022 11:20			24 Jun 2022 12:00	1
HS22061145-06	16WW31-220620	20 Jun 2022 12:50			24 Jun 2022 12:00	1
HS22061145-07	16WW32-220620	20 Jun 2022 12:05			24 Jun 2022 12:00	1
HS22061145-08	16WW46-220620	20 Jun 2022 13:35			24 Jun 2022 12:00	1

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061145

QC BATCH REPORT

Batch ID: R411321 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-220622** Units: **ug/L** Analysis Date: **22-Jun-2022 13:22**
Client ID: Run ID: **VOA6_411321** SeqNo: **6708407** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	2.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.77*	*1.0*	*50*	*0*	*87.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.56*	*1.0*	*50*	*0*	*93.1*	*85 - 114*				
Surr: Dibromofluoromethane	*46.39*	*1.0*	*50*	*0*	*92.8*	*80 - 119*				
Surr: Toluene-d8	*48.93*	*1.0*	*50*	*0*	*97.9*	*89 - 112*				

LCS Sample ID: **VLCSW-220622** Units: **ug/L** Analysis Date: **22-Jun-2022 12:39**
Client ID: Run ID: **VOA6_411321** SeqNo: **6708406** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.11	1.0	20	0	90.6	80 - 119				
1,1-Dichloroethene	16.9	1.0	20	0	84.5	71 - 131				
1,2-Dichloroethane	18.78	1.0	20	0	93.9	73 - 128				
cis-1,2-Dichloroethene	19.26	1.0	20	0	96.3	78 - 123				
Methylene chloride	18.31	2.0	20	0	91.5	74 - 124				
Trichloroethene	19.78	1.0	20	0	98.9	79 - 123				
Vinyl chloride	16.35	1.0	20	0	81.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.43*	*1.0*	*50*	*0*	*98.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.72*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*50.04*	*1.0*	*50*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*50.57*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061145

QC BATCH REPORT

Batch ID: R411321 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS22061142-01MS** Units: **ug/L** Analysis Date: **22-Jun-2022 16:10**
Client ID: Run ID: **VOA6_411321** SeqNo: **6708415** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	20.48	1.0	20	0	102	80 - 119				
1,1-Dichloroethene	17.05	1.0	20	0	85.2	71 - 131				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
cis-1,2-Dichloroethene	23.77	1.0	20	2.772	105	78 - 123				
Methylene chloride	17.5	2.0	20	0	87.5	74 - 124				
Trichloroethene	23.16	1.0	20	0	116	79 - 123				
Vinyl chloride	9.702	1.0	20	0	48.5	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*44.39*	*1.0*	*50*	*0*	*88.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.65*	*1.0*	*50*	*0*	*95.3*	*85 - 114*				
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				
Surr: Toluene-d8	*49.29*	*1.0*	*50*	*0*	*98.6*	*89 - 112*				

MSD Sample ID: **HS22061142-01MSD** Units: **ug/L** Analysis Date: **22-Jun-2022 16:31**
Client ID: Run ID: **VOA6_411321** SeqNo: **6708416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.39	1.0	20	0	97.0	80 - 119	20.48	5.46	20	
1,1-Dichloroethene	15.69	1.0	20	0	78.5	71 - 131	17.05	8.25	20	
1,2-Dichloroethane	19.39	1.0	20	0	97.0	73 - 128	20.36	4.87	20	
cis-1,2-Dichloroethene	22.35	1.0	20	2.772	97.9	78 - 123	23.77	6.13	20	
Methylene chloride	16.94	2.0	20	0	84.7	74 - 124	17.5	3.3	20	
Trichloroethene	20.45	1.0	20	0	102	79 - 123	23.16	12.4	20	
Vinyl chloride	8.737	1.0	20	0	43.7	58 - 137	9.702	10.5	20	S
Surr: 1,2-Dichloroethane-d4	*45.6*	*1.0*	*50*	*0*	*91.2*	*81 - 118*	*44.39*	*2.69*	*20*	
Surr: 4-Bromofluorobenzene	*48.34*	*1.0*	*50*	*0*	*96.7*	*85 - 114*	*47.65*	*1.44*	*20*	
Surr: Dibromofluoromethane	*46.94*	*1.0*	*50*	*0*	*93.9*	*80 - 119*	*46.66*	*0.602*	*20*	
Surr: Toluene-d8	*49.27*	*1.0*	*50*	*0*	*98.5*	*89 - 112*	*49.29*	*0.0562*	*20*	

The following samples were analyzed in this batch:

HS22061145-01	HS22061145-02	HS22061145-03	HS22061145-04
HS22061145-05	HS22061145-06	HS22061145-07	HS22061145-08
HS22061145-09			

ALS Houston, US Date: 11-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: **HS22061145**

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2021-080	31-Aug-2022
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932021-12	30-Jul-2022

ALS Houston, US Date: 11-Jul-22

Sample Receipt Checklist

Work Order ID: HS22061145 **Date/Time Received:** 22-Jun-2022 09:35

Client Name: CBI-Houston **Received by:** Pablo Marinez

Completed By:	/S/ Pablo Marinez	22-Jun-2022 11:32	**Reviewed by:**	/S/ Ragen Giga	07-Jul-2022 16:48
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **WATER** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:CLIENT
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.0°C/1.5°C UC/C	IR 31
Cooler(s)/Kit(s):	46561	
Date/Time sample(s) sent to storage:	6/22/22 11:35	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	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) 575-2190 ATTN: Dane Wacasey

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 16 January 2022**

Prepared By: Scott Beesinger

P.O. Number

HS22061145

Aptim Environmental & Infrastucture, Inc.
LHAAP 16 January 2022

Field Sample I.D. / Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions sulfate and nitrate by SW9056	CO2 by RSK 175	Perchlorate by SW 6850	Remarks (Preservatives, etc.)	Lab I.D.#
16WW37-220620	W6	6/20/22 0720		4	X					X		
16WW38-220620	W6	6/20/22 0805		4	X					X		
16WW34-220620	W6	6/20/22 1035		4	X					X		
16WW34-220620-FD	W6	6/20/22 1035		4	X					X		
16WW33-220620	W6	6/20/22 1120		4	X					X		
16WW31-220620	W6	6/20/22 1250		4	X					X		
16WW32-220620	W6	6/20/22 1205		4	X					X		
16WW36-220620	W6	6/20/22 1335		4	X					X		

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	6/21/22	1400		6/21/22	9:35						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

16561 1671
1 oc LFTD 5

(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) 575-2190 ATTN: Dane Wacasey

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **LHAAP 16 January 2022**	
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	Anions sulfate and nitrate by SW9056	CO2 by RSK 175	Perchlorate by SW 6850	Remarks (Preservatives, etc.)	Lab I.D.#
TRIP BLANK-220620	W	6/20/22		2	X							

Analyses

HS22061145

Aptim Environmental & Infrastucture, Inc.

LHAAP 16 January 2022

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	6/21/22	1400	Paul [illegible]	6/22/22	9:35						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

4656 IR-11
1.cc CPT0-5

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ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 [illegible] 4656
Fax. +1 [illegible] 5887

4656!

CUSTODY SEAL

Date: 6/21/22 Time: 1400

Name: [illegible]

Company: [illegible]

Seal Broken By: PM

Date: 6/22/22

TAKE
FedEx 6789 1994 3387

RETURNS MON–SAT
PRIORITY OVERNIGHT

AB SGRA 4656!

77099
TX-US
IAH

June 30, 2022 Service Request No:E2200587

Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS22061145

Dear Dane,

Enclosed are the results of the sample(s) submitted to our laboratory June 22, 2022
For your reference, these analyses have been assigned our service request number **E2200587.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS-Houston	**Service Request No.:**	E2200587
Project:	HS22061145	**Date Received:**	06/22/22
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 06/22/22.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2200257: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS-DLCS recoveries met acceptance criteria.

DoD Certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2200587
Project: HS22061145

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2200587-001	16WW37_220620	6/20/2022	0720
E2200587-002	16WW38_220620	6/20/2022	0805
E2200587-003	16WW34_220620	6/20/2022	1035
E2200587-004	16WW34_220620_FD	6/20/2022	1035
E2200587-005	16WW33_220620	6/20/2022	1120
E2200587-006	16WW31_220620	6/20/2022	1250
E2200587-007	16WW32_220620	6/20/2022	1205
E2200587-008	16WW46_220620	6/20/2022	1335

Service Request Summary

Folder #: **E2200587**
Client Name: ALS Environmental - US
Project Name: HS22061145
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/22/22
Internal Due Date: 7/7/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061145
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2200587-001	16WW37_220620	Ground Water	06/20/22 0720	**IV**
E2200587-002	16WW38_220620	Ground Water	06/20/22 0805	**IV**
E2200587-003	16WW34_220620	Ground Water	06/20/22 1035	**IV**
E2200587-004	16WW34_220620_FD	Ground Water	06/20/22 1035	**IV**
E2200587-005	16WW33_220620	Ground Water	06/20/22 1120	**IV**
E2200587-006	16WW31_220620	Ground Water	06/20/22 1250	**IV**
E2200587-007	16WW32_220620	Ground Water	06/20/22 1205	**IV**
E2200587-008	16WW46_220620	Ground Water	06/20/22 1335	**IV**

Service Request Summary

Folder #: **E2200587**
Client Name: ALS Environmental - US
Project Name: HS22061145
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/22/22
Internal Due Date: 7/7/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061145
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	(Auto) The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.

Data Qualifiers

Lab Standard

N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2023
California Department of Health Services	2919-2023	4/30/2023
Department of Defense	L22-90	3/31/2024
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-34	6/30/2022
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Hawaii Department of Health	2022	4/30/2023
Illinois Environmental Protection Agency	2000322022-9	5/9/2023
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2021	6/30/2022
Louisiana Department of Environmental Quality	03087-2022	6/30/2023
Louisiana Department of Health and Hospitals	LA028	12/31/2022
Maine Department of Health and Human Services	2022017	6/5/2024
Maryland Department of the Environment	343	6/30/2023
Michigan Depratment of Environmental Quality	9971-2022	4/30/2023
Minnesota Department of Health	2228443	12/31/2022
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2023
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209422	4/24/2023
New Jersey Department of Environmental Protection	TX008	6/30/2022
New York Department of Health	11707	3/31/2023
Oklahoma Department of Environmental Quality	2021-080	8/31/2022
Oregon Environmental Laboratory Accreditation Program	TX200002	5/15/2023
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Perry Johnson Laboratory Accreditation	L22-91	3/31/2024
Tennessee Department of Environment and Concervation	04016-2022	4/30/2023
Texas Commision on Environmental Quality	T104704231-22-29	4/30/2023
United States Department of Agriculture	P330-19-00299	10/10/2022
Utah Department of Health Environmental Laboratory Certification	TX026932021-12	7/31/2022
Washington Department of Health	C819-2022	11/14/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 19005**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Dane J. Wacasey
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Dane.Wacasey@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:	HS22061145
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS22061145-01**	**16WW37_220620**	**Groundwater**	**20 Jun 2022 07:20**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
2.	**HS22061145-02**	**16WW38_220620**	**Groundwater**	**20 Jun 2022 08:05**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
3.	**HS22061145-03**	**16WW34_220620**	**Groundwater**	**20 Jun 2022 10:35**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
4.	**HS22061145-04**	**16WW34_220620_FD**	**Groundwater**	**20 Jun 2022 10:35**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
5.	**HS22061145-05**	**16WW33_220620**	**Groundwater**	**20 Jun 2022 11:20**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
6.	**HS22061145-06**	**16WW31_220620**	**Groundwater**	**20 Jun 2022 12:50**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
7.	**HS22061145-07**	**16WW32_220620**	**Groundwater**	**20 Jun 2022 12:05**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
8.	**HS22061145-08**	**16WW46_220620**	**Groundwater**	**20 Jun 2022 13:35**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19005**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: Paula Mann Date/Time: 6-22-22 12:00

Received By: COREY G Date/Time: 6/22/22 12:00

Cooler ID(s): Temperature(s):

Cooler Receipt Form

ALS Environmental

Project Chemist CG

Client/Project ALS-H Thermometer ID IR3

Date/Time Received: 6-22-22 Initials: CG Date/Time Logged in: 6-22-22 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (ALS) ○ Client

2. Samples received in: ☒ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ☒ No
   Were they intact? ○ Yes ○ No ☒ N/A
   Were they signed and dated? ○ Yes ○ No ☒ N/A
   If yes, how many and where?

4. Packing Material: ○ Inserts ☒ Baggies ○ Bubble Wrap ○ Gel Packs ☒ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		6-22-22	1200	CG	1.2°C	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☒ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ☒ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ☒ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ☒ Yes ○ No
10. Did sample labels and tags agree with custody documents? ☒ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 401767 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 6/23/22 09:36

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2200587-001	16WW37_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2200587-002	16WW38_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2200587-003	16WW34_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2200587-004	16WW34_220620_FD	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2200587-005	16WW33_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2200587-006	16WW31_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2200587-007	16WW32_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2200587-008	16WW46_220620	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2200588-001	LH18/24-SP650_062122_AIX	.01	6850/ClO4 DOD			Water	10mL	
10	EQ2200257-01	MB		6850/ClO4 DOD			Liquid	10mL	
11	EQ2200257-02	LCS		6850/ClO4 DOD			Liquid	10mL	
12	EQ2200257-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 222798 Logbook Ref: Perchlorate (1st Source) Expires On: 10/29/2022

EQ2200257-02 1.00µL EQ2200257-03 1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 223118 Logbook Ref: Perchlorate Internal Standard Expires On: 10/31/2022

E2200587-001	100.00µL	E2200587-002	100.00µL	E2200587-003	100.00µL	E2200587-004	100.00µL	E2200587-005	100.00µL	E2200587-006	100.00µL
E2200587-007	100.00µL	E2200587-008	100.00µL	E2200588-001	100.00µL	EQ2200257-01	100.00µL	EQ2200257-02	100.00µL	EQ2200257-03	100.00µL

Preparation Materials

Water HPLC Grade	02/16/2022 Water (221769)	6850 Amber Glass screw vial	2mL Screw Top Vial (221894)	537M Glass Culture Tubes	537M Glass Tubes (218064)
6850 0.45um syringe filters	6850 Syringe Filters (222410)	6850 Luer-Lok Syringes	Luer-Lok Syringes (221305)	6850 Pipette Tips 50-1000 uL	6850 Pipette Tips (221929)

Preparation Steps

Step: Preparation
Started: 6/23/22 09:36
Finished: 6/23/22 10:15
By: GRIVERA
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 401767
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/22 09:36

Reviewed By: GR Date: 6/23/22

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 0720
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW37_220620	**Units:**	µg/L
Lab Code:	E2200587-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**25.1**		0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:52	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 0805
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW38_220620	**Units:**	µg/L
Lab Code:	E2200587-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0381**	J	0.100	0.0500	0.0250	1	6/23/22	6/24/22 17:43	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1035
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW34_220620	**Units:**	µg/L
Lab Code:	E2200587-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0429**	J	0.100	0.0500	0.0250	1	6/23/22	6/24/22 17:50	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1035
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW34_220620_FD	**Units:**	µg/L
Lab Code:	E2200587-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 16:16	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1120
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW33_220620	**Units:**	µg/L
Lab Code:	E2200587-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 17:58	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1250
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW31_220620	**Units:**	µg/L
Lab Code:	E2200587-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 16:32	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1205
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW32_220620	**Units:**	µg/L
Lab Code:	E2200587-007	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/28/22 12:22	401767	769030	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1335
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW46_220620	**Units:**	µg/L
Lab Code:	E2200587-008	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 16:55	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2200257-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:21	401767	768766	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145
Sample Matrix: Ground Water

Service Request: E2200587
Date Analyzed: 6/24/22

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 401767

	Lab Control Sample EQ2200257-02			Duplicate Lab Control Sample EQ2200257-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.118	0.100	118	0.103	0.100	103	84 - 119	13	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200257-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.118**		0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:29	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200257-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.103**		0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:44	401767	768766	

HS22061145-MSVOA-SW8260

ALS WO# HS22061145

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Form 1

Organic Analysis Data Sheet

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastructure, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-01
16WW37-220620

Collected	Received	Matrix	Units
06/20/22 07:20	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 15:28	VOA6_411321	X062213
1,1-Dichloroethene	1.3		0.20	1.0	1.0	1	06/22/22 15:28	VOA6_411321	X062213
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 15:28	VOA6_411321	X062213
cis-1,2-Dichloroethene	14		0.20	1.0	1.0	1	06/22/22 15:28	VOA6_411321	X062213
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 15:28	VOA6_411321	X062213
Vinyl chloride	6.3		0.20	1.0	1.0	1	06/22/22 15:28	VOA6_411321	X062213
Trichloroethene	200		1.0	5.0	5.0	5	06/22/22 17:13	VOA6_411321	X062218

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Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-02
16WW38-220620

Collected	Received	Matrix	Units
06/20/22 08:05	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	5	U	1.5	5.0	5.0	5	06/22/22 15:49	VOA6_411321	X062214
1,1-Dichloroethene	20		1.0	5.0	5.0	5	06/22/22 15:49	VOA6_411321	X062214
1,2-Dichloroethane	2.5	U	1.0	5.0	5.0	5	06/22/22 15:49	VOA6_411321	X062214
cis-1,2-Dichloroethene	710		1.0	5.0	5.0	5	06/22/22 15:49	VOA6_411321	X062214
Methylene chloride	8.4	J	2.0	10	10	5	06/22/22 15:49	VOA6_411321	X062214
Vinyl chloride	130		1.0	5.0	5.0	5	06/22/22 15:49	VOA6_411321	X062214
Trichloroethene	4200		5.0	25	25	25	06/22/22 16:52	VOA6_411321	X062217

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Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-03
16WW34-220620

Collected	Received	Matrix	Units
06/20/22 10:35	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 14:46	VOA6_411321	X062211
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 14:46	VOA6_411321	X062211
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 14:46	VOA6_411321	X062211
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 14:46	VOA6_411321	X062211
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 14:46	VOA6_411321	X062211
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 14:46	VOA6_411321	X062211
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 14:46	VOA6_411321	X062211

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Project LHAAP 16 June 2022

Workorder
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Volatiles Organics by Method 8260C

HS22061145-04
16WW34-220620-FD

Collected	Received	Matrix	Units
06/20/22 10:35	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 15:07	VOA6_411321	X062212
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 15:07	VOA6_411321	X062212
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 15:07	VOA6_411321	X062212
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 15:07	VOA6_411321	X062212
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 15:07	VOA6_411321	X062212
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 15:07	VOA6_411321	X062212
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 15:07	VOA6_411321	X062212

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-05
16WW33-220620

Collected	Received	Matrix	Units
06/20/22 11:20	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 17:34	VOA6_411321	X062219
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 17:34	VOA6_411321	X062219
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 17:34	VOA6_411321	X062219
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 17:34	VOA6_411321	X062219
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 17:34	VOA6_411321	X062219
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 17:34	VOA6_411321	X062219
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 17:34	VOA6_411321	X062219

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-06
16WW31-220620

Collected	Received	Matrix	Units
06/20/22 12:50	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 17:55	VOA6_411321	X062220
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 17:55	VOA6_411321	X062220
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 17:55	VOA6_411321	X062220
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 17:55	VOA6_411321	X062220
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 17:55	VOA6_411321	X062220
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 17:55	VOA6_411321	X062220
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 17:55	VOA6_411321	X062220

Form 1 - Organic Analysis Data Sheet

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Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-07
16WW32-220620

Collected	Received	Matrix	Units
06/20/22 12:05	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 18:17	VOA6_411321	X062221
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 18:17	VOA6_411321	X062221
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 18:17	VOA6_411321	X062221
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 18:17	VOA6_411321	X062221
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 18:17	VOA6_411321	X062221
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 18:17	VOA6_411321	X062221
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 18:17	VOA6_411321	X062221

Form 1 - Organic Analysis Data Sheet

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Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-08
16WW46-220620

Collected	Received	Matrix	Units
06/20/22 13:35	06/22/22 09:35	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 18:38	VOA6_411321	X062222
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 18:38	VOA6_411321	X062222
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 18:38	VOA6_411321	X062222
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 18:38	VOA6_411321	X062222
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 18:38	VOA6_411321	X062222
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 18:38	VOA6_411321	X062222
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 18:38	VOA6_411321	X062222

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

HS22061145-09
Trip Blank-220620

Collected	Received	Matrix	Units
06/20/22 00:00	06/22/22 09:35	Water	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 14:04	VOA6_411321	X062209
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 14:04	VOA6_411321	X062209
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 14:04	VOA6_411321	X062209
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 14:04	VOA6_411321	X062209
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 14:04	VOA6_411321	X062209
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 14:04	VOA6_411321	X062209
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 14:04	VOA6_411321	X062209

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

VBLKW-220622
VBLKW-220622

Collected	Received	Matrix	Units
NA	NA	Aqueous	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/22/22 13:22	VOA6_411321	X062207
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 13:22	VOA6_411321	X062207
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/22/22 13:22	VOA6_411321	X062207
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 13:22	VOA6_411321	X062207
Methylene chloride	2	U	0.40	2.0	2.0	1	06/22/22 13:22	VOA6_411321	X062207
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/22/22 13:22	VOA6_411321	X062207
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/22/22 13:22	VOA6_411321	X062207

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Form 2

System Monitoring Compound Recovery

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

VLCSW-220622 (6708406)	Analyzed 06/22/22 12:39		Conc Units µg/L	DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
Dibromofluoromethane	50.04	50.00	100	80 - 119	
Toluene-d8	50.57	50.00	101	89 - 112	
4-Bromofluorobenzene	50.72	50.00	101	85 - 114	
1,2-Dichloroethane-d4	49.43	50.00	99	81 - 118	

VBLKW-220622 (6708407)	Analyzed 06/22/22 13:22		Conc Units µg/L	DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	43.77	50.00	88	81 - 118	
Dibromofluoromethane	46.39	50.00	93	80 - 119	
Toluene-d8	48.93	50.00	98	89 - 112	
4-Bromofluorobenzene	46.56	50.00	93	85 - 114	

HS22061145-09 (6708409)	Analyzed 06/22/22 14:04		Conc Units µg/L	DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.04	50.00	88	81 - 118	
Dibromofluoromethane	45.93	50.00	92	80 - 119	
Toluene-d8	49.06	50.00	98	89 - 112	
4-Bromofluorobenzene	46.22	50.00	92	85 - 114	

HS22061145-03 (6708411)	Analyzed 06/22/22 14:46		Conc Units µg/L	DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.13	50.00	88	81 - 118	
Dibromofluoromethane	46.71	50.00	93	80 - 119	
Toluene-d8	50.00	50.00	100	89 - 112	
4-Bromofluorobenzene	46.18	50.00	92	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

HS22061145-04 (6708412)	Analyzed 06/22/22 15:07		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.02	50.00	88	81 - 118	
Dibromofluoromethane	46.11	50.00	92	80 - 119	
Toluene-d8	49.52	50.00	99	89 - 112	
4-Bromofluorobenzene	45.74	50.00	92	85 - 114	

HS22061145-01 (6708413)	Analyzed 06/22/22 15:28		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	45.19	50.00	90	81 - 118	
Dibromofluoromethane	46.74	50.00	94	80 - 119	
Toluene-d8	49.55	50.00	99	89 - 112	
4-Bromofluorobenzene	46.93	50.00	94	85 - 114	

HS22061145-02 (6708414)	Analyzed 06/22/22 15:49		Conc Units µg/L		DF 5
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	221.5	250.0	89	81 - 118	
Dibromofluoromethane	231.5	250.0	93	80 - 119	
Toluene-d8	244.6	250.0	98	89 - 112	
4-Bromofluorobenzene	232.3	250.0	93	85 - 114	

ZZZZZZMS (6708415)	Analyzed 06/22/22 16:10		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.39	50.00	89	81 - 118	
Dibromofluoromethane	46.66	50.00	93	80 - 119	
Toluene-d8	49.29	50.00	99	89 - 112	
4-Bromofluorobenzene	47.65	50.00	95	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

ZZZZZZMSD (6708416)	Analyzed 06/22/22 16:31		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	45.60	50.00	91	81 - 118	
Dibromofluoromethane	46.94	50.00	94	80 - 119	
Toluene-d8	49.27	50.00	99	89 - 112	
4-Bromofluorobenzene	48.34	50.00	97	85 - 114	

HS22061145-02 (6708417)	Analyzed 06/22/22 16:52		Conc Units µg/L		DF 25
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	1117	1250	89	81 - 118	
Dibromofluoromethane	1167	1250	93	80 - 119	
Toluene-d8	1228	1250	98	89 - 112	
4-Bromofluorobenzene	1143	1250	92	85 - 114	

HS22061145-01 (6708418)	Analyzed 06/22/22 17:13		Conc Units µg/L		DF 5
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	222.0	250.0	89	81 - 118	
Dibromofluoromethane	234.7	250.0	94	80 - 119	
Toluene-d8	245.2	250.0	98	89 - 112	
4-Bromofluorobenzene	229.4	250.0	92	85 - 114	

HS22061145-05 (6708419)	Analyzed 06/22/22 17:34		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	45.29	50.00	91	81 - 118	
Dibromofluoromethane	46.94	50.00	94	80 - 119	
Toluene-d8	49.58	50.00	99	89 - 112	
4-Bromofluorobenzene	45.50	50.00	91	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

HS22061145-06 (6708420)	Analyzed 06/22/22 17:55		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.68	50.00	89	81 - 118	
Dibromofluoromethane	46.69	50.00	93	80 - 119	
Toluene-d8	50.20	50.00	100	89 - 112	
4-Bromofluorobenzene	46.02	50.00	92	85 - 114	

HS22061145-07 (6708421)	Analyzed 06/22/22 18:17		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.67	50.00	89	81 - 118	
Dibromofluoromethane	45.80	50.00	92	80 - 119	
Toluene-d8	49.03	50.00	98	89 - 112	
4-Bromofluorobenzene	46.22	50.00	92	85 - 114	

HS22061145-08 (6708422)	Analyzed 06/22/22 18:38		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	44.31	50.00	89	81 - 118	
Dibromofluoromethane	46.46	50.00	93	80 - 119	
Toluene-d8	49.09	50.00	98	89 - 112	
4-Bromofluorobenzene	45.92	50.00	92	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

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Form 3A

Matrix Spike/Spike Duplicate Recovery

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 3A - Matrix Spike/Spike Duplicate Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

		HS22061142-01		HS22061142-01MS				HS22061142-01MSD						
Sample Matrix Aqueous **Units** µg/L		**Run Date** 06/22/22 **Run Time** 14:25 **Data File** X062210.D		06/22/22 16:10 X062215.D				06/22/22 16:31 X062216.D						
Analyte	%R Limits	DF	Result	MS Result	Spike Added	%R	#	MSD Result	Spike Added	%R	#	RPD Limit	RPD	#
1,1,2-Trichloroethane	80-119	1	0	20.48	20.00	102		19.39	20.00	97		20	6	
1,1-Dichloroethene	71-131	1	0	17.05	20.00	85		15.69	20.00	79		20	8	
1,2-Dichloroethane	73-128	1	0	20.36	20.00	102		19.39	20.00	97		20	5	
cis-1,2-Dichloroethene	78-123	1	2.772	23.77	20.00	105		22.35	20.00	98		20	6	
Methylene chloride	74-124	1	0	17.50	20.00	88		16.94	20.00	85		20	3	
Trichloroethene	79-123	1	0	23.16	20.00	116		20.45	20.00	102		20	12	
Vinyl chloride	58-137	1	0	9.702	20.00	49	*	8.737	20.00	44	*	20	10	

- %Recovery / RPD Flag * - %Recovery / RPD Outside Limits OL - Outside Limits

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Form 3B

Laboratory Control Sample Recovery

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 3B - Laboratory Control Sample Recovery

Client Aptim Environmental & Infrastructure, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

Batch QC			LCS		
QC Matrix: Aqueous	Units: ug/L	Run Date / Run Time	06/22/22 12:39		
Analyte	%R Limits	Spike Added	LCS Result	%R	#
1,1,2-Trichloroethane	80-119	20	18.11	91	
1,1-Dichloroethene	71-131	20	16.9	84	
1,2-Dichloroethane	73-128	20	18.78	94	
1,2-Dichloroethane-d4	81-118	50	49.43	99	
4-Bromofluorobenzene	85-114	50	50.72	101	
cis-1,2-Dichloroethene	78-123	20	19.26	96	
Dibromofluoromethane	80-119	50	50.04	100	
Methylene chloride	74-124	20	18.31	92	
Toluene-d8	89-112	50	50.57	101	
Trichloroethene	79-123	20	19.78	99	
Vinyl chloride	58-137	20	16.35	82	

- %Recovery / RPD Flag * - %Recovery / RPD Outside Limits

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Form 4

Method Blank Summary

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 4 - Method Blank Summary

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

BatchID
R411321

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Run ID
METHOD BLANK	VBLKW-220622	X062207.D	06/22/22 13:22	VOA6_411321
VLCSW-220622	VLCSW-220622	X062205.D	06/22/22 12:39	VOA6_411321
ZZZZZZ	HS22061142-02	X062208.D	06/22/22 13:43	VOA6_411321
Trip Blank-220620	HS22061145-09	X062209.D	06/22/22 14:04	VOA6_411321
ZZZZZZ	HS22061142-01	X062210.D	06/22/22 14:25	VOA6_411321
16WW34-220620	HS22061145-03	X062211.D	06/22/22 14:46	VOA6_411321
16WW34-220620-FD	HS22061145-04	X062212.D	06/22/22 15:07	VOA6_411321
16WW37-220620	HS22061145-01	X062213.D	06/22/22 15:28	VOA6_411321
16WW38-220620	HS22061145-02	X062214.D	06/22/22 15:49	VOA6_411321
ZZZZZZMS	HS22061142-01MS	X062215.D	06/22/22 16:10	VOA6_411321
ZZZZZZMSD	HS22061142-01MSD	X062216.D	06/22/22 16:31	VOA6_411321
16WW38-220620	HS22061145-02	X062217.D	06/22/22 16:52	VOA6_411321
16WW37-220620	HS22061145-01	X062218.D	06/22/22 17:13	VOA6_411321
16WW33-220620	HS22061145-05	X062219.D	06/22/22 17:34	VOA6_411321
16WW31-220620	HS22061145-06	X062220.D	06/22/22 17:55	VOA6_411321
16WW32-220620	HS22061145-07	X062221.D	06/22/22 18:17	VOA6_411321
16WW46-220620	HS22061145-08	X062222.D	06/22/22 18:38	VOA6_411321

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Form 5

Instrument Performance Check

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 5 - Instrument Performance Check

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_409368

Volatiles Organics by Method 8260C

Tune File X052401.D 05/24/22 11:07

m / e	Ion Abundance Criterion	%RA
50	15.0 - 40.0% of mass 95	20.3 (20.3)
75	30.0 - 60.0% of mass 95	51.1 (51.1)
95	Base peak, 100% RA	100 (100)
96	5.0 - 9.0% of mass 95	6.5 (6.46)
173	Less than 2.0% of mass 174	0.6 (0.703) 1
174	50.0 - 120.0% of mass 95	80.9 (80.9)
175	4.0 - 9.0% of mass 174	6.5 (8.04) 1
176	93.0 - 101.0% of mass 174	77.4 (95.7) 1
177	5.0 - 9.0% of mass 176	5.6 (7.26) 2

Value is % of mass 1) 174 2) 176 RA - Relative Abundance

This check applies to the following analyses

	Type	Date Analyzed	Lab File ID	Sample ID
1	ICAL1	05/24/22 11:28	X052402	VSTD000.25
2	ICAL2	05/24/22 12:10	X052403	VSTD000.5
3	ICAL3	05/24/22 12:30	X052404	VSTD001
4	ICAL4	05/24/22 12:51	X052405	VSTD002
5	ICAL5	05/24/22 13:12	X052406	VSTD005
6	ICAL6	05/24/22 13:33	X052407	VSTD020
7	ICAL7	05/24/22 13:54	X052408	VSTD050
8	ICAL8	05/24/22 14:15	X052409	VSTD100
9	ICAL9	05/24/22 14:36	X052410	VSTD150
10	ICAL	05/24/22 14:57	X052411	VSTD200
11	ICV	05/24/22 15:39	X052413	CCV

Form 5 - Instrument Performance Check

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

Tune File X062201.D 06/22/22 11:15

m / e	Ion Abundance Criterion	%RA
50	15.0 - 40.0% of mass 95	18.9 (18.9)
75	30.0 - 60.0% of mass 95	46.7 (46.7)
95	Base peak, 100% RA	100 (100)
96	5.0 - 9.0% of mass 95	6.7 (6.74)
173	Less than 2.0% of mass 174	0.5 (0.661) 1
174	50.0 - 120.0% of mass 95	78.1 (78.1)
175	4.0 - 9.0% of mass 174	6.1 (7.84) 1
176	93.0 - 101.0% of mass 174	77.1 (98.8) 1
177	5.0 - 9.0% of mass 176	5.2 (6.8) 2

Value is % of mass 1) 174 2) 176 RA - Relative Abundance

This check applies to the following analyses

	Type	Date Analyzed	Lab File ID	Sample ID
1	CCV	06/22/22 11:57	X062203	CCV
2	CCB	06/22/22 12:19	X062204	CCB
3	LCS	06/22/22 12:39	X062205	VLCSW-220622
4	MBLK	06/22/22 13:22	X062207	VBLKW-220622
5	SAMP	06/22/22 14:04	X062209	Trip Blank-220620
6	SAMP	06/22/22 14:46	X062211	16WW34-220620
7	SAMP	06/22/22 15:07	X062212	16WW34-220620-FD
8	SAMP	06/22/22 15:28	X062213	16WW37-220620
9	SAMP	06/22/22 15:49	X062214	16WW38-220620
10	MS	06/22/22 16:10	X062215	ZZZZZZMS
11	MSD	06/22/22 16:31	X062216	ZZZZZZMSD
12	SAMP	06/22/22 16:52	X062217	16WW38-220620
13	SAMP	06/22/22 17:13	X062218	16WW37-220620
14	SAMP	06/22/22 17:34	X062219	16WW33-220620
15	SAMP	06/22/22 17:55	X062220	16WW31-220620
16	SAMP	06/22/22 18:17	X062221	16WW32-220620
17	SAMP	06/22/22 18:38	X062222	16WW46-220620
18	CCV_EN	06/22/22 18:59	X062223	CCV-END

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Form 6

Initial Calibration Data

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128
ICAL End Date 24-MAY-2022 1457

Calibration Files

Level 1 ..voa6.i\X220524.b\X052402.D
Level 2 ..voa6.i\X220524.b\X052403.D
Level 3 ..voa6.i\X220524.b\X052404.D
Level 4 ..voa6.i\X220524.b\X052405.D
Level 5 ..voa6.i\X220524.b\X052406.D
Level 6 ..voa6.i\X220524.b\X052407.D
Level 7 ..voa6.i\X220524.b\X052408.D
Level 8 ..voa6.i\X220524.b\X052409.D
Level 9 ..voa6.i\X220524.b\X052410.D
Level 10 ..voa6.i\X220524.b\X052411.D

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Dichlorodifluoromethane	NE 332006	3450 665027	5034 1000362	13713 1365363	34533	125156	LINR	0.00278	0.61868		0.99997	
Chloromethane	NE 324529	3635 662612	6589 1037005	15712 1434289	36891	129154	LINR	0.01703	0.64496		0.99913	
Propionitrile	NE 0.07131	0.08070 0.07520	0.08393 0.07626	0.08013 0.07507	0.07790	0.07379	AVRG		0.07714		5.06828	
Vinyl Chloride	NE 0.69582	0.75626 0.69769	0.60990 0.71180	0.74482 0.70609	0.72981	0.69181	AVRG		0.70489		5.98377	
Bromomethane	NE 0.43033	0.49091 0.42348	0.49949 0.41671	0.54181 0.40568	0.52436	0.48439	AVRG		0.46857		10.75616	
Chloroethane	NE 0.40987	0.40449 0.41537	0.36304 0.41880	0.43959 0.41469	0.47978	0.41733	AVRG		0.41811		7.35808	
Trichlorofluoromethane	NE 0.93126	1.01827 0.94822	0.77911 0.95418	1.00583 0.93929	1.04145	0.93757	AVRG		0.95058		7.97545	
Acrolein	NE 0.02580	0.02724 0.02377	0.02508 0.02309	0.02786 0.02263	0.02792	0.02763	AVRG		0.02567		8.27466	
Acetone	NE 188828	2602 358294	4838 513634	9378 678759	21828	76672	LINR	-0.09611	0.15527		0.99867	
1,1-Dichloroethene	NE 0.50922	0.58341 0.51096	0.44029 0.51511	0.57754 0.50480	0.54096	0.51040	AVRG		0.52141		8.20774	

NE - Not Evaluated, AVRG - Averaged, LINR - Linear Regression, WLIN - Weighted Linear, QUAD - Quadratic, * - Curve Fit Outside Limits

Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Isobutyl Alcohol	NE 0.07563	0.06692 0.07741	0.06388 0.07851	0.06608 0.07937	0.08067	0.07906	AVRG		0.07417		8.89925	
Acetonitrile	NE 0.07139	0.06986 0.07280	0.06089 0.07394	0.07455 0.07337	0.07456	0.07253	AVRG		0.07154		5.97087	
Allyl Chloride	NE 1.33329	1.44589 1.36784	1.26025 1.39521	1.31229 1.38862	1.36660	1.34001	AVRG		1.35667		3.93337	
Iodomethane	NE 757764	5250 1607140	9364 2488480	21676 3421513	59050	261012	QUAD	0.04032	1.39217	-0.01869	0.99981	
Acrylonitrile	NE 0.20315	0.19568 0.21030	0.18651 0.21431	0.21382 0.21274	0.18418	0.20024	AVRG		0.20233		5.73302	
Methylene Chloride	NE 0.56245	0.70335 0.56214	0.74077 0.57440	0.63510 0.56465	0.74422	0.59486	AVRG		0.63133		12.32967	
Methyl tert-butyl ether	NE 1.60060	1.85175 1.63245	1.61598 1.66782	1.65015 1.65819	1.68577	1.62981	AVRG		1.66584		4.47328	
Carbon Disulfide	NE 1.50431	1.77630 1.52768	1.33309 1.56349	1.60933 1.53903	1.58297	1.50618	AVRG		1.54915		7.48877	
trans-1,2-Dichloroethene	NE 0.52369	0.54657 0.53175	0.49757 0.54815	0.52981 0.54558	0.56734	0.53134	AVRG		0.53575		3.63835	
Vinyl Acetate	NE 1.52956	1.58238 1.57476	1.40391 1.61073	1.57574 1.60356	1.59281	1.58296	AVRG		1.56182		4.06863	
1,1-Dichloroethane	NE 0.97008	1.06119 0.98603	0.86050 1.00508	1.02098 0.99480	1.03882	0.99054	AVRG		0.99200		5.72555	
Chloroprene	NE 0.25647	0.29592 0.25487	0.26627 0.26376	0.26387 0.26217	0.26979	0.25375	AVRG		0.26521		4.79370	

NE - Not Evaluated, AVRG - Averaged, LINR - Linear Regression, WLIN - Weighted Linear, QUAD - Quadratic, * - Curve Fit Outside Limits

Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
2-Butanone	NE	0.19587	0.17133	0.16535	0.15302	0.17704						
	0.19403	0.20948	0.20750	0.20649			AVRG		0.18668		11.04476	
Methacrylonitrile	NE	0.48248	0.45202	0.48253	0.47581	0.50071						
	0.49973	0.50437	0.52029	0.51469			AVRG		0.49251		4.33239	
2,2-Dichloropropane	NE	4708	7932	17805	48295	176994						
	457611	926722	1411178	1904611			LINR	0.00402	0.86594		0.99992	
cis-1,2-Dichloroethene	NE	0.60752	0.51784	0.60982	0.63913	0.61007						
	0.59123	0.60760	0.62272	0.62130			AVRG		0.60302		5.73184	
Chloroform	NE	1.11763	0.99628	1.13159	1.10188	1.02729						
	0.99511	1.01809	1.04187	1.03048			AVRG		1.05114		4.96513	
Bromochloromethane	NE	0.32708	0.31067	0.34062	0.31585	0.32014						
	0.30615	0.31381	0.31832	0.31978			AVRG		0.31916		3.14581	
1,1,1-Trichloroethane	NE	0.95948	0.73520	0.89660	0.91764	0.84082						
	0.83937	0.85506	0.88139	0.87711			AVRG		0.86696		7.21079	
1,1-Dichloropropene	NE	0.50663	0.44289	0.47718	0.51814	0.46263						
	0.47227	0.48105	0.49024	0.48409			AVRG		0.48168		4.64649	
1,2-Dichloroethane	NE	0.54314	0.43707	0.46874	0.53657	0.50832						
	0.49039	0.49166	0.51109	0.50506			AVRG		0.49912		6.53390	
Carbon Tetrachloride	NE	0.53312	0.47776	0.47412	0.46839	0.43886						
	0.44812	0.45753	0.46627	0.46435			AVRG		0.46984		5.68832	
Benzene	NE	1.41365	1.19785	1.40871	1.40129	1.34875						
	1.32148	1.34027	1.35202	1.34128			AVRG		1.34726		4.85313	
Trichloroethene	NE	0.37451	0.33780	0.39159	0.40149	0.36925						
	0.37073	0.37550	0.38237	0.37750			AVRG		0.37564		4.67714	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Bromodichloromethane	NE 0.47624	0.55046 0.48915	0.45772 0.49633	0.50737 0.49342	0.50526	0.48567	AVRG		0.49574		5.14155	
Methyl Methacrylate	NE 0.48752	0.51168 0.51394	0.48949 0.52852	0.49052 0.52080	0.48793	0.49064	AVRG		0.50234		3.23824	
2-Chloroethylvinyl ether	NE 0.11949	0.12083 0.12928	0.10839 0.13395	0.11212 0.13456	0.10220	0.10954	AVRG		0.11893		9.88911	
1,2-Dichloropropane	NE 0.35950	0.38464 0.36600	0.30269 0.36873	0.33957 0.36800	0.39090	0.36756	AVRG		0.36084		7.26018	
2-Nitropropane	NE 0.18720	0.20224 0.19269	0.20698 0.19907	0.18968 0.19871	0.17074	0.17955	AVRG		0.19187		5.99987	
Dibromomethane	NE 0.23187	0.23860 0.23570	0.22396 0.23788	0.23493 0.23777	0.25182	0.23821	AVRG		0.23675		3.08483	
4-Methyl-2-Pentanone	NE 0.33364	0.36386 0.33930	0.31398 0.34279	0.33547 0.33935	0.36574	0.34595	AVRG		0.34223		4.58488	
cis-1,3-Dichloropropene	NE 0.60830	0.64327 0.62799	0.53597 0.63760	0.59977 0.63317	0.62742	0.60767	AVRG		0.61346		5.31919	
Ethyl Methacrylate	NE 0.51579	0.52873 0.52887	0.46912 0.53771	0.50039 0.53878	0.48640	0.51516	AVRG		0.51344		4.65893	
Toluene	NE 1.52687	1.70653 1.53986	1.32800 1.55688	1.59907 1.52112	1.66548	1.54406	AVRG		1.55421		6.85946	
trans-1,3-Dichloropropene	NE 0.51529	0.51884 0.54194	0.46997 0.54995	0.47648 0.54807	0.51130	0.51074	AVRG		0.51584		5.56471	
2-Hexanone	NE 0.22636	0.20498 0.22916	0.20013 0.23066	0.20088 0.22704	0.23609	0.23080	AVRG		0.22068		6.49787	

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Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
1,1,2-Trichloroethane	NE	0.34247	0.30166	0.31178	0.33543	0.30369						
	0.29272	0.29730	0.29993	0.29754			AVRG		0.30917		5.74478	
1,3-Dichloropropane	NE	0.69776	0.58936	0.64823	0.65806	0.61128						
	0.60481	0.61076	0.61712	0.60946			AVRG		0.62743		5.41842	
Dibromochloromethane	NE	0.44641	0.34381	0.42230	0.40615	0.40093						
	0.39510	0.40801	0.41694	0.41395			AVRG		0.40596		6.80052	
Tetrachloroethene	NE	0.37311	0.28300	0.34571	0.35601	0.31507						
	0.32205	0.32771	0.32858	0.32355			AVRG		0.33053		7.80435	
1,2-Dibromoethane	NE	0.39862	0.33388	0.38591	0.39795	0.37355						
	0.36556	0.37442	0.37633	0.37118			AVRG		0.37527		5.16199	
1-Chlorohexane	NE	0.35094	0.30404	0.34433	0.34231	0.32591						
	0.34100	0.34773	0.34993	0.34682			AVRG		0.33922		4.46535	
Chlorobenzene	NE	1.11879	0.92606	1.05257	1.09528	1.01747						
	1.00382	1.02353	1.03392	1.01441			AVRG		1.03176		5.37175	
1,1,1,2-Tetrachloroethane	NE	0.37621	0.34422	0.38399	0.39357	0.36778						
	0.36855	0.37813	0.38445	0.38008			AVRG		0.37522		3.76043	
Ethylbenzene	NE	0.55035	0.46551	0.52422	0.56151	0.51273						
	0.52062	0.52875	0.53899	0.52600			AVRG		0.52541		5.16598	
m,p-Xylenes	NE	0.71234	0.57422	0.66371	0.69885	0.64781						
	0.66111	0.67122	0.67806	0.66044			AVRG		0.66308		5.87415	
o-Xylene	NE	0.61137	0.53834	0.66629	0.66232	0.61746						
	0.62820	0.63557	0.64617	0.63234			AVRG		0.62645		6.04041	
Styrene	NE	1.08518	0.89081	1.00821	1.10186	1.06309						
	1.07978	1.10982	1.11666	1.09251			AVRG		1.06088		6.73448	

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Project LHAAP 16 June 2022

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Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Bromoform	NE 0.25159	0.23785 0.26126	0.19627 0.26787	0.23469 0.26475	0.24302	0.24319	AVRG		0.24450		8.86448	
Isopropylbenzene	NE 1.61559	2.17427 1.62708	1.38942 1.63571	1.66689 1.59706	1.70349	1.55616	AVRG		1.66285		12.72064	
1,1,2,2-Tetrachloroethane	NE 0.84289	0.92545 0.84763	0.83560 0.86008	0.91896 0.85120	0.90864	0.85646	AVRG		0.87188		4.05253	
1,2,3-Trichloropropane	NE 0.70356	0.72127 0.71578	0.60852 0.71640	0.69361 0.64767	0.73764	0.68582	AVRG		0.69225		5.86971	
trans-1,4-Dichloro-2-butene	NE 0.11570	0.11123 0.12304	0.09223 0.12620	0.10372 0.12606	0.11526	0.11576	AVRG		0.11436		9.62800	
n-Propylbenzene	NE 3.98693	4.33940 3.93631	3.22628 3.95850	3.96871 3.87479	4.18219	3.81743	AVRG		3.92117		7.79313	
Bromobenzene	NE 0.88801	0.94401 0.90403	0.80778 0.90600	0.97069 0.89588	0.97190	0.89824	AVRG		0.90962		5.49562	
1,3,5-Trimethylbenzene	NE 2.73238	3.05331 2.74888	2.35771 2.76793	2.81235 2.72427	2.90186	2.61214	AVRG		2.74565		6.96973	
2-Chlorotoluene	NE 2.35855	2.80317 2.33251	2.40437 2.34541	2.69420 2.30354	2.58656	2.32759	AVRG		2.46177		7.50920	
4-Chlorotoluene	NE 2.70976	2.89981 2.71468	2.29546 2.74972	2.91926 2.70173	2.89446	2.68738	AVRG		2.73025		6.90304	
tert-Butylbenzene	NE 2.29972	2.21330 2.28183	1.95213 2.30022	2.39714 2.26447	2.50360	2.18951	AVRG		2.26688		6.67827	
1,2,4-Trimethylbenzene	NE 2.70050	2.90187 2.71822	2.29090 2.74062	2.78157 2.68090	2.85278	2.63088	AVRG		2.69980		6.48503	

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Project LHAAP 16 June 2022

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RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
sec-Butylbenzene	NE 3.28334	3.63492 3.27181	2.65881 3.27446	3.39413 3.23222	3.43391	3.07955	AVRG		3.25146		8.30824	
p-Isopropyltoluene	NE 2.81643	2.64995 2.82393	2.19863 2.83241	2.63917 2.78816	2.88832	2.61137	AVRG		2.69426		7.81665	
1,3-Dichlorobenzene	NE 1.51192	1.66734 1.52121	1.34611 1.54484	1.51183 1.52444	1.60098	1.48864	AVRG		1.52415		5.68701	
1,4-Dichlorobenzene	NE 1.54921	1.70447 1.56755	1.32227 1.58230	1.68582 1.55055	1.67499	1.54629	AVRG		1.57594		7.27316	
Benzyl Chloride	NE 0.53256	0.51890 0.59244	0.45343 0.63364	0.47144 0.63806	0.47945	0.50321	AVRG		0.53590		12.97820	
n-Butylbenzene	NE 2.54014	2.72597 2.55944	1.79599 2.58646	2.36702 2.56298	2.47558	2.28679	AVRG		2.43337		11.13245	
1,2-Dichlorobenzene	NE 1.39318	1.39363 1.39822	1.24221 1.42180	1.48119 1.39033	1.45449	1.36727	AVRG		1.39359		4.80151	
1,2-Dibromo-3-Chloropropane	NE 27976	222 61475	535 96010	875 127389	2471	10643	LINR	0.01766	0.07804		0.99938	
1,2,4-Trichlorobenzene	NE 0.55412	0.63965 0.58167	0.47151 0.60698	0.48611 0.60241	0.50960	0.52225	AVRG		0.55270		10.63276	
Hexachlorobutadiene	NE 0.44465	0.46464 0.44900	0.39411 0.45999	0.42410 0.45861	0.43931	0.39509	AVRG		0.43661		6.12903	
Naphthalene	NE 0.67716	0.71449 0.75721	0.66915 0.80355	0.71470 0.78258	0.67343	0.66440	AVRG		0.71741		7.30314	
1,2,3-Trichlorobenzene	NE 0.32807	0.35150 0.34401	0.28741 0.36485	0.31719 0.35808	0.31077	0.30497	AVRG		0.32965		8.05334	

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Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Ethyl Acetate	NE	0.57146	0.46883	0.61594	0.66218	0.55577						
	0.52543	0.51830	0.53450	0.52283			AVRG		0.55281		10.41760	
Methyl Acrylate	NE	0.58204	0.48488	0.57685	0.62572	0.60479						
	0.59964	0.62735	0.63673	0.63417			AVRG		0.59691		7.94101	
n-Butanol	NE	1300	2286	3851	7855	40387						
	111581	259689	392479	520732			LINR	0.70812	0.01202		0.99875	
Ethyl Acrylate	NE	1.36769	1.32924	1.16713	1.30772	1.33160						
	1.36474	1.42726	1.43407	1.45664			AVRG		1.35401		6.43812	
Cyclohexanone	NE	2100	4203	7696	18156	72217						
	169096	365656	558496	722919			LINR	-0.31921	0.02226		0.99884	
1,4-Dioxane	0.00525	0.00451	0.00519	0.00532	0.00526	0.00546						
	0.00506	0.00500	0.00555	0.00541			AVRG		0.00520		5.73240	
n-Hexane	NE	0.66337	0.49814	0.62616	0.67396	0.59364						
	0.64445	0.65147	0.64704	0.65256			AVRG		0.62787		8.57642	
Freon TF	NE	0.60771	0.40407	0.58588	0.57916	0.51007						
	0.53502	0.53240	0.53677	0.52660			AVRG		0.53530		10.98678	
Methyl Acetate	NE	0.35314	0.27290	0.28016	0.30932	0.31947						
	0.31811	0.32846	0.34330	0.34062			AVRG		0.31839		8.62899	
Methylcyclohexane	NE	0.68918	0.67922	0.75919	0.83616	0.80289						
	0.85529	0.89157	0.88787	0.89833			AVRG		0.81108		10.45961	
Isopropyl alcohol	NE	0.02236	0.02471	0.02599	0.02701	0.02771						
	0.02491	0.02688	0.02663	0.02565			AVRG		0.02576		6.25906	
Amyl alcohol	NE	0.00645	0.00707	0.00712	0.00655	0.00758						
	0.00764	0.00860	0.00886	0.00855			AVRG		0.00760		11.79446	

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Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457 ICAL Summary Page 9 / 11

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Allyl alcohol	NE 0.03222	0.02705 0.03257	0.02491 0.03235	0.03131 0.03263	0.03370	0.02968	AVRG		0.03071		9.59767	
4-Methyl-2-pentanol	NE 1069553	11774 2227480	41622 3458756	55112 4625807	118250	432005	LINR	-0.01309	0.06499		0.99964	
Tert-butyl alcohol	NE 0.04357	0.04487 0.04627	0.04115 0.04705	0.04608 0.04592	0.04679	0.04742	AVRG		0.04546		4.38868	
Diethyl ether	NE 0.43691	0.52070 0.43826	0.44077 0.44272	0.48268 0.43888	0.49044	0.45208	AVRG		0.46038		6.56466	
1,3-Butadiene	NE 0.58075	0.67042 0.59428	0.54532 0.60351	0.61856 0.59731	0.62918	0.57215	AVRG		0.60128		5.97594	
Cyclohexane	NE 0.85580	0.97379 0.85738	0.68485 0.85848	0.86501 0.86236	0.87884	0.83707	AVRG		0.85262		8.70544	
alpha-Methylstyrene	NE 1.33168	1.52238 1.34707	1.04648 1.38692	1.23586 1.35493	1.33405	1.29823	AVRG		1.31751		9.67672	
Diisopropyl ether	NE 1.74752	1.95091 1.78382	1.70861 1.82274	1.83189 1.81207	1.87192	1.76431	AVRG		1.81042		3.96821	
Dichlorofluoromethane	NE 1.05396	1.21817 1.07000	1.13485 1.07268	1.14961 1.07133	1.12912	1.06071	AVRG		1.10672		4.97086	
Propylene oxide	NE 0.05963	0.07104 0.05461	0.06270 0.05299	0.06723 0.05231	0.06493	0.05553	AVRG		0.06011		11.20947	
3-Methyl-1-butanol	NE 0.00720	0.00717 0.00786	0.00712 0.00815	0.00711 0.00790	0.00669	0.00771	AVRG		0.00743		6.51702	
Butyl acrylate	NE 0.74011	0.81790 0.79785	0.74287 0.83198	0.60968 0.82943	0.65669	0.66644	AVRG		0.74366		11.15935	

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Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
1,2,3-Trimethylbenzene	NE 2.66044	2.36445 2.68045	2.91782 2.70641	2.61345 2.66895	2.75519	2.64020	AVRG		2.66749		5.42594	
Ethanol	NE 39409	578 80850	1098 115543	2162 152784	4813	18151	LINR	-0.84645	0.00349		0.99880	
tert-Butyl formate	NE 369835	1592 785007	3474 1202853	15607 1647789	36837	149666	LINR	0.04158	0.37331		0.99956	
3,3-Dimethyl-1-butanol	NE 480396	6115 1019411	19154 1557577	24821 2063208	51946	203028	LINR	-0.25339	0.03083		0.99942	
tert-Amyl methyl ether	NE 1.81726	1.82078 1.87468	1.83353 1.93246	1.73080 1.93241	1.87491	1.82490	AVRG		1.84908		3.41218	
tert-Butyl ethyl ether	NE 1.77828	1.93386 1.82038	1.85727 1.85676	1.89216 1.85193	1.91658	1.80567	AVRG		1.85699		2.75195	
tert-Amyl alcohol	NE 0.03404	0.02806 0.03628	0.02886 0.03711	0.03302 0.03740	0.03425	0.03616	AVRG		0.03391		10.09706	
Epichlorohydrin	NE 0.02764	0.02518 0.02966	0.02947 0.03025	0.02435 0.02975	0.02405	0.02833	AVRG		0.02763		8.95313	
Isoprene	NE 0.21826	0.22439 0.21537	0.21726 0.21266	0.22187 0.20848	0.22693	0.21154	AVRG		0.21742		2.82092	
n-Amyl acetate	NE 0.55124	0.66293 0.58283	0.57795 0.60567	0.53900 0.60712	0.56672	0.53559	AVRG		0.58100		6.92011	
Isopropyl acetate	NE 0.95298	0.95415 0.96782	0.96041 0.97210	0.96840 0.97919	1.02251	0.96458	AVRG		0.97135		2.15320	
n-Butyl acetate	NE 0.52647	0.46612 0.54510	0.38959 0.55886	0.44883 0.55828	0.50785	0.52350	AVRG		0.50273		11.36128	

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RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Acetaldehyde	NE 80429	NE 151535	NE 241125	4607 324749	9177	35371	LINR	-0.07520	0.03653		0.99899	
Methyl Amyl Ketone	NE 0.71727	0.73380 0.73457	0.72247 0.75386	0.59189 0.74333	0.61599	0.67261	AVRG		0.69842		8.37826	
Dimethyl Disulfide	NE 0.79848	0.83477 0.82985	0.74562 0.84730	0.71785 0.84146	0.76743	0.78049	AVRG		0.79592		5.80141	
1,2-Dichloroethylene (total)	NE 0.55746	0.57704 0.56967	0.50770 0.58544	0.56982 0.58344	0.60323	0.57070	AVRG		0.56939		4.65013	
Xylenes (total)	NE 0.60540	0.61392 0.61860	0.51325 0.62767	0.60798 0.61617	0.62451	0.59658	AVRG		0.60268		5.78745	
Dibromofluoromethane	NE 273214	3406 573971	4587 857897	11150 1152135	29413	112071	LINR	-0.00047	0.52536		0.99982	
1,2-Dichloroethane-d4	NE 325873	4171 671007	6545 1000304	13694 1343168	36258	132108	LINR	-0.00670	0.61187		0.99988	
Toluene-d8	NE 1.23616	1.53577 1.27149	1.22268 1.24797	1.34360 1.22388	1.50485	1.29745	AVRG		1.32043		9.08291	
4-Bromofluorobenzene	NE 368870	4188 768821	9115 1156873	17686 1557639	48914	154990	LINR	-0.01762	0.46256		0.99973	

NE - Not Evaluated, AVRG - Averaged, LINR - Linear Regression, WLIN - Weighted Linear, QUAD - Quadratic, * - Curve Fit Outside Limits

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Form 6I

Initial Calibration Verification (ICV)

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Initial Calibration Verification (ICV)

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X052413.D
Lab Smp Id ICV
Analysis Type VOA

ICAL Date 24-MAY-2022
ICAL Time 1354
Client Smp ID ICV
Level LOW

Compound	Amount Added	Amount Recovered	% Recovered	Limits	Q
1,1,1,2-Tetrachlor	50.00	49.81	99.64	80-120	
1,1,1-Trichloroeth	50.00	48.35	96.70	80-120	
1,1,2,2-Tetrachlor	50.00	49.40	98.82	80-120	
Freon TF	50.00	48.78	97.57	80-120	
Methyl Acetate	50.00	52.34	104.69	80-120	
Cyclohexane	50.00	49.39	98.79	80-120	
Methylcyclohexane	50.00	55.51	111.03	80-120	
Carbon Disulfide	100.00	98.56	98.57	80-120	
2-Hexanone	100.00	107.18	107.19	80-120	
1,1,2-Trichloroeth	50.00	48.04	96.10	80-120	
1,1-Dichloroethane	50.00	49.09	98.19	80-120	
1,1-Dichloroethene	50.00	47.58	95.17	80-120	
1,1-Dichloropropen	50.00	49.71	99.44	80-120	
1,2,3-Trichloroben	50.00	58.91	117.82	80-120	
1,2,3-Trichloropro	50.00	50.03	100.06	80-120	
1,2,4-Trichloroben	50.00	55.12	110.26	80-120	
1,2,4-Trimethylben	50.00	49.61	99.24	80-120	
1,2-Dibromo-3-Chlo	50.00	48.21	96.43	80-120	
1,2-Dibromoethane	50.00	49.74	99.50	80-120	
1,2-Dichlorobenzen	50.00	49.98	99.98	80-120	
1,2-Dichloroethane	50.00	49.96	99.93	80-120	
1,2-Dichloropropan	50.00	50.56	101.13	80-120	
1,3,5-Trimethylben	50.00	48.91	97.82	80-120	
1,3-Dichlorobenzen	50.00	49.61	99.22	80-120	
1,3-Dichloropropan	50.00	49.03	98.07	80-120	
1,4-Dichlorobenzen	50.00	49.69	99.40	80-120	
1-Chlorohexane	50.00	49.61	99.22	80-120	
2,2-Dichloropropan	50.00	50.68	101.37	80-120	
2-Butanone	100.00	113.09	113.09	80-120	
2-Chlorotoluene	50.00	47.14	94.29	80-120	
4-Chlorotoluene	50.00	49.16	98.33	80-120	
p-Isopropyltoluene	50.00	51.15	102.31	80-120	
4-Methyl-2-Pentano	100.00	99.60	99.61	80-120	
Acetone	100.00	119.78	119.79	80-120	

Initial Calibration Verification (ICV)

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X052413.D
Lab Smp Id ICV
Analysis Type VOA
ICAL Date 24-MAY-2022
ICAL Time 1354
Client Smp ID ICV
Level LOW

Compound	Amount Added	Amount Recovered	% Recovered	Limits	Q
Acetonitrile	500.00	509.76	101.95	80-120	
Benzene	50.00	49.76	99.54	80-120	
Bromobenzene	50.00	49.50	99.01	80-120	
Bromochloromethane	50.00	48.42	96.85	80-120	
Bromodichlorometha	50.00	48.85	97.70	80-120	
Bromoform	50.00	52.72	105.44	80-120	
Bromomethane	50.00	46.98	93.97	80-120	
Carbon Tetrachlori	50.00	46.93	93.88	80-120	
Chlorobenzene	50.00	49.60	99.21	80-120	
Chloroethane	50.00	49.34	98.70	80-120	
Chloroform	50.00	48.18	96.38	80-120	
Chloromethane	50.00	51.71	103.43	80-120	
cis-1,2-Dichloroet	50.00	49.80	99.62	80-120	
cis-1,3-Dichloropr	50.00	50.94	101.90	80-120	
Dibromochlorometha	50.00	49.84	99.70	80-120	
Dibromomethane	50.00	50.08	100.17	80-120	
Dichlorodifluorome	50.00	50.28	100.57	80-120	
Ethylbenzene	50.00	49.88	99.78	80-120	
Hexachlorobutadien	50.00	52.60	105.22	80-120	
Isopropylbenzene	50.00	47.78	95.58	80-120	
m,p-Xylenes	100.00	99.17	99.18	80-120	
Methyl tert-butyl	50.00	50.51	101.03	80-120	
Methylene Chloride	50.00	45.70	91.41	80-120	
n-Butylbenzene	50.00	51.65	103.31	80-120	
n-Propylbenzene	50.00	49.47	98.96	80-120	
Naphthalene	50.00	58.17	116.35	80-120	
o-Xylene	50.00	50.14	100.28	80-120	
sec-Butylbenzene	50.00	49.26	98.53	80-120	
Styrene	50.00	51.21	102.43	80-120	
tert-Butylbenzene	50.00	49.10	98.21	80-120	
Tetrachloroethene	50.00	48.42	96.86	80-120	
Toluene	50.00	49.45	98.92	80-120	
trans-1,2-Dichloro	50.00	49.19	98.39	80-120	
trans-1,3-Dichloro	50.00	51.74	103.49	80-120	

Initial Calibration Verification (ICV)

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X052413.D
Lab Smp Id ICV
Analysis Type VOA
ICAL Date 24-MAY-2022
ICAL Time 1354
Client Smp ID ICV
Level LOW

Compound	Amount Added	Amount Recovered	% Recovered	Limits	Q
Trichloroethene	50.00	49.48	98.97	80-120	
Trichlorofluoromet	50.00	48.80	97.61	80-120	
Vinyl Chloride	50.00	48.88	97.76	80-120	
1,2-Dichloroethyle	100.00	99.00	99.00	80-120	
Xylenes (total)	150.00	149.31	99.54	80-120	
Tert-butyl alcohol	1000.00	1036.32	103.63	80-120	
Dibromofluorometha	50.00	49.48	98.97	80-120	
1,2-Dichloroethane	50.00	50.23	100.46	80-120	
Toluene-d8	50.00	47.20	94.40	80-120	
4-Bromofluorobenze	50.00	50.21	100.43	80-120	
1,2-Dichloroethane	50.00	50.23	100.46	0-130	
4-Bromofluorobenze	50.00	50.21	100.43	0-130	
Dibromofluorometha	10.00	49.48	98.97	74-125	
Toluene-d8	50.00	47.20	94.40	78-123	

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Form 7

Continuing Calibration Verification (CCV)

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Continuing Calibration Verification (CCV)

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_411321

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X062203.D
Analysis Type WATER
Lab Sample ID CCV

Injection Date 22-JUN-2022 1157
ICAL Date(s) 24-MAY-2022 24-MAY-2022
ICAL Times 1128 1457
Quant Type ISTD

Compound	$\overline{RRF}$ / Amount	RF50	CCV RRF50	Min RRF	%D / %Drift	Max %D / %Drift	Curve Type	Q
1,2-Dichloroethane-d4	50.0	47.29258	0.58284	0.100	5.41483	20.0	Linear	
4-Bromofluorobenzene	50.0	50.89150	0.47896	0.100	-1.78299	20.0	Linear	
Dibromofluoromethane	50.0	49.94143	0.52499	0.100	0.11714	20.0	Linear	
Toluene-d8	1.32043	1.29351	1.29351	0.100	2.03834	20.0	Averaged	
1,1,2-Trichloroethane	0.30917	0.28225	0.28225	0.100	8.70778	20.0	Averaged	
1,1-Dichloroethene	0.52141	0.43928	0.43928	0.100	15.75087	20.0	Averaged	
1,2-Dichloroethane	0.49912	0.48114	0.48114	0.100	3.60103	20.0	Averaged	
cis-1,2-Dichloroethene	0.60302	0.58948	0.58948	0.100	2.24564	20.0	Averaged	
Methylene Chloride	0.63133	0.54352	0.54352	0.100	13.90791	20.0	Averaged	
Trichloroethene	0.37564	0.37392	0.37392	0.200	0.45846	20.0	Averaged	
Vinyl Chloride	0.70489	0.56395	0.56395	0.100	19.99419	20.0	Averaged	

Continuing Calibration Verification (CCV)

Client Aptim Environmental & Infrastucture, Inc.
Project LHAAP 16 June 2022

Workorder HS22061145

RunID VOA6_411321

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X062223.D
Analysis Type WATER
Lab Sample ID CCV-END

Injection Date 22-JUN-2022 1859
ICAL Date(s) 24-MAY-2022 24-MAY-2022
ICAL Times 1128 1457
Quant Type ISTD

Compound	$\overline{RRF}$ / Amount	RF50	CCV RRF50	Min RRF	%D / %Drift	Max %D / %Drift	Curve Type	Q
1,2-Dichloroethane-d4	50.0	45.79044	0.56446	0.100	8.41912	50.0	Linear	
4-Bromofluorobenzene	50.0	49.20316	0.46334	0.100	1.59368	50.0	Linear	
Dibromofluoromethane	50.0	48.31490	0.50790	0.100	3.37020	50.0	Linear	
Toluene-d8	1.32043	1.25724	1.25724	0.100	4.78514	50.0	Averaged	
1,1,2-Trichloroethane	0.30917	0.27357	0.27357	0.100	11.51407	50.0	Averaged	
1,1-Dichloroethene	0.52141	0.41909	0.41909	0.100	19.62283	50.0	Averaged	
1,2-Dichloroethane	0.49912	0.44245	0.44245	0.100	11.35375	50.0	Averaged	
cis-1,2-Dichloroethene	0.60302	0.55979	0.55979	0.100	7.17030	50.0	Averaged	
Methylene Chloride	0.63133	0.53269	0.53269	0.100	15.62418	50.0	Averaged	
Trichloroethene	0.37564	0.36309	0.36309	0.200	3.34125	50.0	Averaged	
Vinyl Chloride	0.70489	0.54143	0.54143	0.100	23.18890	50.0	Averaged	

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Form 8

Internal Standard Area and RT Summary

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 8 - Internal Standard Area and RT Summary

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

RunID
VOA6_411321

Volatiles Organics by Method 8260C

		IS1				IS2				IS3				IS4			
Sample ID	File ID	Area		RT		Area		RT		Area		RT		Area		RT	
12-HOUR STD (CCV)	X062203	496060	#	4.19	#	771243	#	4.97	#	721276	#	7.67	#	350578	#	9.66	#
CCB	X062204	535434		4.18		826889		4.97		738305		7.67		314792		9.67	
VLCSW-220622	X062205	493758		4.19		757859		4.97		700541		7.67		333360		9.67	
VBLKW-220622	X062207	531218		4.18		821364		4.97		740644		7.67		323330		9.67	
HS22061145-09	X062209	537367		4.19		820715		4.97		742964		7.67		316355		9.67	
HS22061145-03	X062211	524696		4.19		810369		4.97		718790		7.67		306132		9.67	
HS22061145-04	X062212	530557		4.19		814275		4.97		732814		7.67		315326		9.67	
HS22061145-01	X062213	529742		4.19		826868		4.97		734363		7.67		317719		9.67	
HS22061145-02	X062214	529786		4.19		816102		4.97		732265		7.67		315846		9.67	
ZZZZZZMS	X062215	527334		4.19		812179		4.97		734807		7.67		335318		9.67	
ZZZZZZMSD	X062216	534988		4.19		833801		4.97		745582		7.67		350362		9.66	
HS22061145-02	X062217	529515		4.19		829703		4.97		744369		7.67		320882		9.67	
HS22061145-01	X062218	530418		4.18		822688		4.97		737771		7.67		323748		9.67	
HS22061145-05	X062219	531540		4.19		818201		4.97		735151		7.67		320566		9.67	
HS22061145-06	X062220	526370		4.19		815202		4.97		716042		7.67		292578		9.67	
HS22061145-07	X062221	534622		4.19		825266		4.97		742771		7.67		323065		9.67	
HS22061145-08	X062222	545416		4.19		837867		4.97		761709		7.67		328817		9.67	
CCV-END	X062223	537666		4.19		846604		4.97		787339		7.67		376326		9.67	

IS1 - Pentafluorobenzene IS2 - 1,4-Difluorobenzene IS3 - Chlorobenzene-d5 IS4 - 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of 12H STD IS Area
AREA LOWER LIMIT = - 50% of 12H STD IS Area
RT - Retention Time IS - Internal Standard

RT UPPER LIMIT = + 0.50 of 12H STD IS RT
RT LOWER LIMIT = - 0.50 of 12H STD IS RT
CCV - Continuing Calibration Verification

- Area or RT Limit Flag
* - Value Outside Area or RT limits
H - Hour STD - Standard

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Analysis Run Log

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Form 13 - Analysis Run Log

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

RunID
VOA6_409368

Instrument ID VOA6 **Matrix** R409368 **Start Date** 05/24/2022 **EndDate** 05/24/2022

Client Sample ID	Type	Lab Sample ID	DF	Analysis Date	File ID
BFB	TUNE	BFB	1	05/24/22 11:07	X052401.D
VSTD000.25	ICAL1	VSTD000.25	1	05/24/22 11:28	X052402.D
VSTD000.5	ICAL2	VSTD000.5	1	05/24/22 12:10	X052403.D
VSTD001	ICAL3	VSTD001	1	05/24/22 12:30	X052404.D
VSTD002	ICAL4	VSTD002	1	05/24/22 12:51	X052405.D
VSTD005	ICAL5	VSTD005	1	05/24/22 13:12	X052406.D
VSTD020	ICAL6	VSTD020	1	05/24/22 13:33	X052407.D
VSTD050	ICAL7	VSTD050	1	05/24/22 13:54	X052408.D
VSTD100	ICAL8	VSTD100	1	05/24/22 14:15	X052409.D
VSTD150	ICAL9	VSTD150	1	05/24/22 14:36	X052410.D
VSTD200	ICAL	VSTD200	1	05/24/22 14:57	X052411.D
CCV	ICV	CCV	1	05/24/22 15:39	X052413.D

Form 13 - Analysis Run Log

Client Aptim Environmental & Infrastucture, Inc.

Project LHAAP 16 June 2022

Workorder
HS22061145

Volatiles Organics by Method 8260C

RunID
VOA6_411321

Instrument ID VOA6 **Matrix** R411321 **Start Date** 06/22/2022 **EndDate** 06/22/2022

Client Sample ID	Type	Lab Sample ID	DF	Analysis Date	File ID
BFB	TUNE	BFB	1	06/22/22 11:15	X062201.D
CCV	CCV	CCV	1	06/22/22 11:57	X062203.D
CCB	CCB	CCB	1	06/22/22 12:19	X062204.D
VLCSW-220622	LCS	VLCSW-220622	1	06/22/22 12:39	X062205.D
VBLKW-220622	MBLK	VBLKW-220622	1	06/22/22 13:22	X062207.D
ZZZZZZZZZZ	SAMP	HS22061142-02	1	06/22/22 13:43	X062208.D
Trip Blank-220620	SAMP	HS22061145-09	1	06/22/22 14:04	X062209.D
ZZZZZZZZZZ	SAMP	HS22061142-01	1	06/22/22 14:25	X062210.D
16WW34-220620	SAMP	HS22061145-03	1	06/22/22 14:46	X062211.D
16WW34-220620-FD	SAMP	HS22061145-04	1	06/22/22 15:07	X062212.D
16WW37-220620	SAMP	HS22061145-01	1	06/22/22 15:28	X062213.D
16WW38-220620	SAMP	HS22061145-02	5	06/22/22 15:49	X062214.D
ZZZZZZMS	MS	HS22061142-01MS	1	06/22/22 16:10	X062215.D
ZZZZZZMSD	MSD	HS22061142-01MSD	1	06/22/22 16:31	X062216.D
16WW38-220620	SAMP	HS22061145-02	25	06/22/22 16:52	X062217.D
16WW37-220620	SAMP	HS22061145-01	5	06/22/22 17:13	X062218.D
16WW33-220620	SAMP	HS22061145-05	1	06/22/22 17:34	X062219.D
16WW31-220620	SAMP	HS22061145-06	1	06/22/22 17:55	X062220.D
16WW32-220620	SAMP	HS22061145-07	1	06/22/22 18:17	X062221.D
16WW46-220620	SAMP	HS22061145-08	1	06/22/22 18:38	X062222.D
CCV-END	CCV_END	CCV-END	1	06/22/22 18:59	X062223.D

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Raw Data VOA6 409368

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D Page 1
Report Date: 24-May-2022 11:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 24-MAY-2022 11:07
Operator : PC Inst ID: voa6.i
Smp Info : BFB;BFB;3;;BFB
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\voa6.i\X220524.b\bfb.m
Meth Date : 13-Apr-2022 10:36 Linh.Pham Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 1 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: NAHSTW7051

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
Vi	2.000	Injection Volume
Cpnd Variable		Local Compound Variable

					CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/l)		
RT	EXP RT	REL RT	MASS	RESPONSE			TARGET RANGE	RATIO
1 bfb							CAS #: 460-00-4	
8.695	8.889	(0.000)	95	86704			0.00- 100.00	100.00
8.695	8.889	(0.000)	50	17624			15.00- 40.00	20.33
8.695	8.889	(0.000)	75	44304			30.00- 60.00	51.10
8.695	8.889	(0.000)	96	5605			5.00- 9.00	6.46
8.695	8.889	(0.000)	173	493			0.00- 2.00	0.70
8.695	8.889	(0.000)	174	70104			50.00- 0.00	80.85
8.695	8.889	(0.000)	175	5634			5.00- 9.00	8.04
8.695	8.889	(0.000)	176	67104			95.00- 101.00	95.72
8.695	8.889	(0.000)	177	4869			5.00- 9.00	7.26

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.33
75	30.00 - 60.00% of mass 95	51.10
96	5.00 - 9.00% of mass 95	6.46
173	Less than 2.00% of mass 174	0.57 (0.70)
174	Greater than 50.00% of mass 95	80.85
175	5.00 - 9.00% of mass 174	6.50 (8.04)
176	95.00 - 101.00% of mass 174	77.39 (95.72)
177	5.00 - 9.00% of mass 176	5.62 (7.26)

Data File: X052401.D
Spectrum: Scan 2161 (8.69)
Location of Maximum: 95.00
Number of points: 102

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1011	64.90	137	96.10	5605	142.80	593
37.00	4691	66.10	88	97.00	194	143.90	62
38.00	4174	66.70	295	102.10	50	145.70	180
39.00	2059	68.00	8604	102.80	125	147.80	195
40.00	843	69.00	9240	103.80	445	148.70	76
40.80	90	70.00	773	104.70	107	149.90	142
42.10	73	72.00	431	105.80	381	151.80	60
42.90	146	73.00	3463	106.70	170	152.70	80
44.00	1265	74.00	14977	108.90	80	153.80	62
45.10	816	75.00	44304	109.90	81	155.00	133
46.10	88	76.10	4203	110.80	72	157.00	138
47.00	860	77.00	1092	112.70	90	158.60	64
47.90	633	78.10	629	114.90	171	161.00	72
49.10	3992	78.90	2797	115.80	293	168.90	157
50.00	17624	79.80	675	116.90	581	169.90	175
51.00	5692	80.90	3163	117.80	312	171.20	99
52.00	357	81.90	627	118.80	416	172.80	493
55.00	653	82.90	89	127.90	419	173.90	70104
56.00	1506	85.90	72	128.80	147	174.90	5634
57.00	2345	87.00	3355	129.90	222	175.90	67104
57.90	94	87.90	3416	130.80	109	176.90	4869
60.10	629	91.00	420	134.90	164	177.90	112
61.00	3621	92.00	2386	136.60	104	185.90	396
62.00	4245	93.00	3366	139.90	68	262.00	122
63.00	3268	94.00	9669	141.00	574		
64.00	456	95.00	86704	141.90	122		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D

Date : 24-MAY-2022 11:07

Client ID: BFB

Instrument: voa6.i

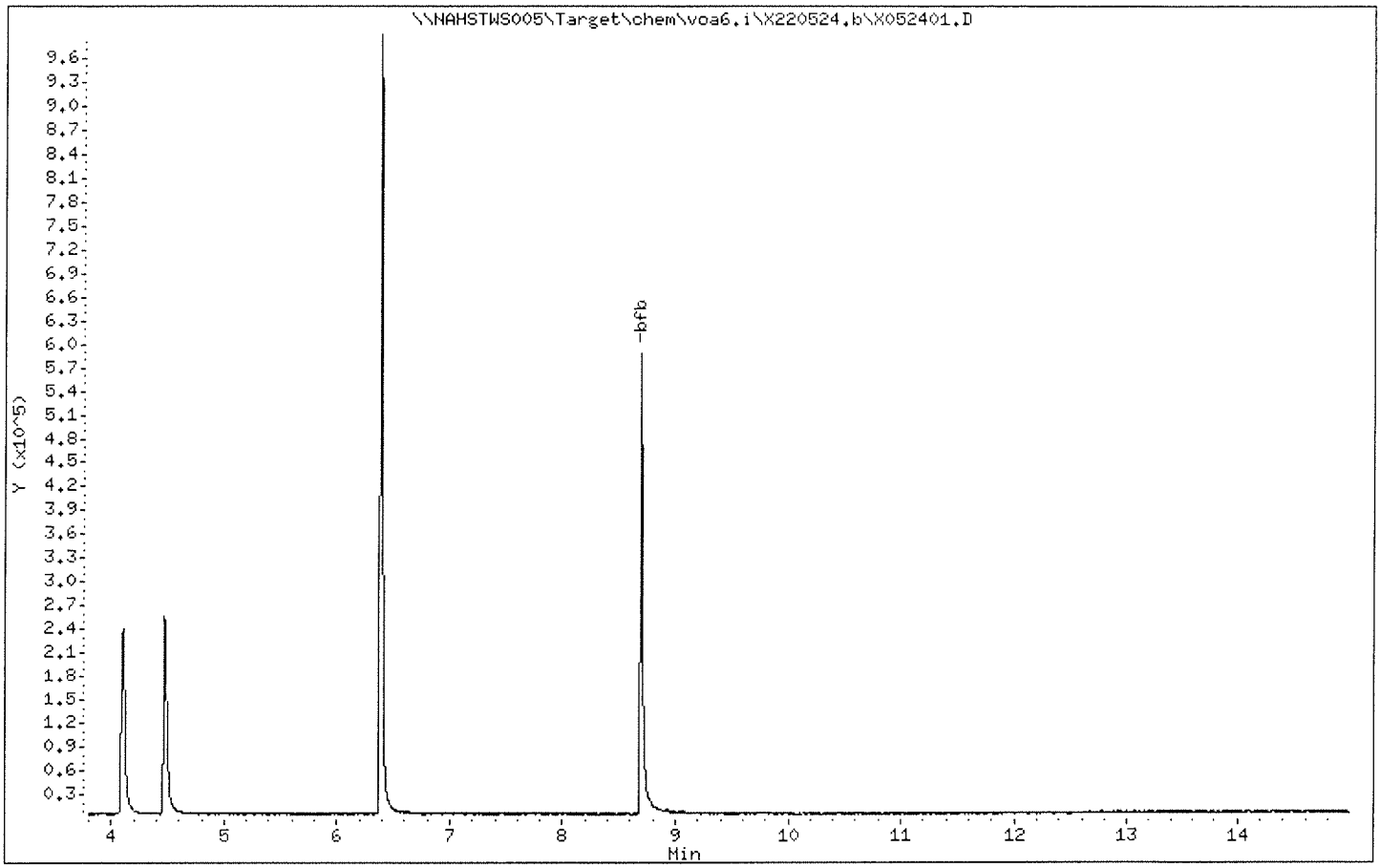
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D Page 2

Date : 24-MAY-2022 11:07

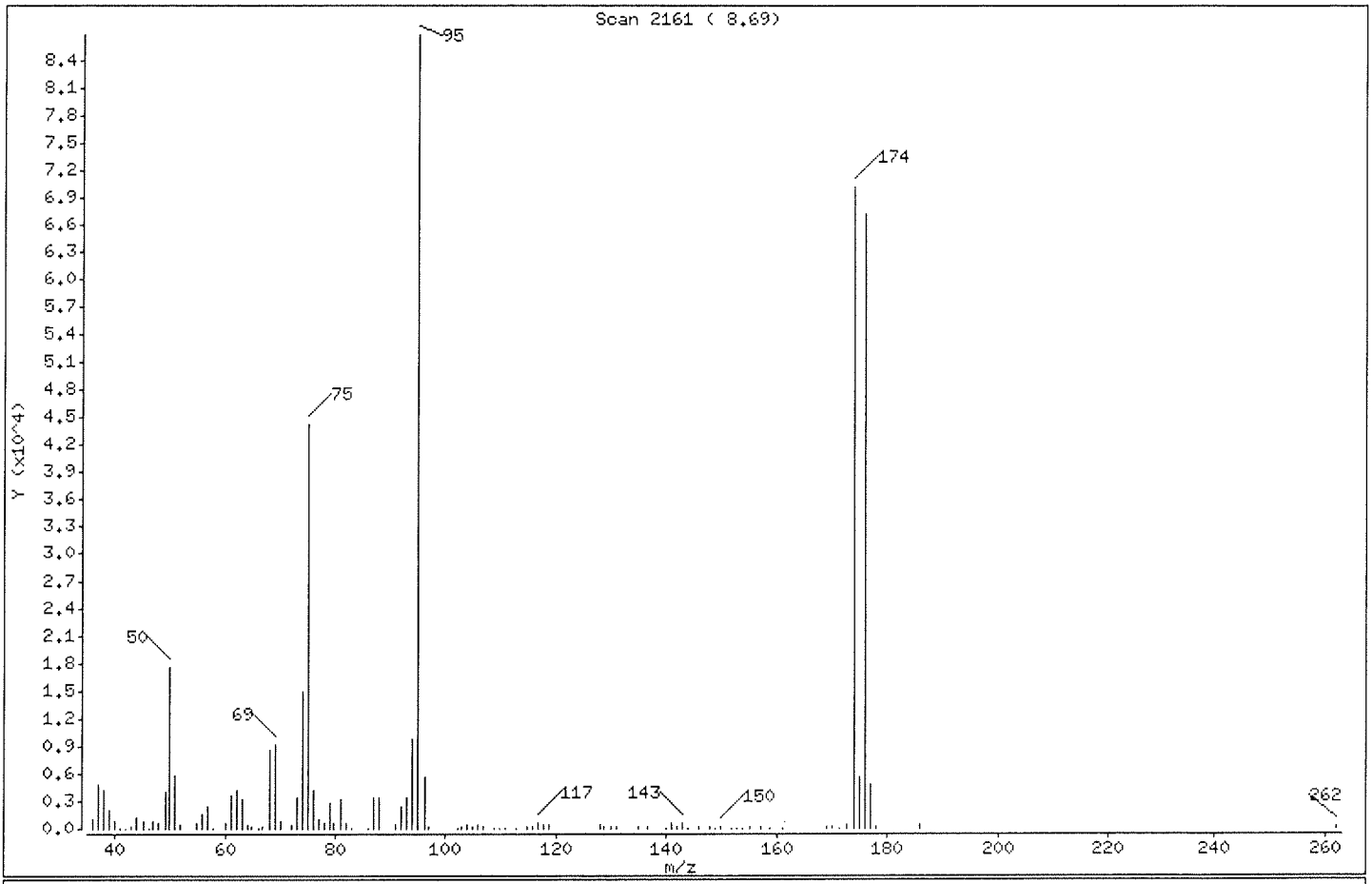
Client ID: BFB Instrument: voa6.i

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	20.33
75	30.00 - 60.00% of mass 95	51.10
96	5.00 - 9.00% of mass 95	6.46
173	Less than 2.00% of mass 174	0.57 (0.70)
174	Greater than 50.00% of mass 95	80.85
175	5.00 - 9.00% of mass 174	6.50 (8.04)
176	95.00 - 101.00% of mass 174	77.39 (95.72)
177	5.00 - 9.00% of mass 176	5.62 (7.26)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D

Date : 24-MAY-2022 11:07

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X052401.D
Spectrum: Scan 2161 (8.69)
Location of Maximum: 95.00
Number of points: 102

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1011	64.90	137	96.10	5605	142.80	593
37.00	4691	66.10	88	97.00	194	143.90	62
38.00	4174	66.70	295	102.10	50	145.70	180
39.00	2059	68.00	8604	102.80	125	147.80	195
40.00	843	69.00	9240	103.80	445	148.70	76
40.80	90	70.00	773	104.70	107	149.90	142
42.10	73	72.00	431	105.80	381	151.80	60
42.90	146	73.00	3463	106.70	170	152.70	80
44.00	1265	74.00	14977	108.90	80	153.80	62
45.10	816	75.00	44304	109.90	81	155.00	133
46.10	88	76.10	4203	110.80	72	157.00	138
47.00	860	77.00	1092	112.70	90	158.60	64
47.90	633	78.10	629	114.90	171	161.00	72
49.10	3992	78.90	2797	115.80	293	168.90	157
50.00	17624	79.80	675	116.90	581	169.90	175
51.00	5692	80.90	3163	117.80	312	171.20	99
52.00	357	81.90	627	118.80	416	172.80	493
55.00	653	82.90	89	127.90	419	173.90	70104
56.00	1506	85.90	72	128.80	147	174.90	5634
57.00	2345	87.00	3355	129.90	222	175.90	67104
57.90	94	87.90	3416	130.80	109	176.90	4869
60.10	629	91.00	420	134.90	164	177.90	112
61.00	3621	92.00	2386	136.60	104	185.90	396
62.00	4245	93.00	3366	139.90	68	262.00	122
63.00	3268	94.00	9669	141.00	574		
64.00	456	95.00	86704	141.90	122		

Data File : \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D
Inj Date : 24-MAY-2022 11:07
InstruID : voa6.i
LabSampID : BFB

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 24-MAY-2022 11:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:57 Cal File: X052411.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

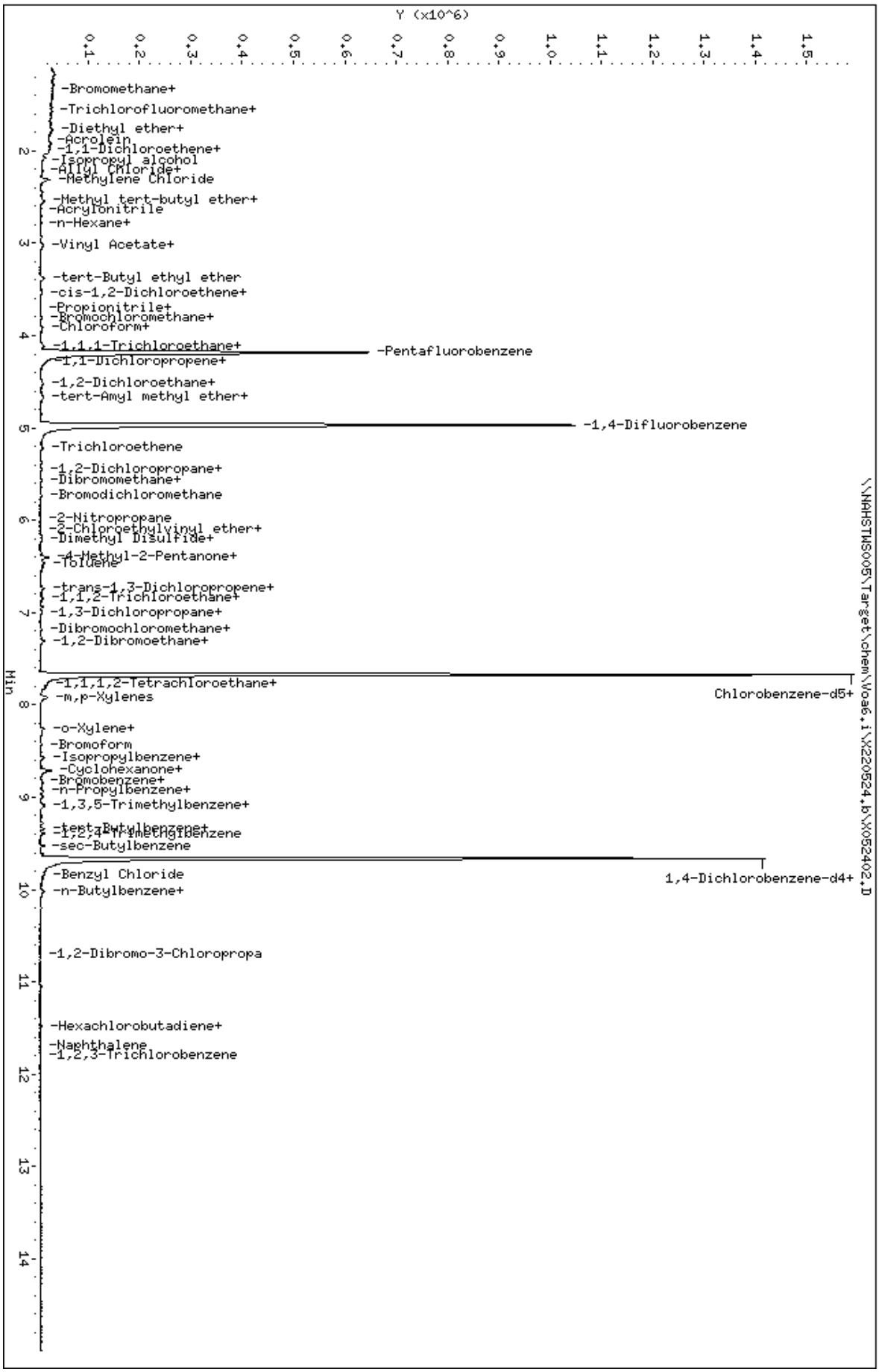
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	552023	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	881331	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	806273	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	358416	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.496	4.496	(1.074)	1963	0.25000	(TaM)
$ 69 4-Bromofluorobenzene	95	8.702	8.702	(1.134)	2868	0.25000	(aM)
$ 30 Dibromofluoromethane	113	4.106	4.106	(0.981)	1578	0.25000	0.24(M)
$ 48 Toluene-d8	98	6.401	6.401	(0.834)	8867	0.25000	0.41(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1051	0.25000	0.21(a)
11 1,1-Dichloroethene	96	1.917	1.917	(0.458)	1128	0.25000	0.19(a)
33 1,2-Dichloroethane	62	4.575	4.575	(0.921)	2125	0.25000	0.24(a)
27 cis-1,2-Dichloroethene	96	3.540	3.540	(0.846)	1621	0.25000	0.24(a)
17 Methylene Chloride	84	2.303	2.303	(0.550)	1599	0.25000	0.22(aM)
38 Trichloroethene	130	5.227	5.227	(1.052)	1339	0.25000	0.20(a)
5 Vinyl Chloride	62	1.141	1.141	(0.273)	1375	0.25000	0.17(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.



Data File: \\NAHSTMS005\Target\chem\Voa6.i\X220524.b\X052402.D
Date : 24-MAY-2022 11:28
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

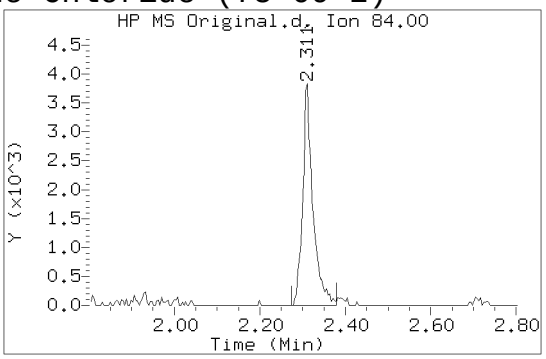
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Inj Date : 24-MAY-2022 11:28
InstruID : voa6.i
LabSampID : VSTD000.25

Methylene Chloride (75-09-2)

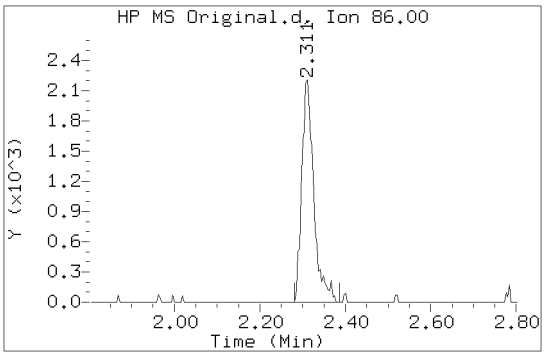
BEFORE

MASS
62
AREA
1102
HEIGHT
1180
24-May-2022
11:44
ALSHS
Server



BEFORE

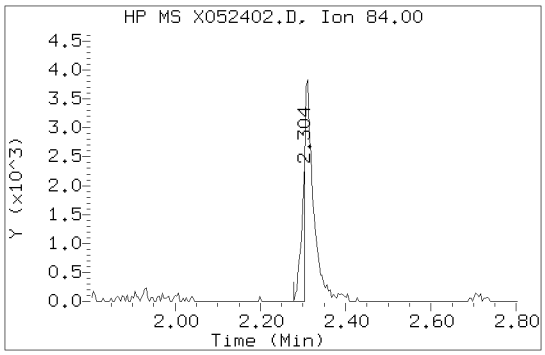
MASS
64
AREA
1290
HEIGHT
847
24-May-2022
11:44
ALSHS
Server



Reason Code:

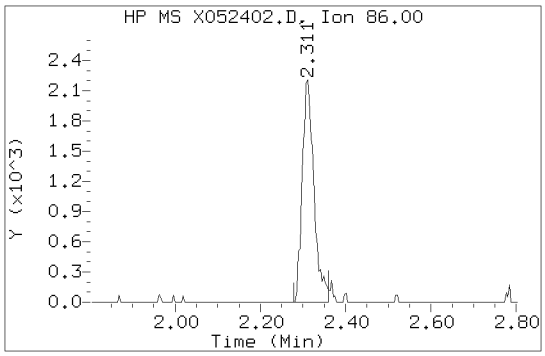
AFTER

MASS
84
AREA
1599
HEIGHT
2345
15-Jul-2022
12:20
ALSHS
Ser



AFTER

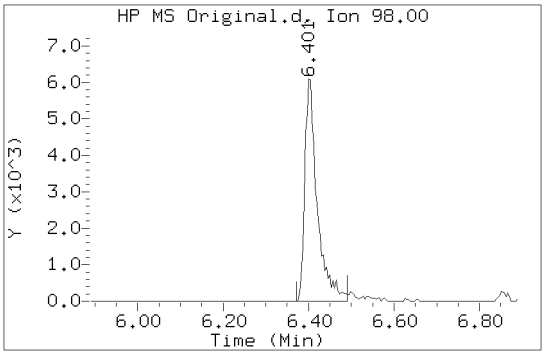
MASS
86
AREA
4289
HEIGHT
2208
15-Jul-2022
12:20
ALSHS
Ser



Toluene-d8 (2037-26-5)

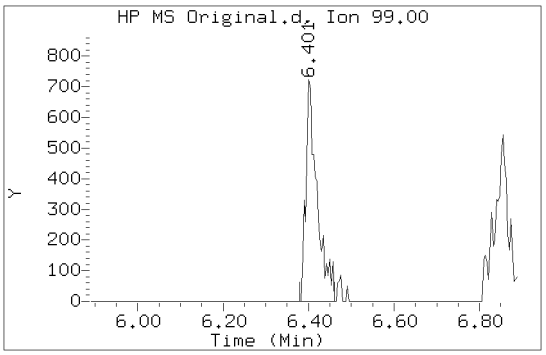
BEFORE

MASS
96
AREA
1128
HEIGHT
787
24-May-2022
11:44
ALSHS
Server



BEFORE

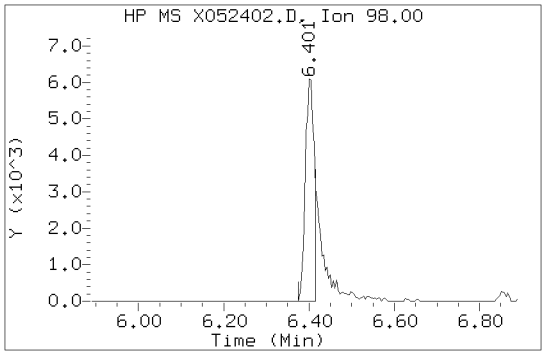
MASS
61
AREA
2063
HEIGHT
1198
24-May-2022
11:44
ALSHS
Server



Reason Code:

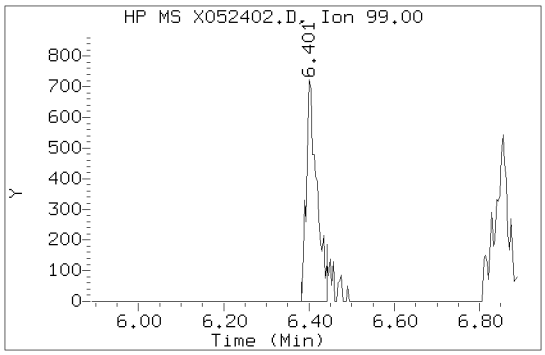
AFTER

MASS
98
AREA
8867
HEIGHT
6095
15-Jul-2022
12:20
ALSHS
Ser



AFTER

MASS
99
AREA
1238
HEIGHT
723
15-Jul-2022
12:20
ALSHS
Ser



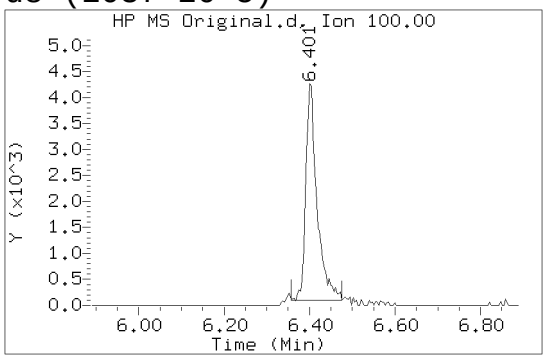
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Inj Date : 24-MAY-2022 11:28
InstruID : voa6.i
LabSampID : VSTD000.25

Toluene-d8 (2037-26-5)

Reason Code:

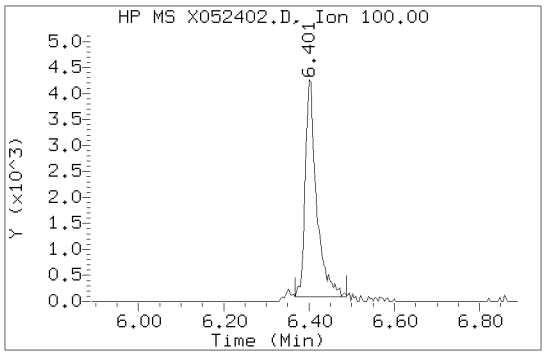
BEFORE

MASS
63
AREA
1005
HEIGHT
571
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
100
AREA
7849
HEIGHT
4184
15-Jul-2022
12:20
ALSHS
Ser

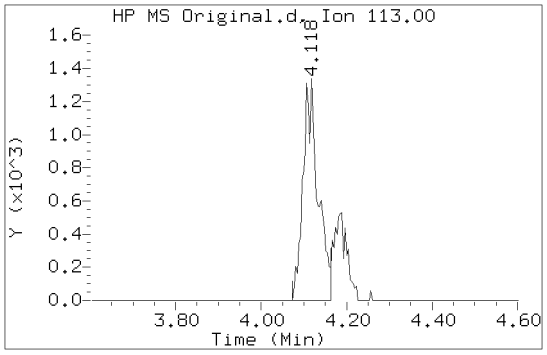


Dibromofluoromethane (1868-53-7)

Reason Code:

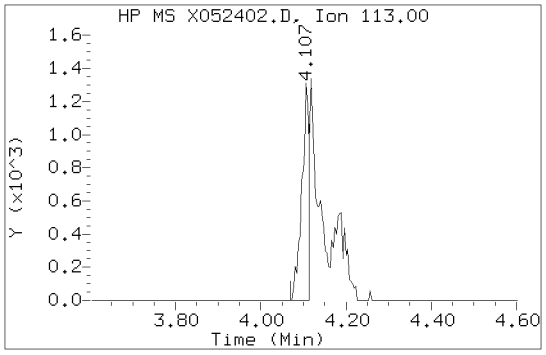
BEFORE

MASS
142
AREA
2751
HEIGHT
1263
24-May-2022
11:44
ALSHS
Server



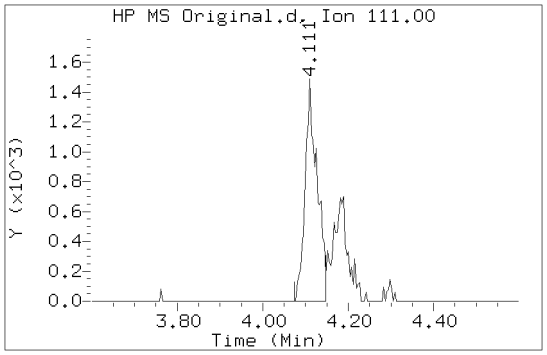
AFTER

MASS
113
AREA
1578
HEIGHT
1310
15-Jul-2022
12:20
ALSHS
Ser



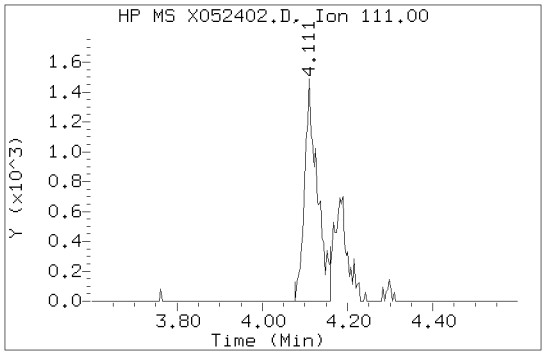
BEFORE

MASS
127
AREA
1070
HEIGHT
674
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
111
AREA
3108
HEIGHT
1488
15-Jul-2022
12:20
ALSHS
Ser

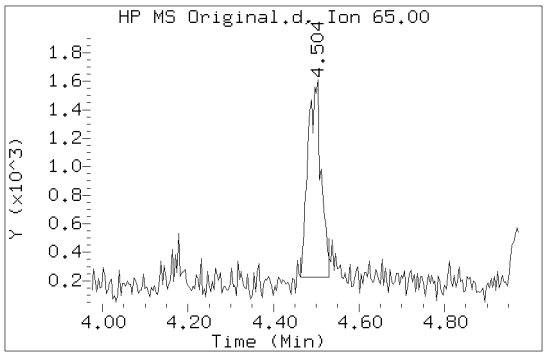


1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

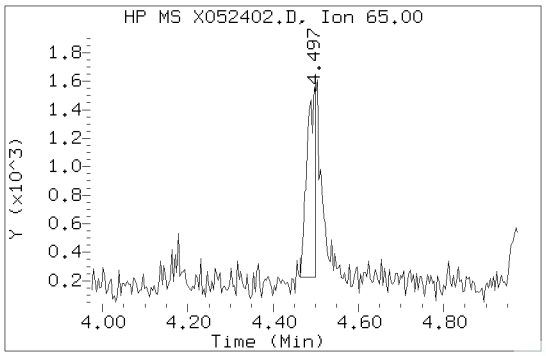
BEFORE

MASS
53
AREA
0
HEIGHT
0
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
65
AREA
1963
HEIGHT
1335
15-Jul-2022
12:20
ALSHS
Ser



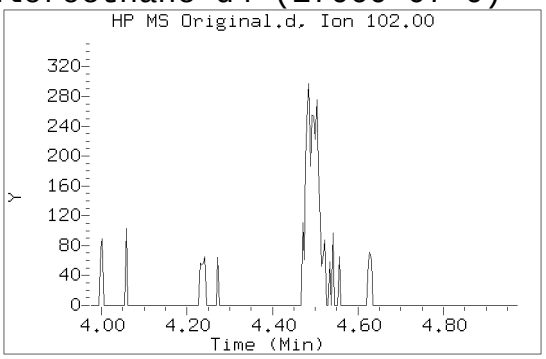
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Inj Date : 24-MAY-2022 11:28
InstruID : voa6.i
LabSampID : VSTD000.25

1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

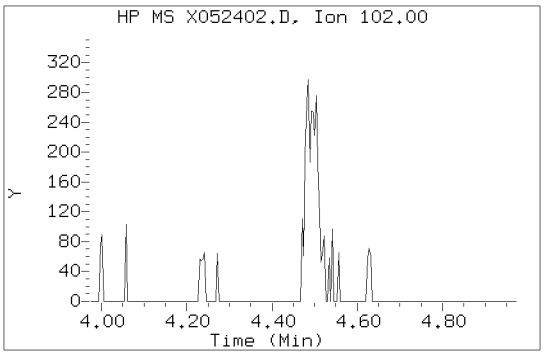
BEFORE

MASS
52
AREA
0
HEIGHT
0
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
102
AREA
0
HEIGHT
0
15-Jul-2022
12:20
ALSHS
Ser

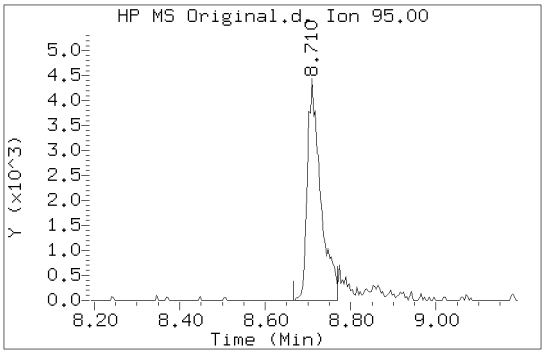


4-Bromofluorobenzene (460-00-4)

Reason Code:

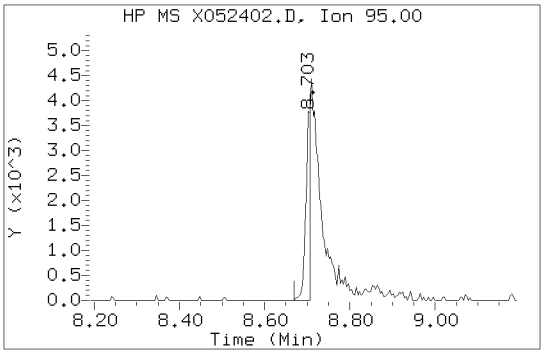
BEFORE

MASS
84
AREA
6441
HEIGHT
3833
24-May-2022
11:44
ALSHS
Server



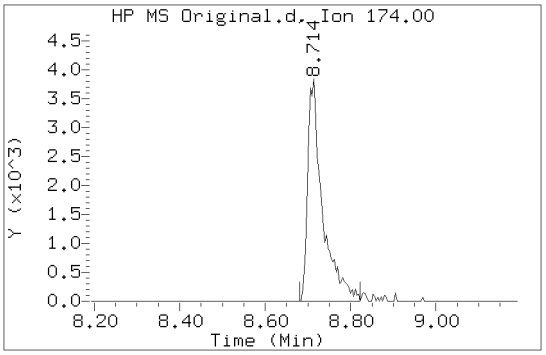
AFTER

MASS
95
AREA
2868
HEIGHT
3782
15-Jul-2022
12:20
ALSHS
Ser



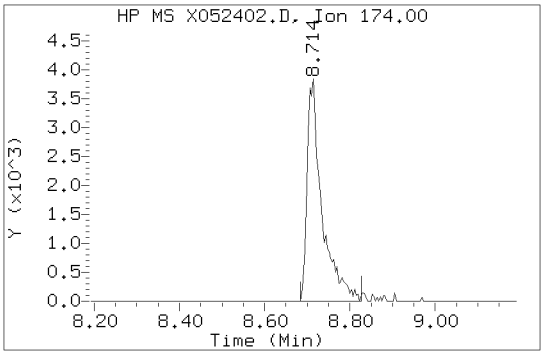
BEFORE

MASS
86
AREA
4390
HEIGHT
2208
24-May-2022
11:44
ALSHS
Server



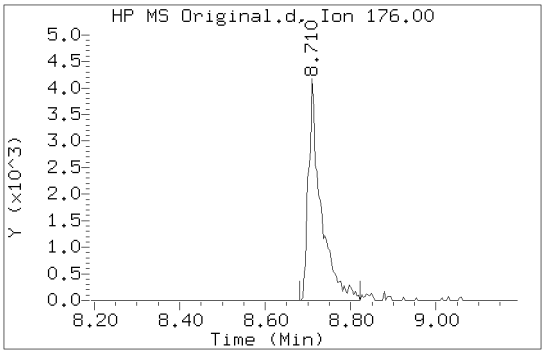
AFTER

MASS
174
AREA
9262
HEIGHT
3838
15-Jul-2022
12:20
ALSHS
Ser



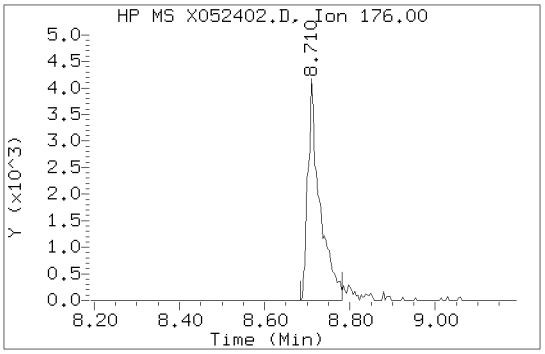
BEFORE

MASS
49
AREA
8039
HEIGHT
4374
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
176
AREA
8113
HEIGHT
4173
15-Jul-2022
12:20
ALSHS
Ser



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 24-MAY-2022 12:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 11:28 Cal File: X052402.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

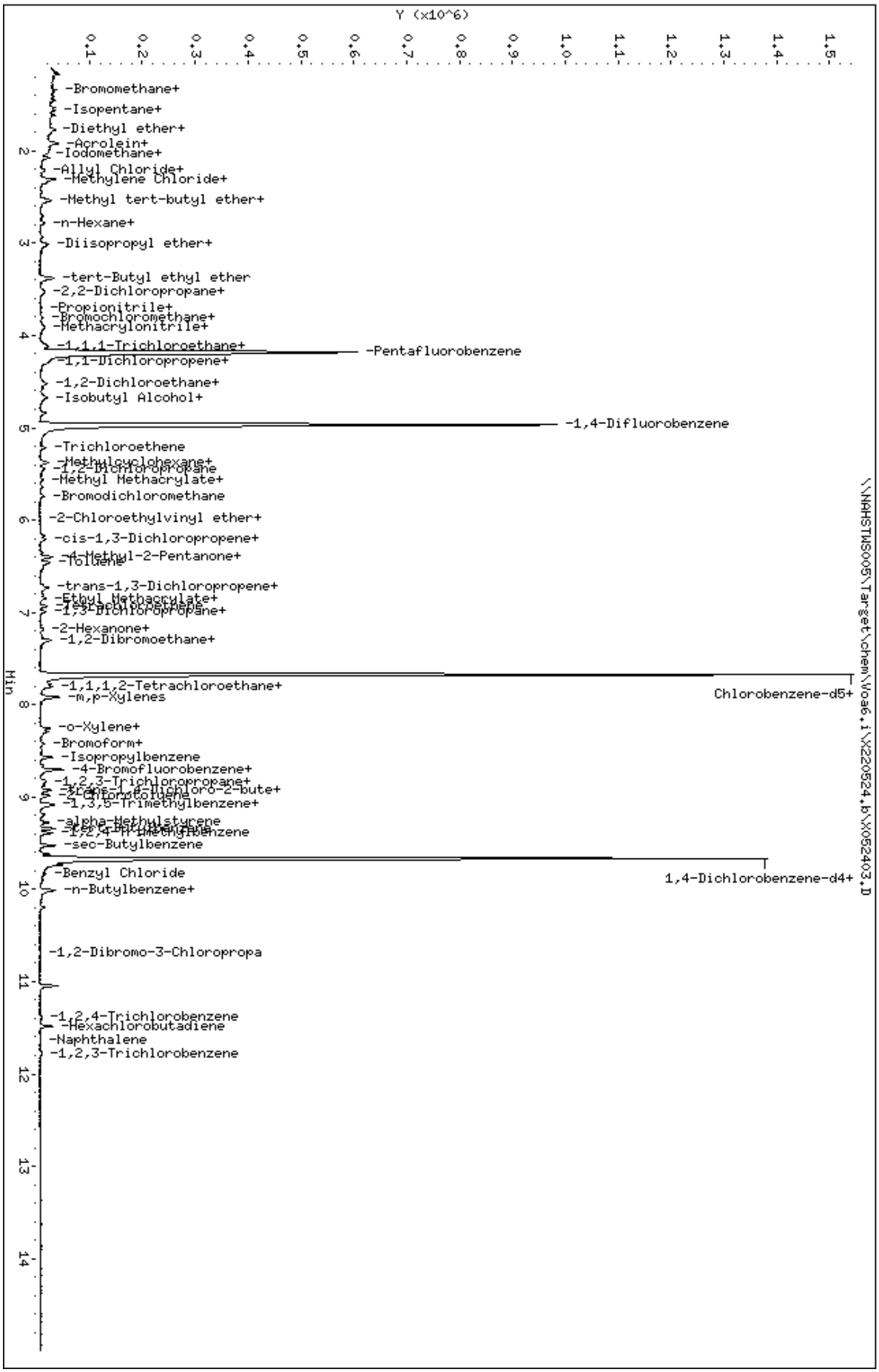
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.181	4.181	(1.000)	510275	50.0000	
*	36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	818945	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	740800	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	339402	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.485	4.485	(1.073)	4171	0.50000	0.33(aM)
$	69 4-Bromofluorobenzene	95	8.698	8.698	(1.134)	4188	0.50000	(aM)
$	30 Dibromofluoromethane	113	4.110	4.110	(0.983)	3406	0.50000	0.61(M)
$	48 Toluene-d8	98	6.401	6.401	(0.834)	11377	0.50000	0.58(aM)
	53 1,1,2-Trichloroethane	83	6.850	6.850	(0.893)	2537	0.50000	0.55(aM)
	11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	2977	0.50000	0.55(aM)
	33 1,2-Dichloroethane	62	4.567	4.567	(0.919)	4448	0.50000	0.54(a)
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	3100	0.50000	0.50(aM)
	17 Methylene Chloride	84	2.307	2.307	(0.552)	3589	0.50000	0.55(aM)
	38 Trichloroethene	130	5.216	5.216	(1.050)	3067	0.50000	0.49(aM)
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	3859	0.50000	0.53(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount

Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane+
-Isopentane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Allyl Chloride+
-Methylene Chloride+
-Methyl tert-butyl ether+
-n-Hexane+
-Diisopropyl ether+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane+
-Methacrylonitrile+
-1,1,1-Trichloroethane+
-Pentafluorobenzene
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-Tetrachloroethene
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
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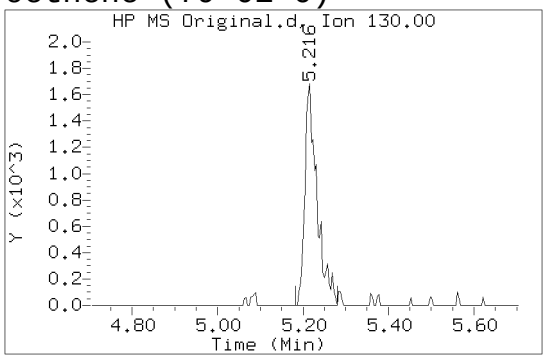
Date : 24-MAY-2022 12:10
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

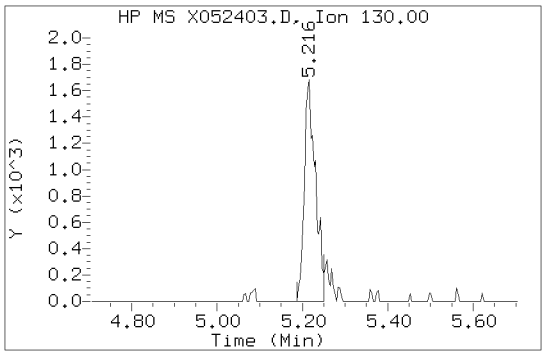
Trichloroethene (79-01-6)

Reason Code:

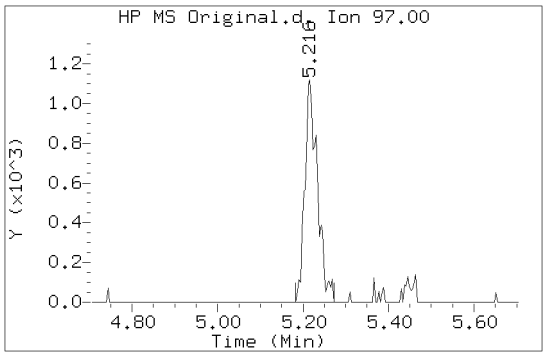
BEFORE
MASS
75
AREA
4730
HEIGHT
1690
09-Jun-2022
16:42
linh
pham



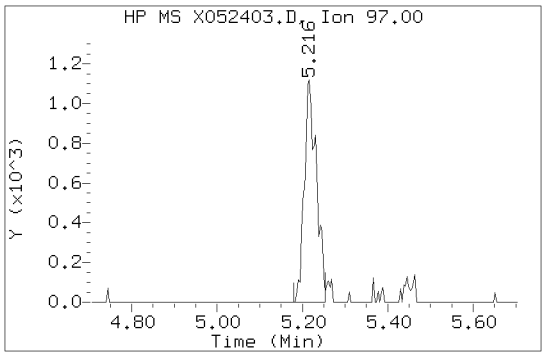
AFTER
MASS
130
AREA
3067
HEIGHT
1683
15-Jul-2022
12:20
linh
pham



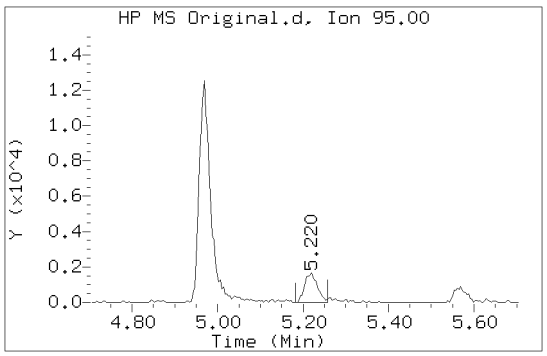
BEFORE
MASS
110
AREA
1935
HEIGHT
885
09-Jun-2022
16:42
linh
pham



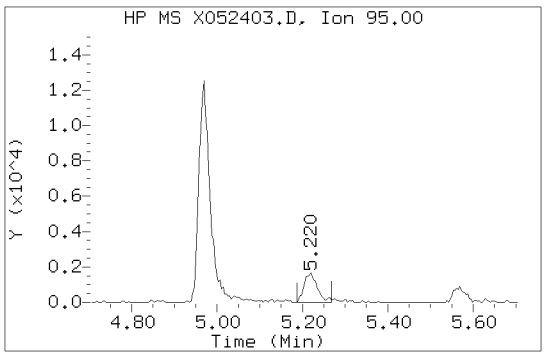
AFTER
MASS
97
AREA
2228
HEIGHT
1119
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
77
AREA
1630
HEIGHT
737
09-Jun-2022
16:42
linh
pham



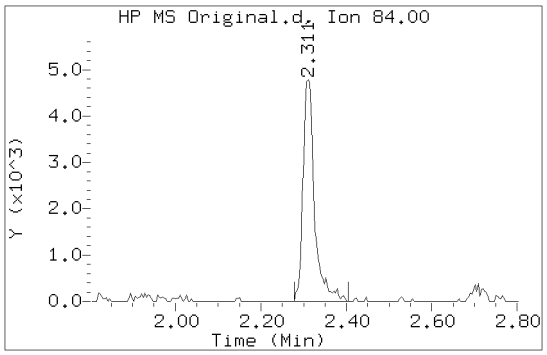
AFTER
MASS
95
AREA
3641
HEIGHT
1660
15-Jul-2022
12:20
linh
pham



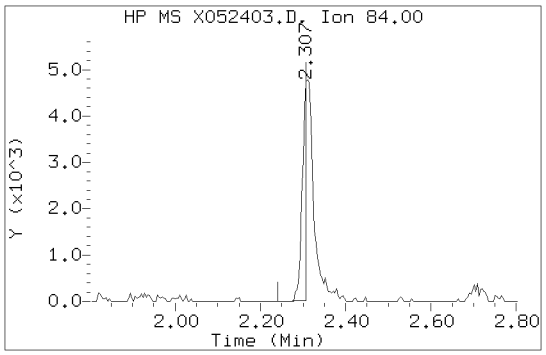
Methylene Chloride (75-09-2)

Reason Code:

BEFORE
MASS
93
AREA
2341
HEIGHT
1251
09-Jun-2022
16:42
linh
pham



AFTER
MASS
84
AREA
3589
HEIGHT
4733
15-Jul-2022
12:20
linh
pham

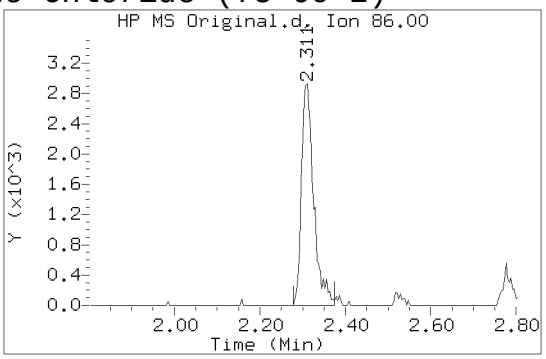


Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

Methylene Chloride (75-09-2)

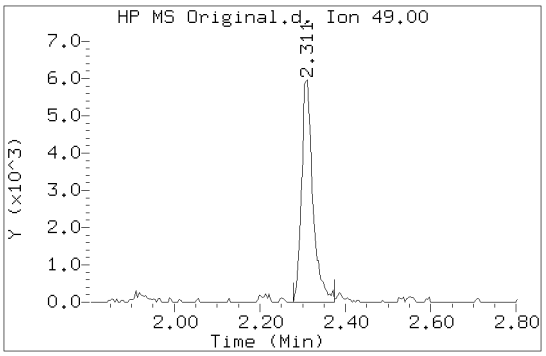
BEFORE

MASS
95
AREA
1750
HEIGHT
902
09-Jun-2022
16:42
linh
pham



BEFORE

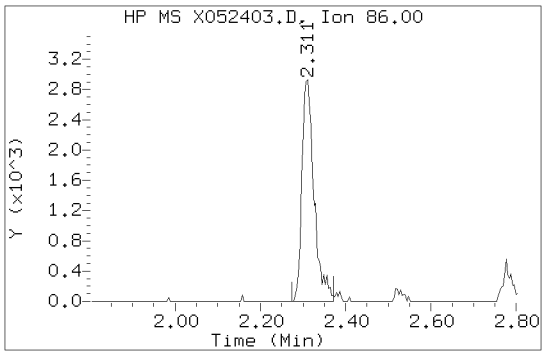
MASS
174
AREA
2070
HEIGHT
1242
09-Jun-2022
16:42
linh
pham



Reason Code:

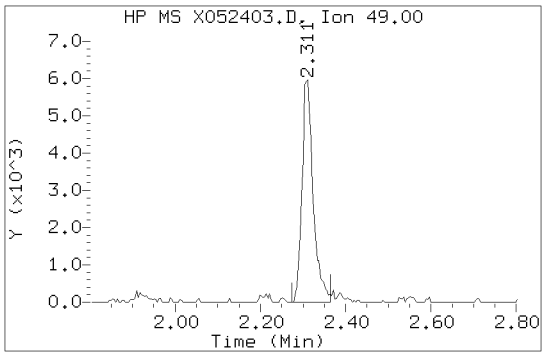
AFTER

MASS
86
AREA
5901
HEIGHT
2929
15-Jul-2022
12:20
linh
pham



AFTER

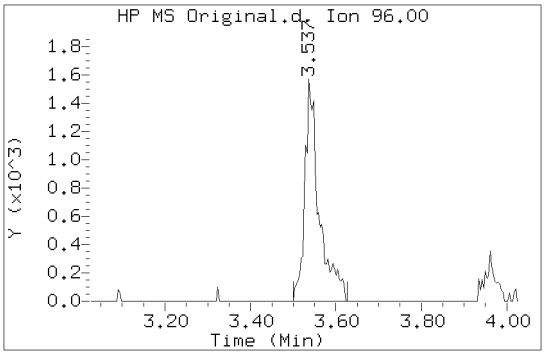
MASS
49
AREA
11128
HEIGHT
5962
15-Jul-2022
12:20
linh
pham



cis-1,2-Dichloroethene (156-59-2)

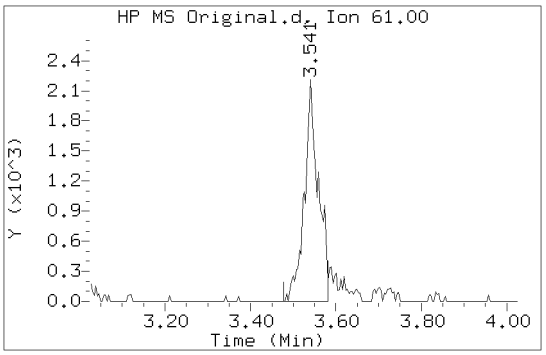
BEFORE

MASS
107
AREA
3297
HEIGHT
1738
09-Jun-2022
16:42
linh
pham



BEFORE

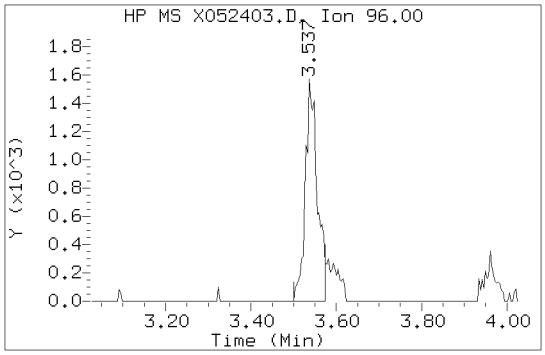
MASS
109
AREA
2941
HEIGHT
1369
09-Jun-2022
16:42
linh
pham



Reason Code:

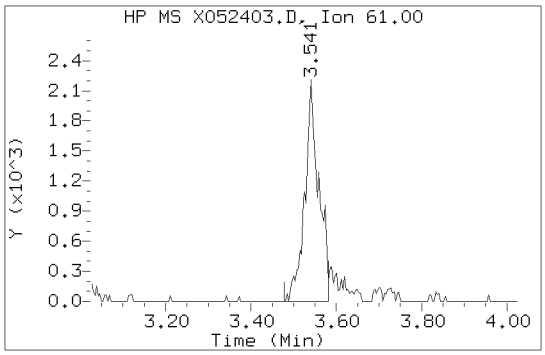
AFTER

MASS
96
AREA
3100
HEIGHT
1571
15-Jul-2022
12:20
linh
pham



AFTER

MASS
61
AREA
5064
HEIGHT
2211
15-Jul-2022
12:20
linh
pham



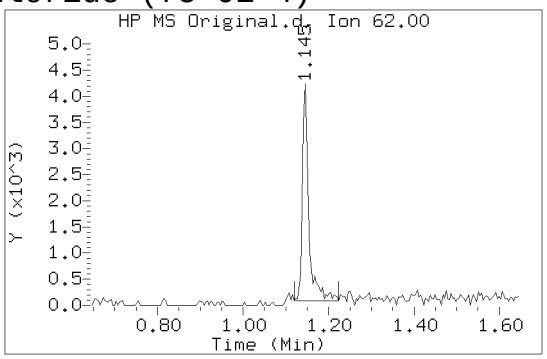
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

Vinyl Chloride (75-01-4)

Reason Code:

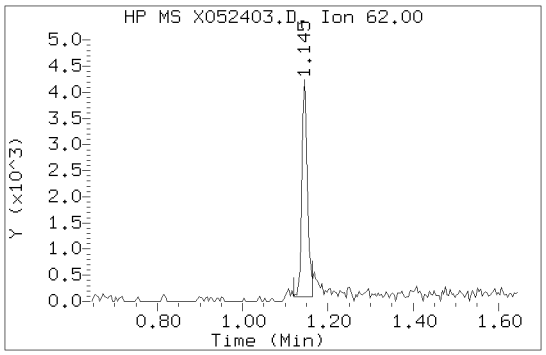
BEFORE

MASS
96
AREA
3022
HEIGHT
1557
09-Jun-2022
16:42
linh
pham



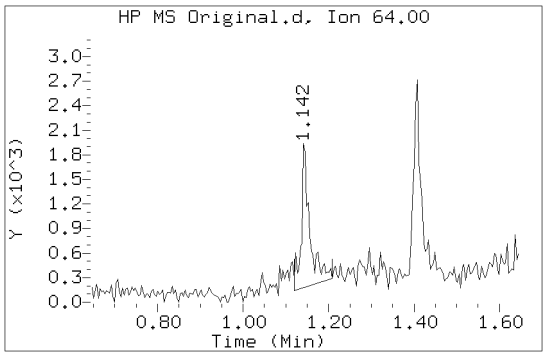
AFTER

MASS
62
AREA
3859
HEIGHT
4161
15-Jul-2022
12:20
linh
pham



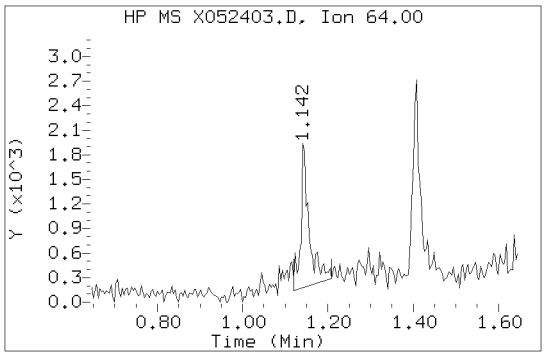
BEFORE

MASS
61
AREA
4246
HEIGHT
2020
09-Jun-2022
16:42
linh
pham



AFTER

MASS
64
AREA
2454
HEIGHT
1764
15-Jul-2022
12:20
linh
pham

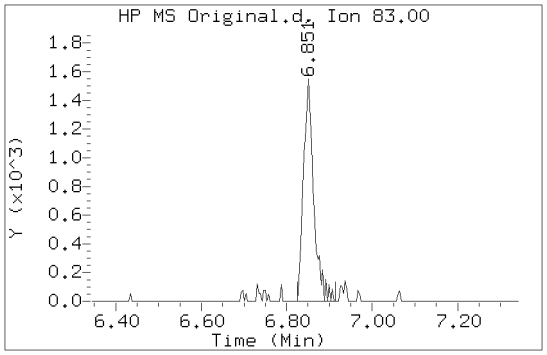


1,1,2-Trichloroethane (79-00-5)

Reason Code:

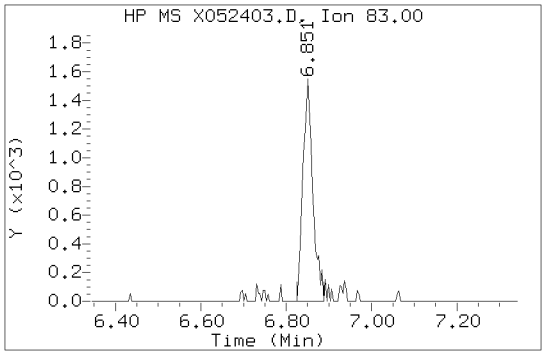
BEFORE

MASS
131
AREA
3246
HEIGHT
2441
09-Jun-2022
16:42
linh
pham



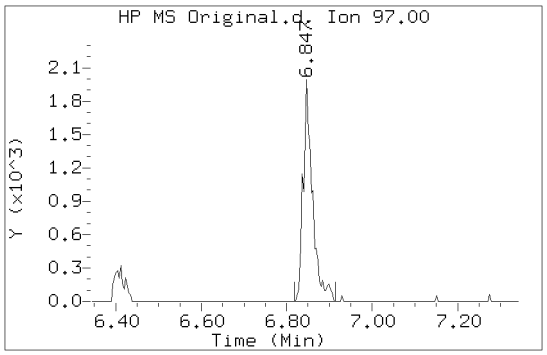
AFTER

MASS
83
AREA
2537
HEIGHT
1550
15-Jul-2022
12:20
linh
pham



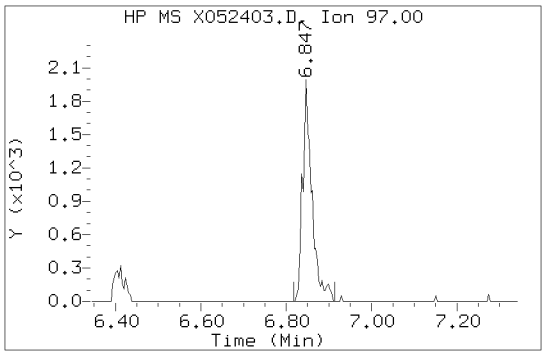
BEFORE

MASS
133
AREA
3041
HEIGHT
1996
09-Jun-2022
16:42
linh
pham



AFTER

MASS
97
AREA
3082
HEIGHT
1993
15-Jul-2022
12:20
linh
pham

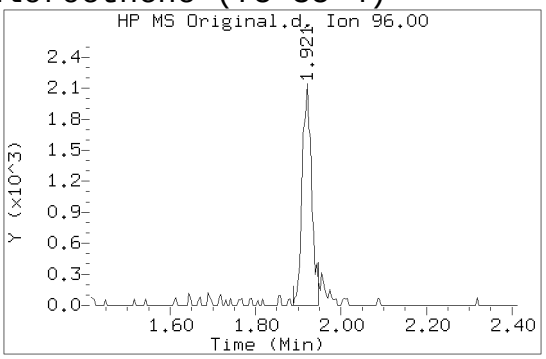


Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

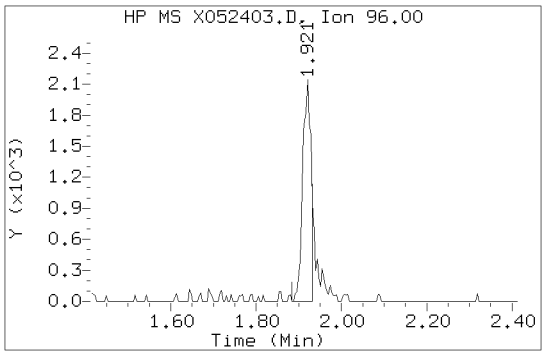
1,1-Dichloroethene (75-35-4)

Reason Code:

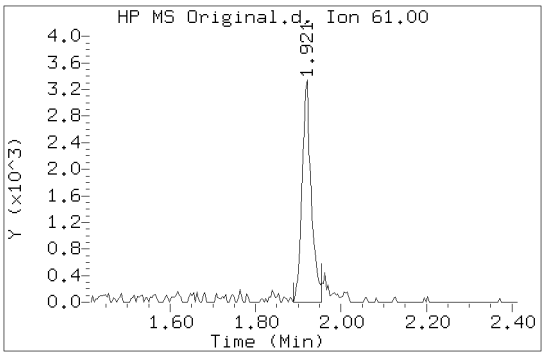
BEFORE
MASS
97
AREA
4955
HEIGHT
1941
09-Jun-2022
16:42
linh
pham



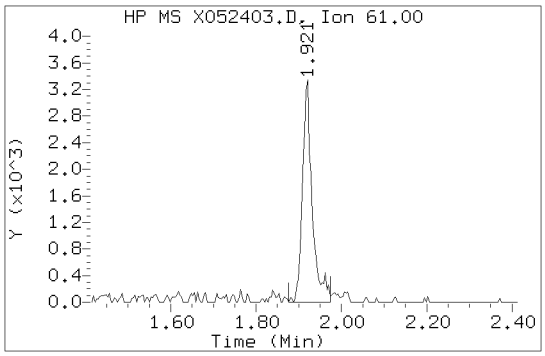
AFTER
MASS
96
AREA
2977
HEIGHT
2143
15-Jul-2022
12:20
linh
pham



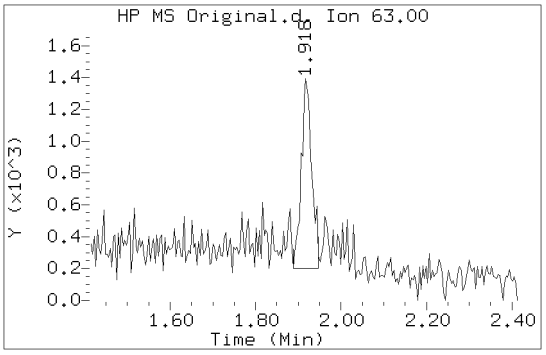
BEFORE
MASS
99
AREA
3158
HEIGHT
1349
09-Jun-2022
16:42
linh
pham



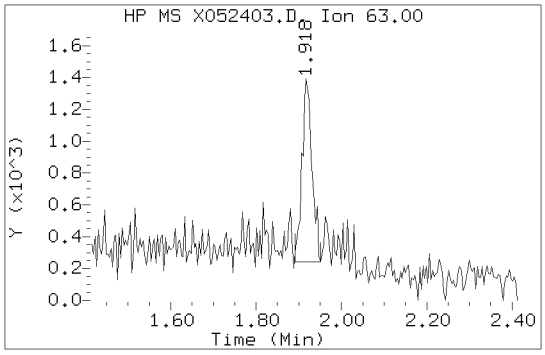
AFTER
MASS
61
AREA
5399
HEIGHT
3344
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
61
AREA
1234
HEIGHT
988
09-Jun-2022
16:42
linh
pham



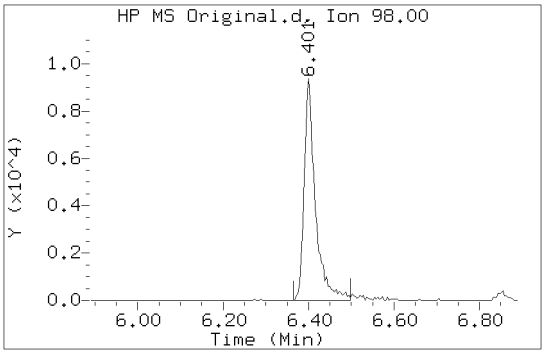
AFTER
MASS
63
AREA
1917
HEIGHT
1152
15-Jul-2022
12:20
linh
pham



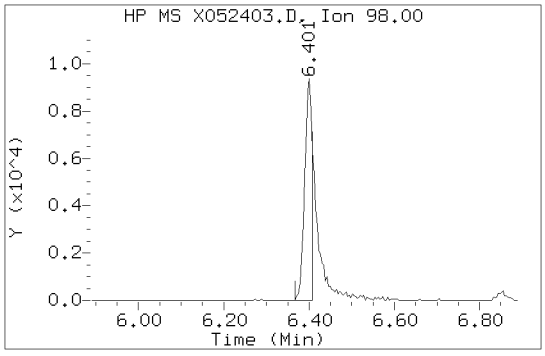
Toluene-d8 (2037-26-5)

Reason Code:

BEFORE
MASS
83
AREA
2617
HEIGHT
1550
09-Jun-2022
16:42
linh
pham



AFTER
MASS
98
AREA
11377
HEIGHT
9370
15-Jul-2022
12:20
linh
pham



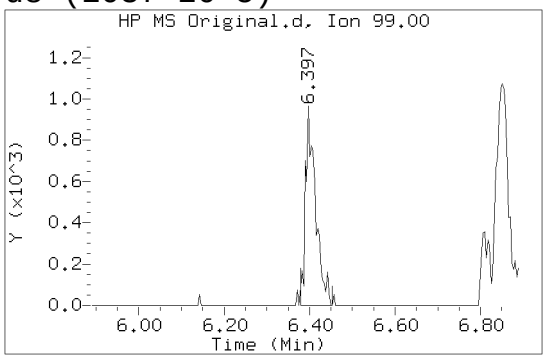
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

Toluene-d8 (2037-26-5)

Reason Code:

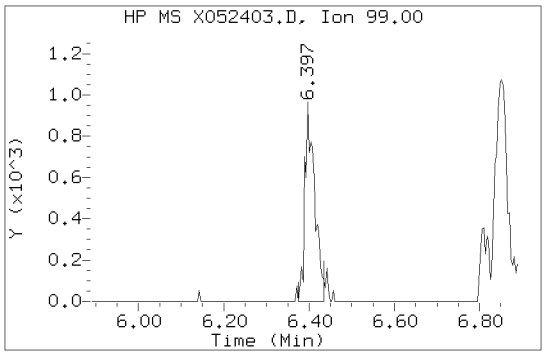
BEFORE

MASS
97
AREA
3082
HEIGHT
1993
09-Jun-2022
16:42
linh
pham



AFTER

MASS
99
AREA
1551
HEIGHT
966
15-Jul-2022
12:20
linh
pham

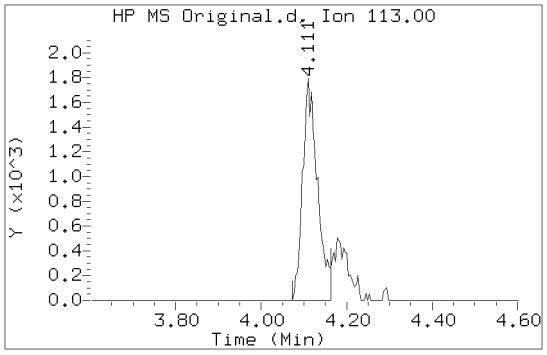


Dibromofluoromethane (1868-53-7)

Reason Code:

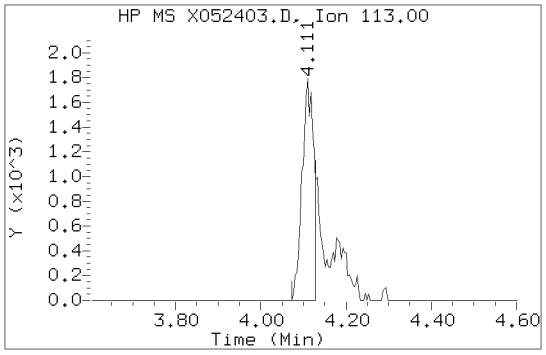
BEFORE

MASS
63
AREA
6402
HEIGHT
2679
09-Jun-2022
16:42
linh
pham



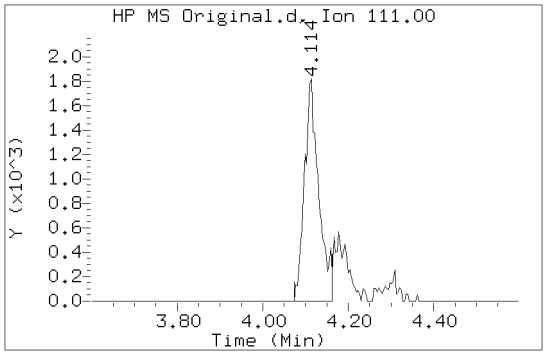
AFTER

MASS
113
AREA
3406
HEIGHT
1791
15-Jul-2022
12:20
linh
pham



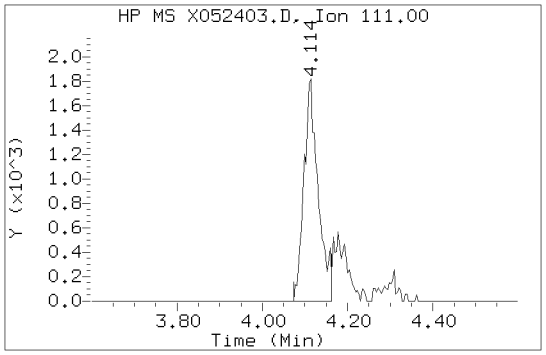
BEFORE

MASS
65
AREA
1344
HEIGHT
829
09-Jun-2022
16:42
linh
pham



AFTER

MASS
111
AREA
4280
HEIGHT
1818
15-Jul-2022
12:20
linh
pham

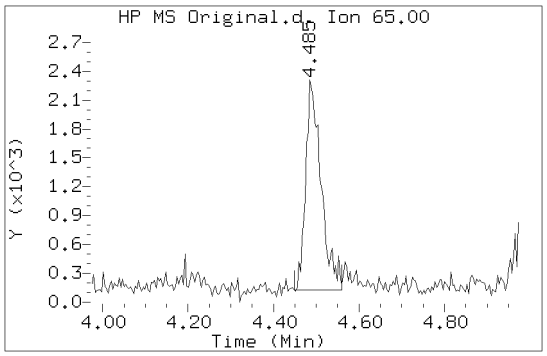


1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

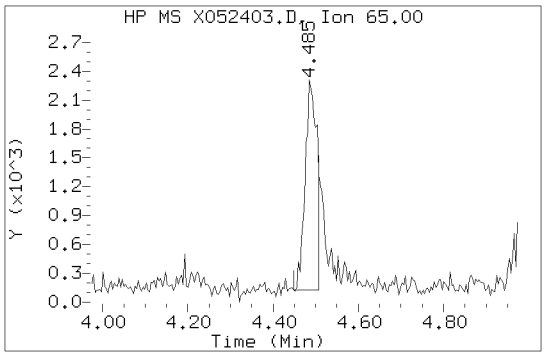
BEFORE

MASS
96
AREA
3339
HEIGHT
2143
09-Jun-2022
16:42
linh
pham



AFTER

MASS
65
AREA
4171
HEIGHT
2186
15-Jul-2022
12:20
linh
pham



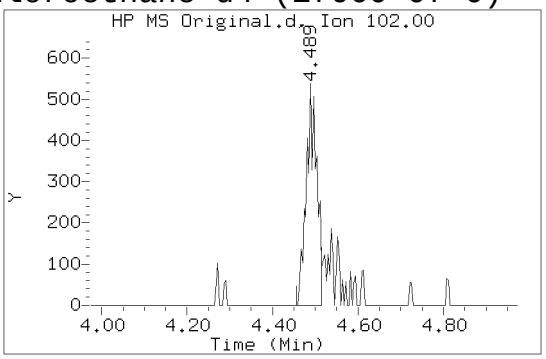
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

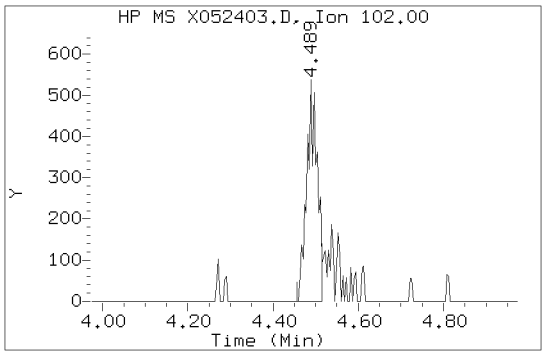
BEFORE

MASS
61
AREA
5088
HEIGHT
3344
09-Jun-2022
16:42
linh
pham



AFTER

MASS
102
AREA
924
HEIGHT
538
15-Jul-2022
12:20
linh
pham

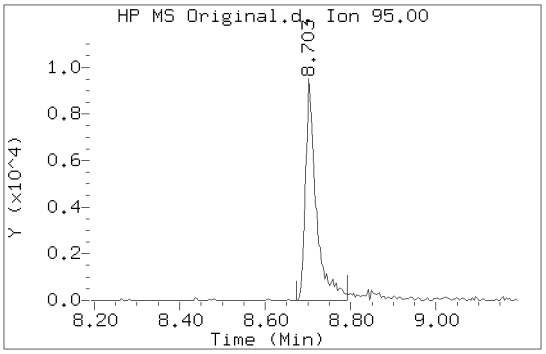


4-Bromofluorobenzene (460-00-4)

Reason Code:

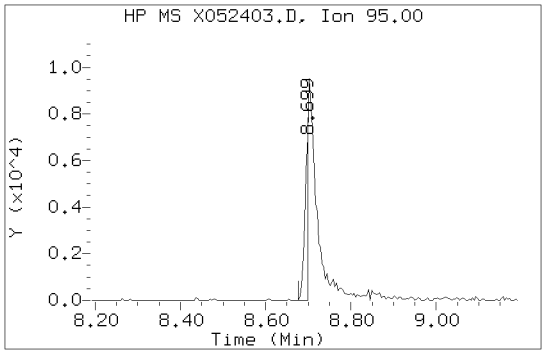
BEFORE

MASS
130
AREA
3353
HEIGHT
1683
09-Jun-2022
16:42
linh
pham



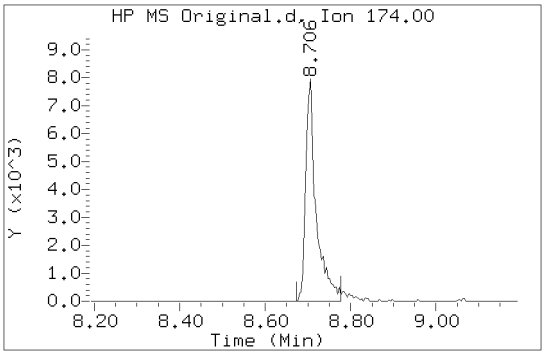
AFTER

MASS
95
AREA
4188
HEIGHT
7013
15-Jul-2022
12:20
linh
pham



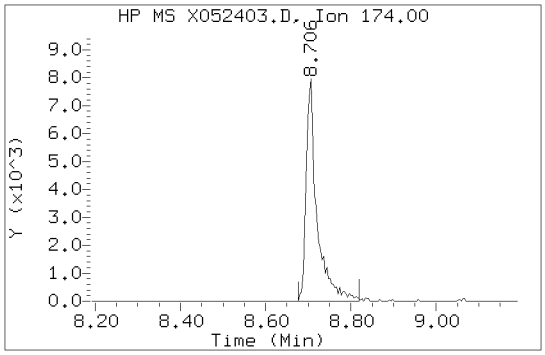
BEFORE

MASS
97
AREA
2316
HEIGHT
1119
09-Jun-2022
16:42
linh
pham



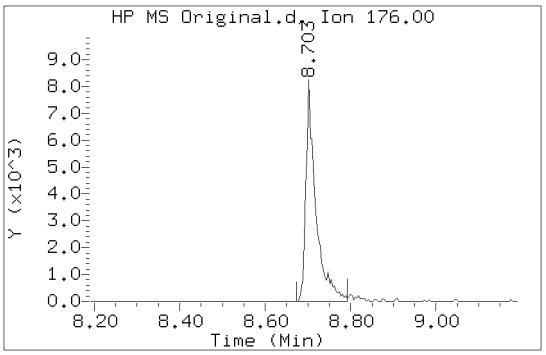
AFTER

MASS
174
AREA
14181
HEIGHT
7958
15-Jul-2022
12:20
linh
pham



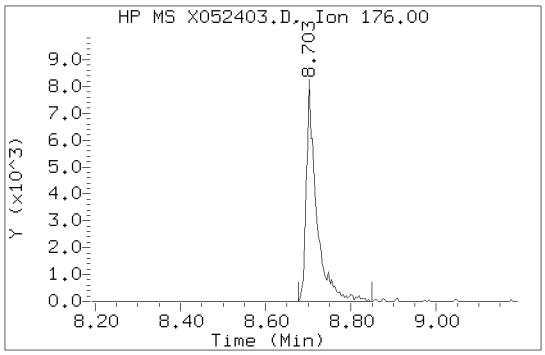
BEFORE

MASS
95
AREA
3498
HEIGHT
1660
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
13720
HEIGHT
8256
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 24-MAY-2022 12:30
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 12:10 Cal File: X052403.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

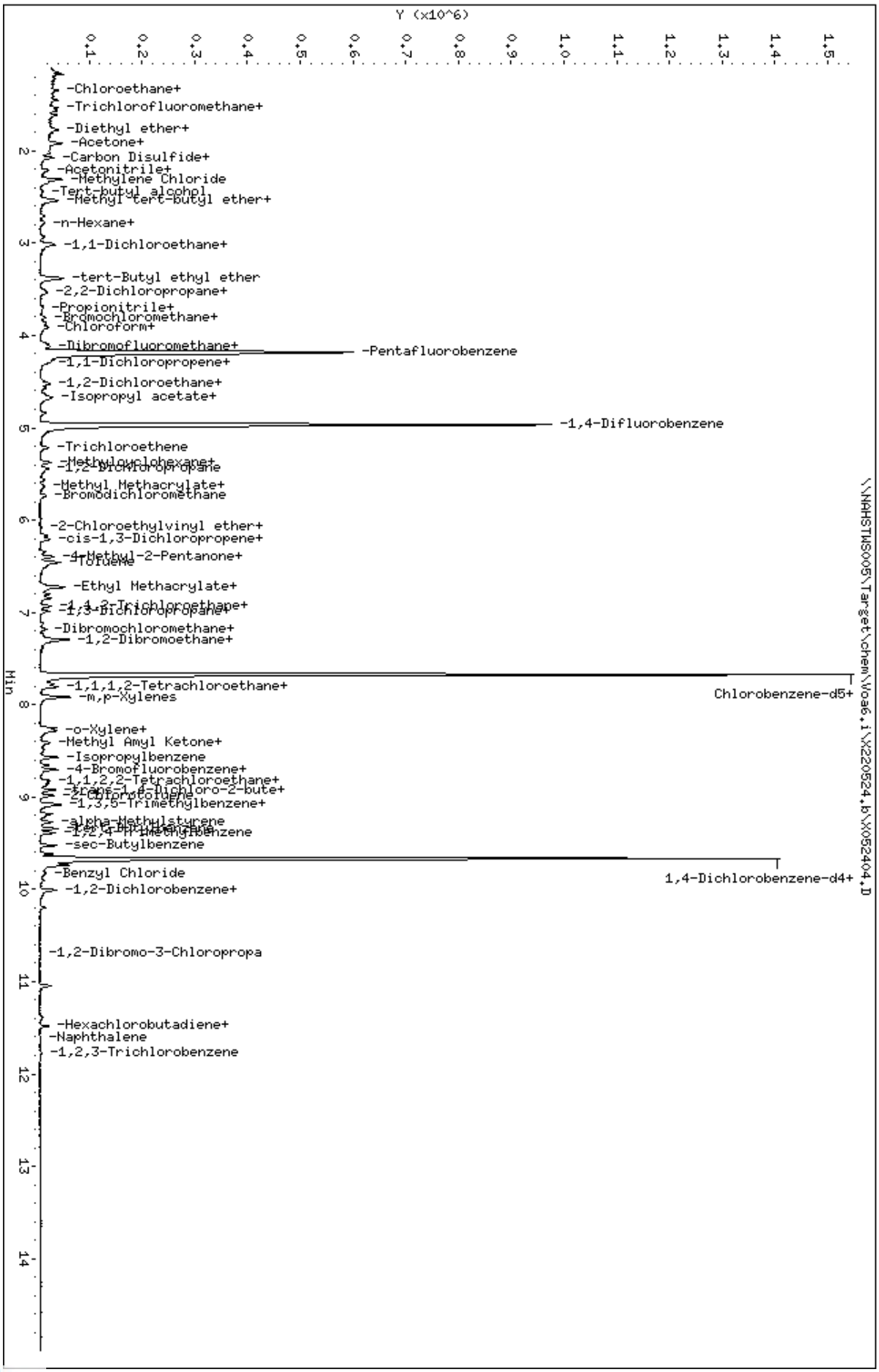
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	520334	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	816004	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	744880	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	339757	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.496	4.496	(1.074)	6545	1.00000	0.69(a)
$ 69 4-Bromofluorobenzene	95	8.706	8.706	(1.135)	9115	1.00000	0.44(aM)
$ 30 Dibromofluoromethane	113	4.110	4.110	(0.982)	4587	1.00000	0.81
$ 48 Toluene-d8	98	6.401	6.401	(0.834)	18215	1.00000	0.92(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4494	1.00000	0.97(a)
11 1,1-Dichloroethene	96	1.917	1.917	(0.458)	4582	1.00000	0.84(a)
33 1,2-Dichloroethane	62	4.571	4.571	(0.920)	7133	1.00000	0.87(a)
27 cis-1,2-Dichloroethene	96	3.540	3.540	(0.846)	5389	1.00000	0.85(a)
17 Methylene Chloride	84	2.307	2.307	(0.551)	7709	1.00000	1.17(aM)
38 Trichloroethene	130	5.216	5.216	(1.050)	5513	1.00000	0.89(a)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	6347	1.00000	0.86(a)

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\Voa6.i\X220524.b\X052404.D
Date : 24-MAY-2022 12:30
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

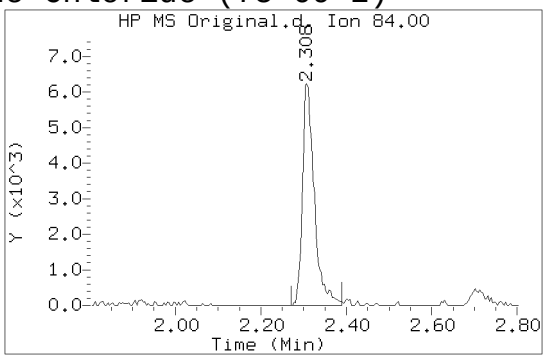
Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D
Inj Date : 24-MAY-2022 12:30
InstruID : voa6.i
LabSampID : VSTD001

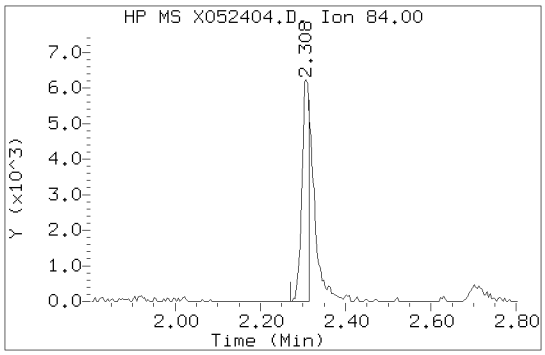
Methylene Chloride (75-09-2)

Reason Code:

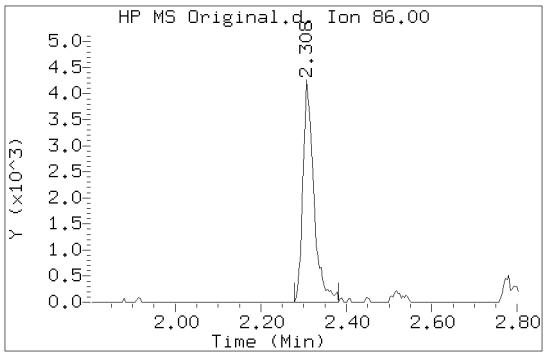
BEFORE
MASS
93
AREA
3655
HEIGHT
2067
09-Jun-2022
16:42
linh
pham



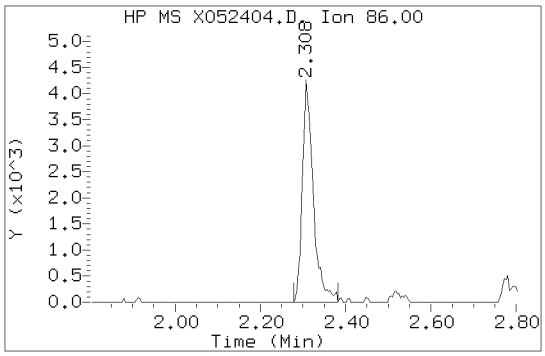
AFTER
MASS
84
AREA
7709
HEIGHT
6234
15-Jul-2022
12:20
linh
pham



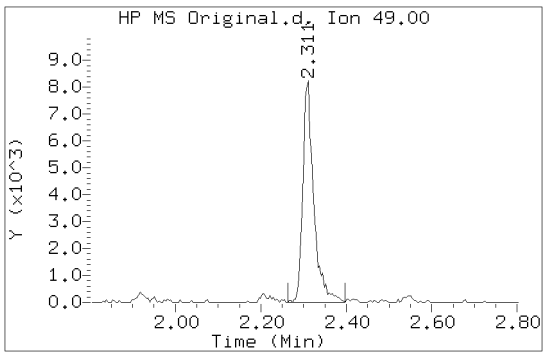
BEFORE
MASS
95
AREA
2997
HEIGHT
1695
09-Jun-2022
16:42
linh
pham



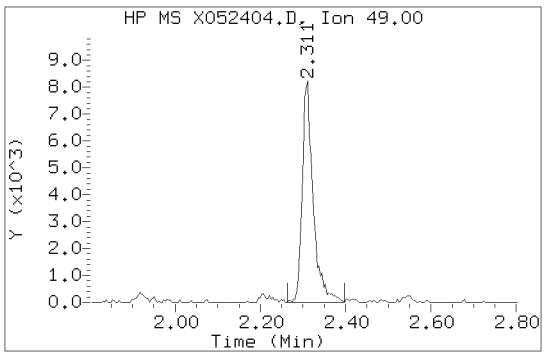
AFTER
MASS
86
AREA
7732
HEIGHT
4262
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
174
AREA
3341
HEIGHT
1661
09-Jun-2022
16:42
linh
pham



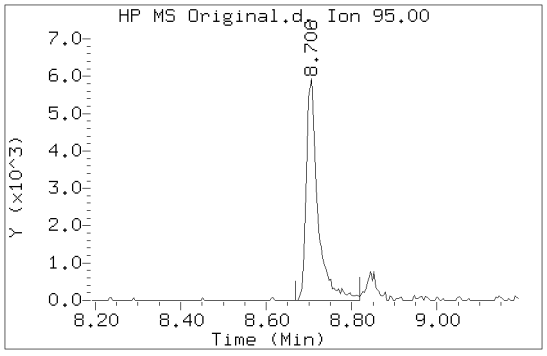
AFTER
MASS
49
AREA
14961
HEIGHT
8243
15-Jul-2022
12:20
linh
pham



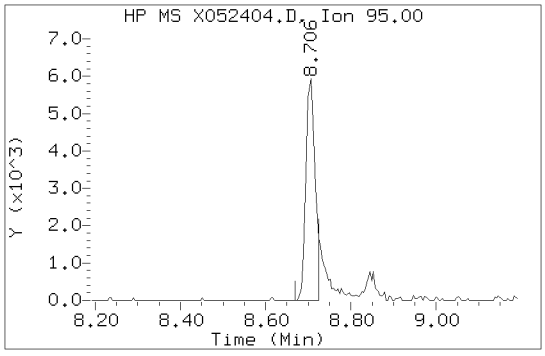
4-Bromofluorobenzene (460-00-4)

Reason Code:

BEFORE
MASS
130
AREA
5513
HEIGHT
2570
09-Jun-2022
16:42
linh
pham



AFTER
MASS
95
AREA
9115
HEIGHT
5935
15-Jul-2022
12:20
linh
pham



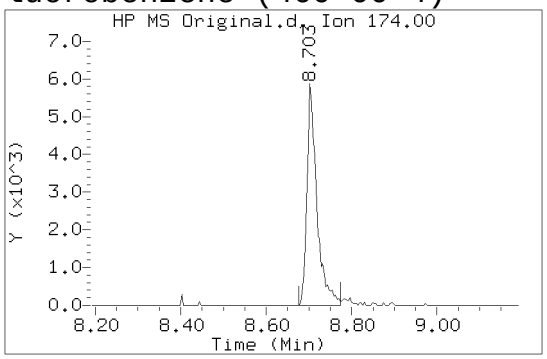
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D
Inj Date : 24-MAY-2022 12:30
InstruID : voa6.i
LabSampID : VSTD001

4-Bromofluorobenzene (460-00-4)

Reason Code:

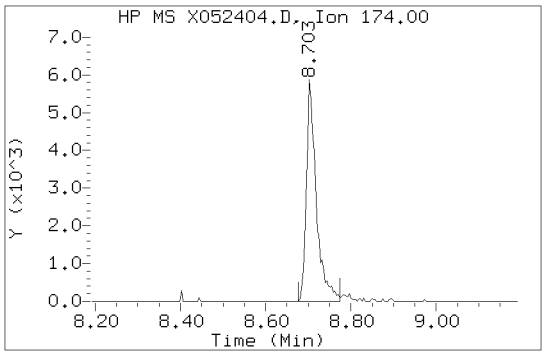
BEFORE

MASS
97
AREA
3348
HEIGHT
1753
09-Jun-2022
16:42
linh
pham



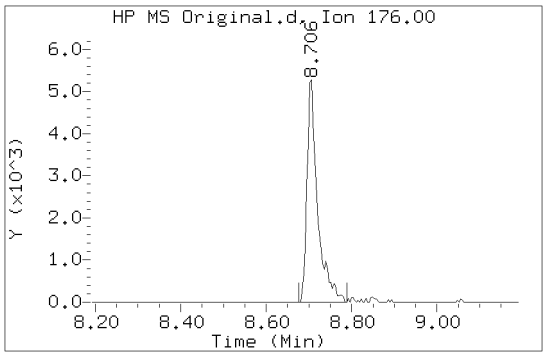
AFTER

MASS
174
AREA
9528
HEIGHT
5873
15-Jul-2022
12:20
linh
pham



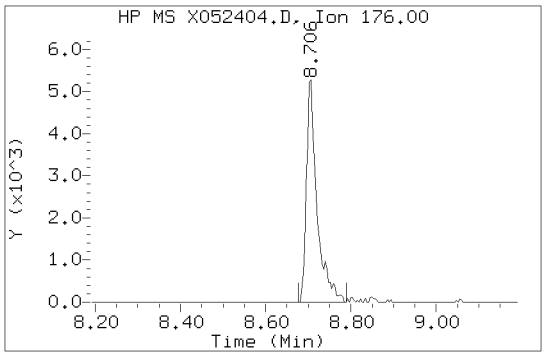
BEFORE

MASS
95
AREA
5169
HEIGHT
2986
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
9192
HEIGHT
5277
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 24-MAY-2022 12:51
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 12:30 Cal File: X052404.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

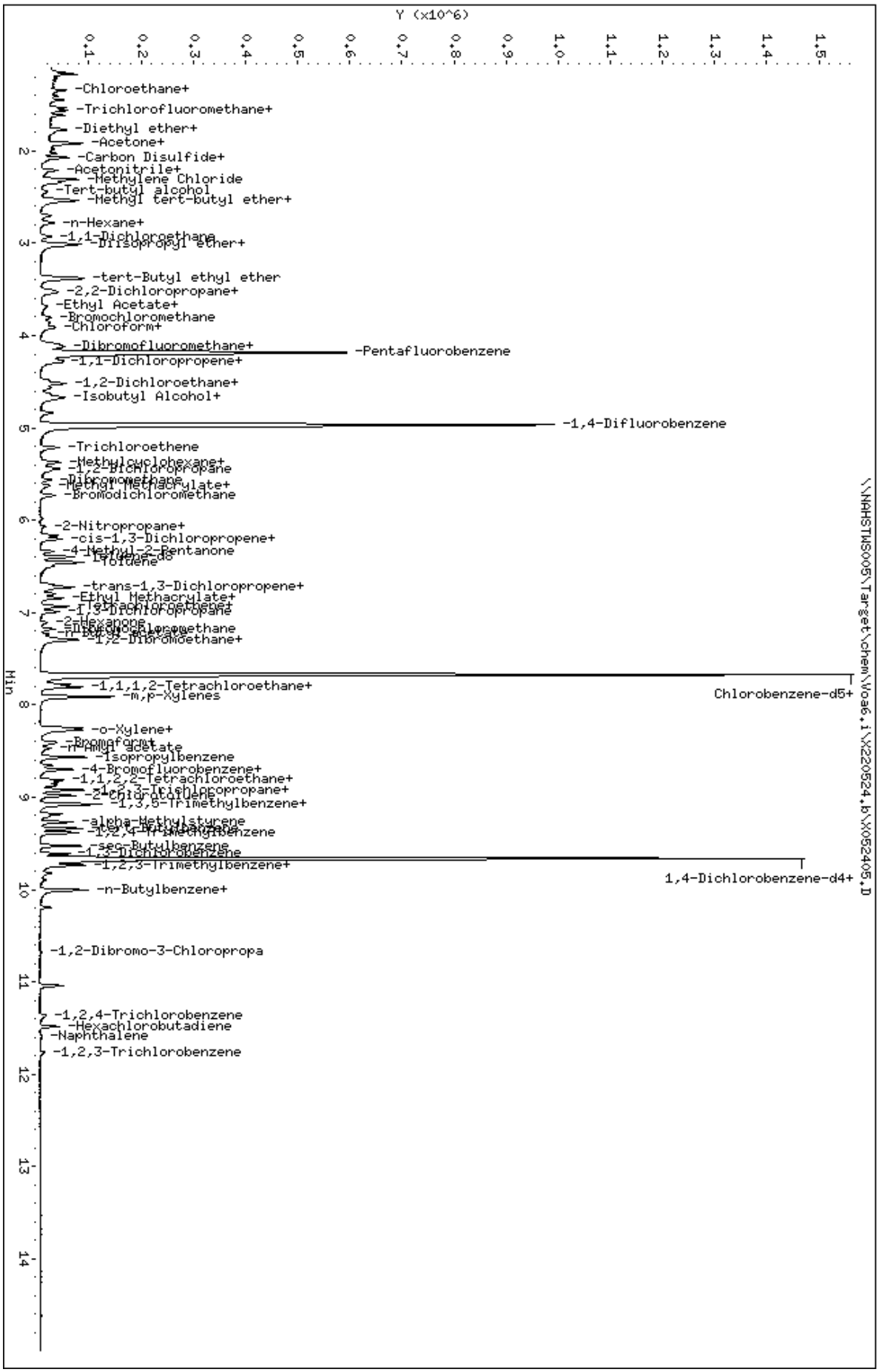
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	506499	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	823111	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	753017	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	340249	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.485	4.485	(1.072)	13694	2.00000	1.87(aM)
$ 69 4-Bromofluorobenzene	95	8.702	8.702	(1.134)	17686	2.00000	1.65(aM)
$ 30 Dibromofluoromethane	113	4.106	4.106	(0.981)	11150	2.00000	2.07
$ 48 Toluene-d8	98	6.393	6.393	(0.833)	40470	2.00000	2.03(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	9391	2.00000	2.01(a)
11 1,1-Dichloroethene	96	1.917	1.917	(0.458)	11701	2.00000	2.21(a)
33 1,2-Dichloroethane	62	4.567	4.567	(0.919)	15433	2.00000	1.87(a)
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.845)	12355	2.00000	2.02(a)
17 Methylene Chloride	84	2.307	2.307	(0.551)	12867	2.00000	2.01(aM)
38 Trichloroethene	130	5.212	5.212	(1.049)	12893	2.00000	2.08(a)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	15090	2.00000	2.11(a)

QC Flag Legend

a - Target compound detected but, quantitated amount

Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Date : 24-MAY-2022 12:51
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D

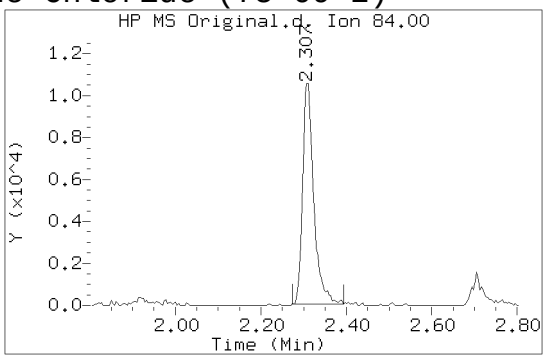
Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Inj Date : 24-MAY-2022 12:51
InstruID : voa6.i
LabSampID : VSTD002

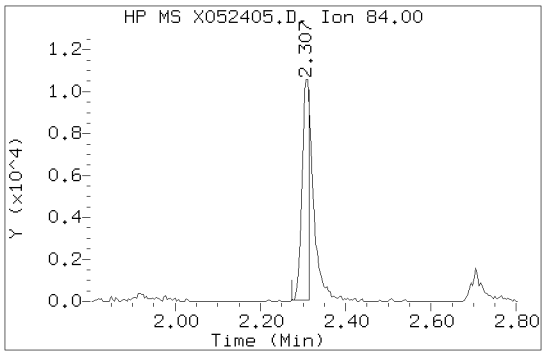
Methylene Chloride (75-09-2)

Reason Code:

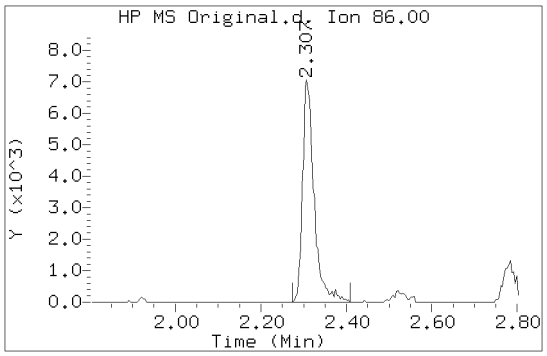
BEFORE
MASS
93
AREA
7735
HEIGHT
4035
09-Jun-2022
16:42
linh
pham



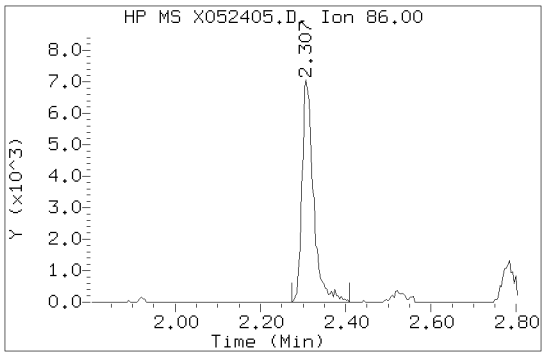
AFTER
MASS
84
AREA
12867
HEIGHT
10497
15-Jul-2022
12:20
linh
pham



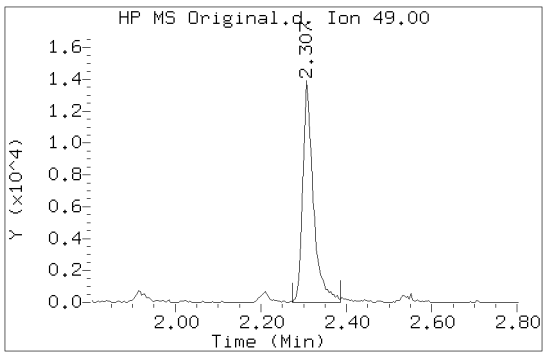
BEFORE
MASS
95
AREA
6481
HEIGHT
3356
09-Jun-2022
16:42
linh
pham



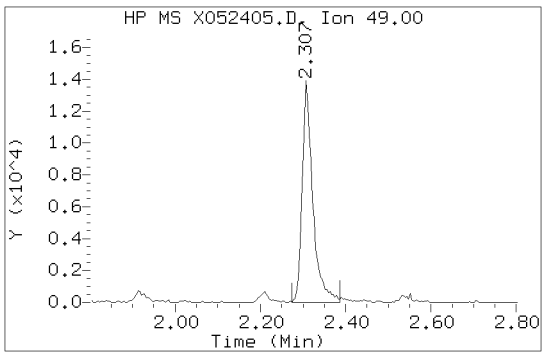
AFTER
MASS
86
AREA
13511
HEIGHT
7061
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
174
AREA
7980
HEIGHT
4123
09-Jun-2022
16:42
linh
pham



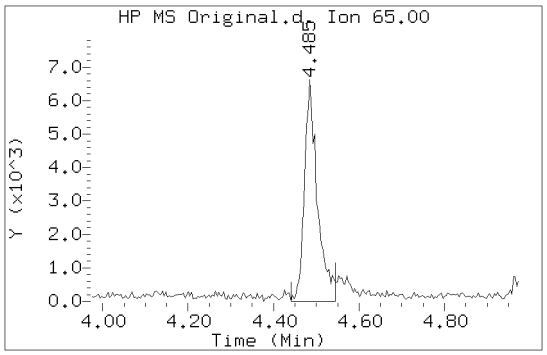
AFTER
MASS
49
AREA
24435
HEIGHT
13912
15-Jul-2022
12:20
linh
pham



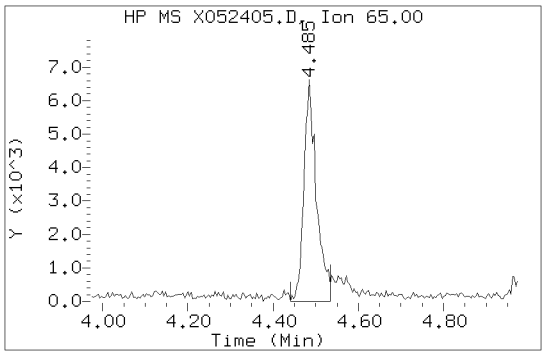
1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

BEFORE
MASS
96
AREA
11701
HEIGHT
7057
09-Jun-2022
16:42
linh
pham



AFTER
MASS
65
AREA
13694
HEIGHT
6628
15-Jul-2022
12:20
linh
pham



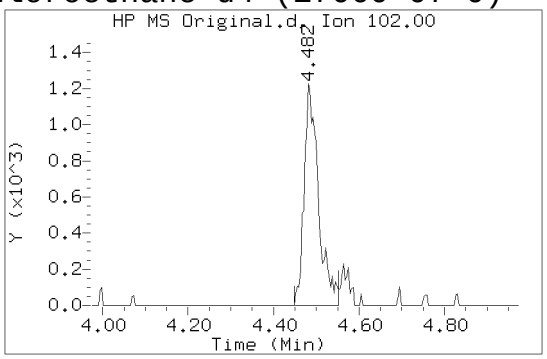
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Inj Date : 24-MAY-2022 12:51
InstruID : voa6.i
LabSampID : VSTD002

1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

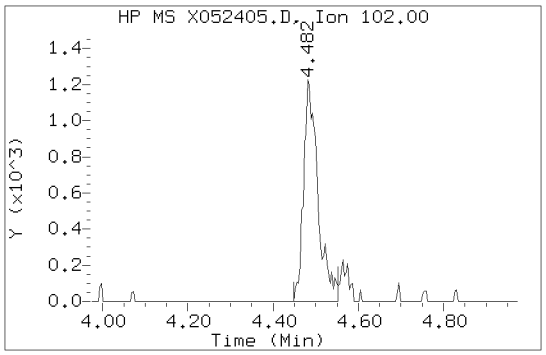
BEFORE

MASS
61
AREA
18435
HEIGHT
11023
09-Jun-2022
16:42
linh
pham



AFTER

MASS
102
AREA
2890
HEIGHT
1227
15-Jul-2022
12:20
linh
pham

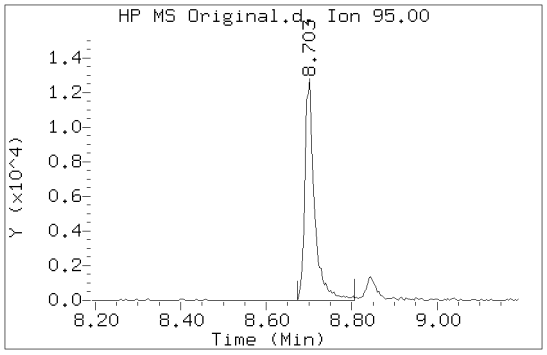


4-Bromofluorobenzene (460-00-4)

Reason Code:

BEFORE

MASS
130
AREA
12893
HEIGHT
6384
09-Jun-2022
16:42
linh
pham



AFTER

MASS
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AREA
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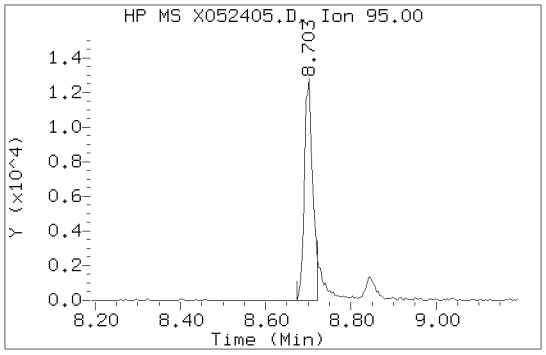
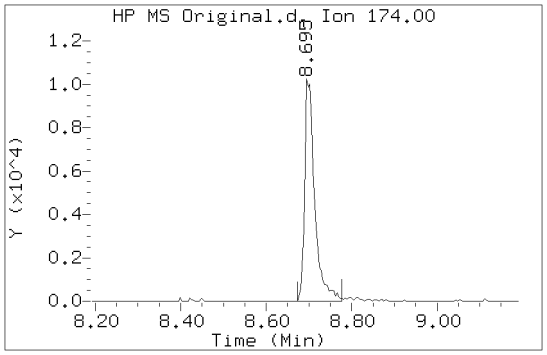
HEIGHT
12793
15-Jul-2022
12:20
linh
pham



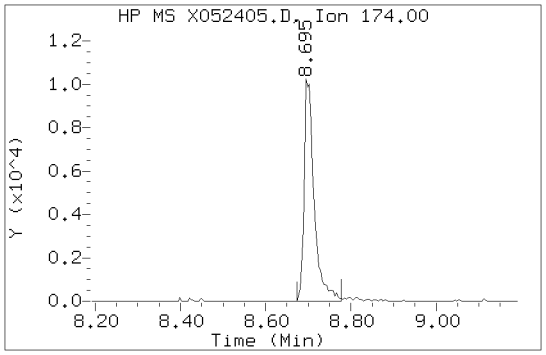
BEFORE

MASS
97
AREA
7964
HEIGHT
4033
09-Jun-2022
16:42
linh
pham



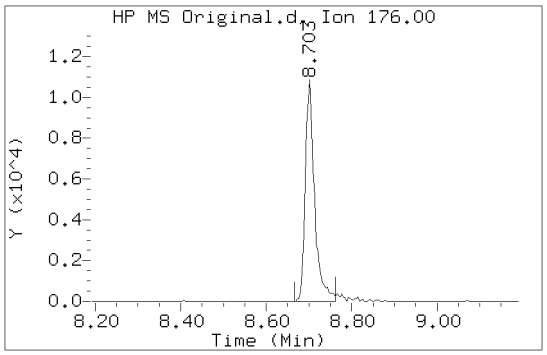
AFTER

MASS
174
AREA
17086
HEIGHT
10253
15-Jul-2022
12:20
linh
pham



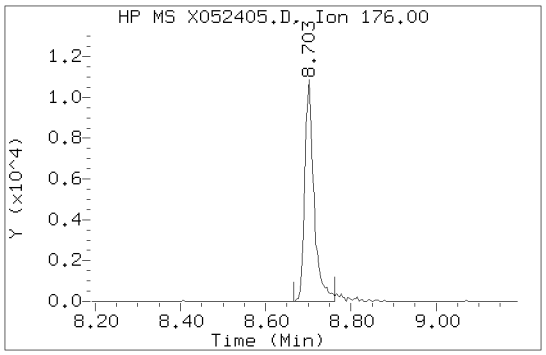
BEFORE

MASS
95
AREA
13139
HEIGHT
7283
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
16652
HEIGHT
10870
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 24-MAY-2022 13:12
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 12:51 Cal File: X052405.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

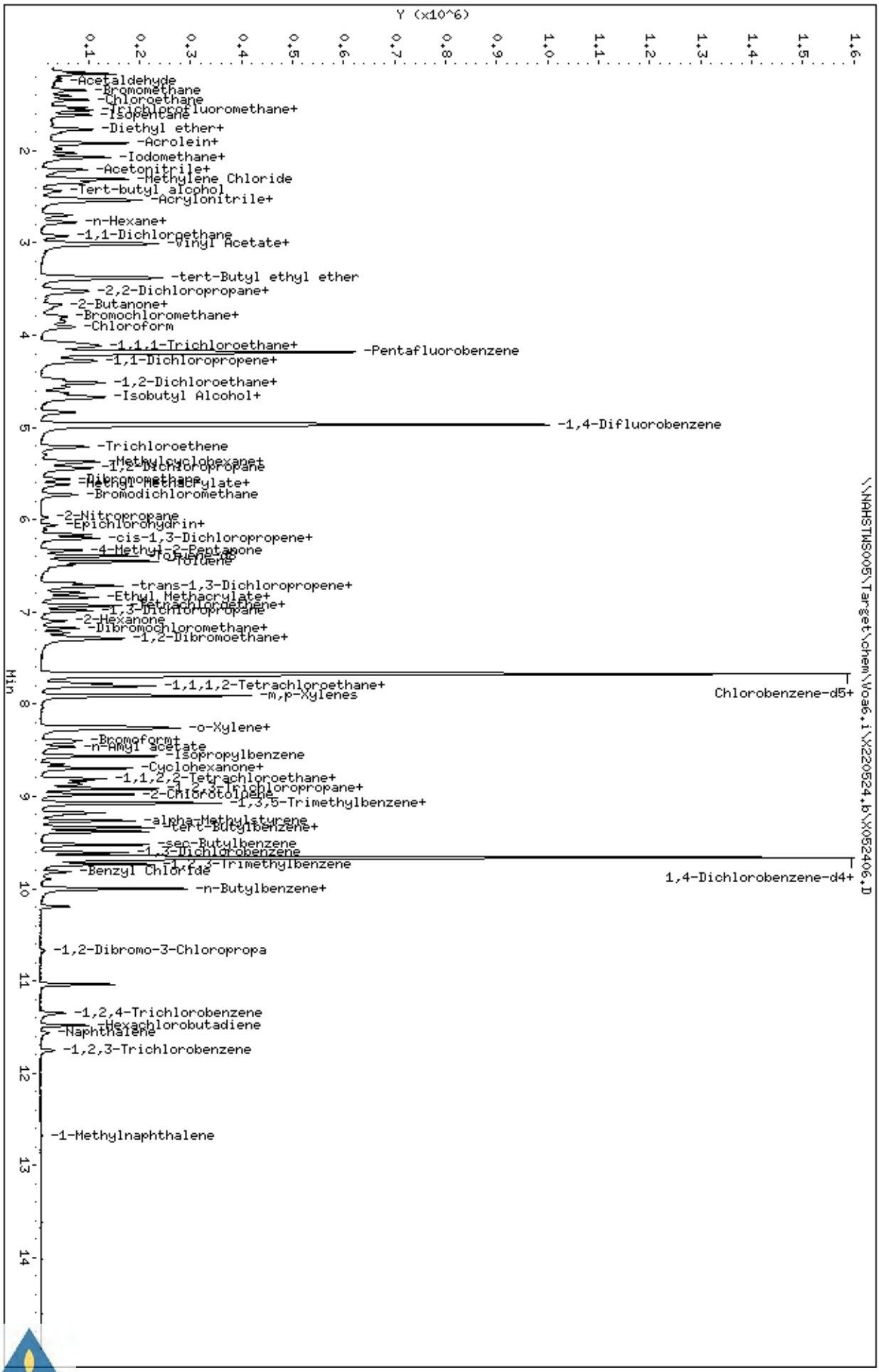
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.181	4.181	(1.000)	517817	50.0000	
*	36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	833465	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	758015	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	355376	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.481	4.481	(1.072)	36258	5.00000	5.38(M)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.133)	48914	5.00000	6.09(M)
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	29413	5.00000	5.38(M)
$	48 Toluene-d8	98	6.393	6.393	(0.833)	114070	5.00000	5.69
	53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	25426	5.00000	5.42
	11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	28012	5.00000	5.18
	33 1,2-Dichloroethane	62	4.564	4.564	(0.919)	44721	5.00000	5.37
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	33095	5.00000	5.29
	17 Methylene Chloride	84	2.307	2.307	(0.552)	38537	5.00000	5.89
	38 Trichloroethene	130	5.212	5.212	(1.049)	33463	5.00000	5.34
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	37791	5.00000	5.17

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052406.D
Date : 24-MAY-2022 13:12
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052406.D

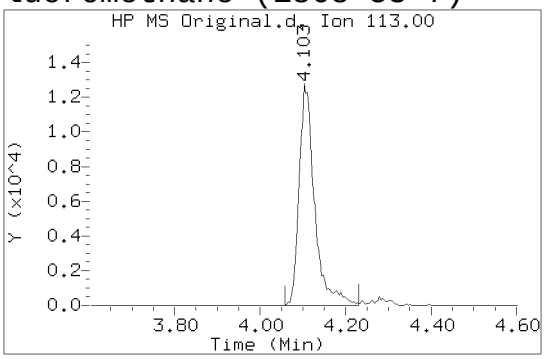
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Inj Date : 24-MAY-2022 13:12
InstruID : voa6.i
LabSampID : VSTD005

Dibromofluoromethane (1868-53-7)

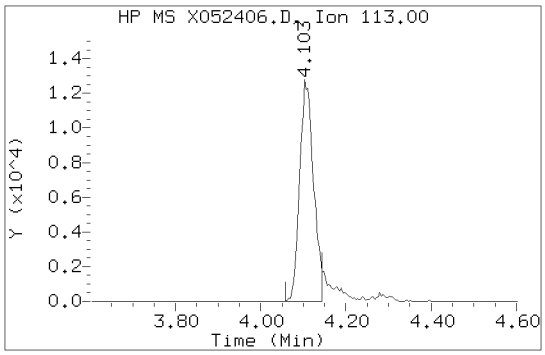
BEFORE

MASS
63
AREA
53792
HEIGHT
25984
09-Jun-2022
16:42
linh
pham



AFTER

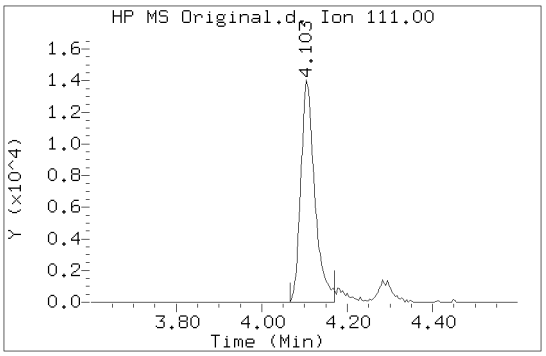
MASS
113
AREA
29413
HEIGHT
12784
15-Jul-2022
12:20
linh
pham



Reason Code:

BEFORE

MASS
65
AREA
17706
HEIGHT
8417
09-Jun-2022
16:42
linh
pham



AFTER

MASS
111
AREA
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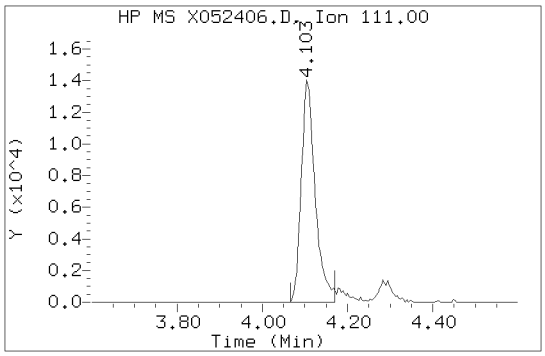
HEIGHT
14046
15-Jul-2022
12:20
linh
pham



Reason Code:

1,2-Dichloroethane-d4 (17060-07-0)

BEFORE

MASS
96
AREA
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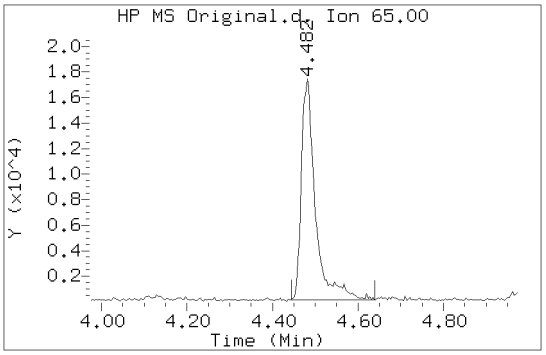
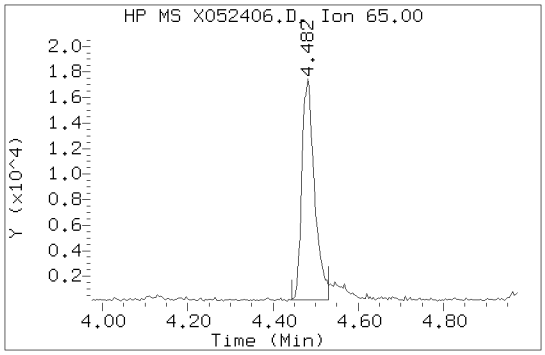
HEIGHT
16744
09-Jun-2022
16:42
linh
pham



AFTER

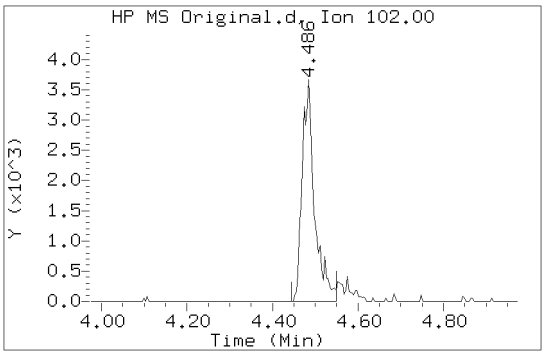
MASS
65
AREA
36258
HEIGHT
17280
15-Jul-2022
12:20
linh
pham



Reason Code:

BEFORE

MASS
61
AREA
47136
HEIGHT
27256
09-Jun-2022
16:42
linh
pham



AFTER

MASS
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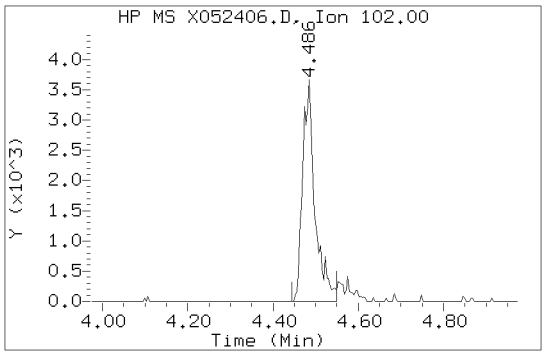
AREA
7479
HEIGHT
3667
15-Jul-2022
12:20
linh
pham



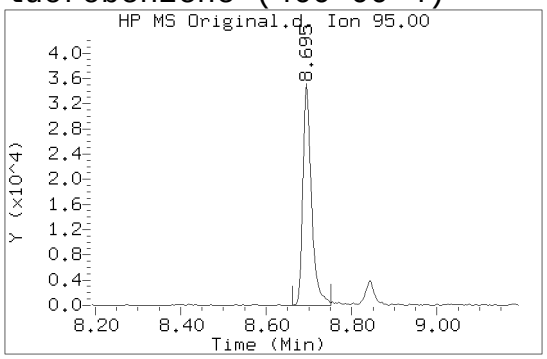
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Inj Date : 24-MAY-2022 13:12
InstruID : voa6.i
LabSampID : VSTD005

4-Bromofluorobenzene (460-00-4)

Reason Code:

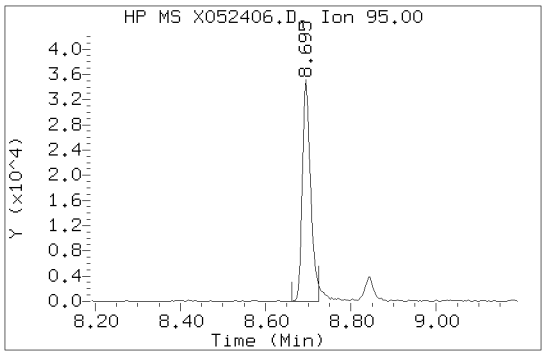
BEFORE

MASS
130
AREA
33463
HEIGHT
17776
09-Jun-2022
16:42
linh
pham



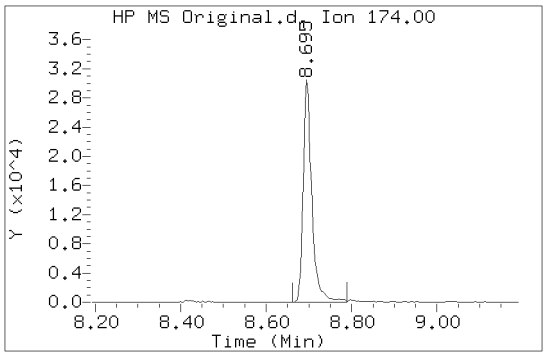
AFTER

MASS
95
AREA
48914
HEIGHT
35160
15-Jul-2022
12:20
linh
pham



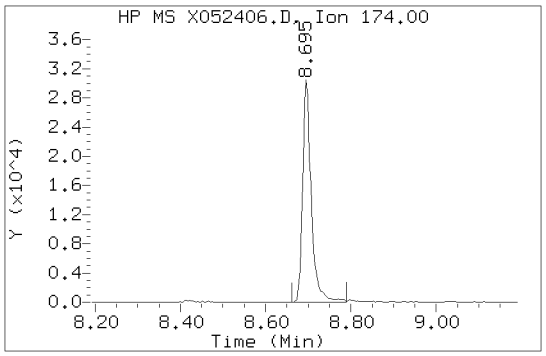
BEFORE

MASS
97
AREA
20450
HEIGHT
10901
09-Jun-2022
16:42
linh
pham



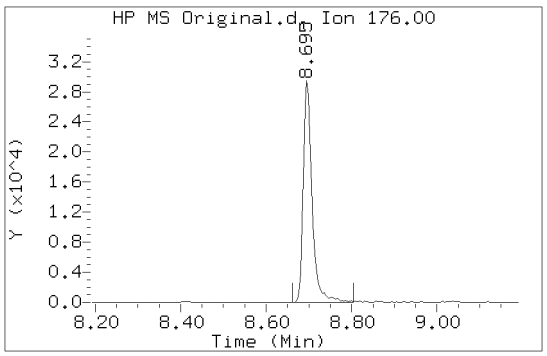
AFTER

MASS
174
AREA
43976
HEIGHT
30472
15-Jul-2022
12:20
linh
pham



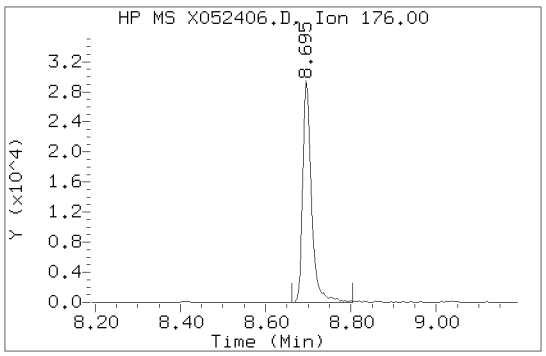
BEFORE

MASS
95
AREA
31684
HEIGHT
16829
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
43532
HEIGHT
29480
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D Page 1
Report Date: 15-Jul-2022 12:20

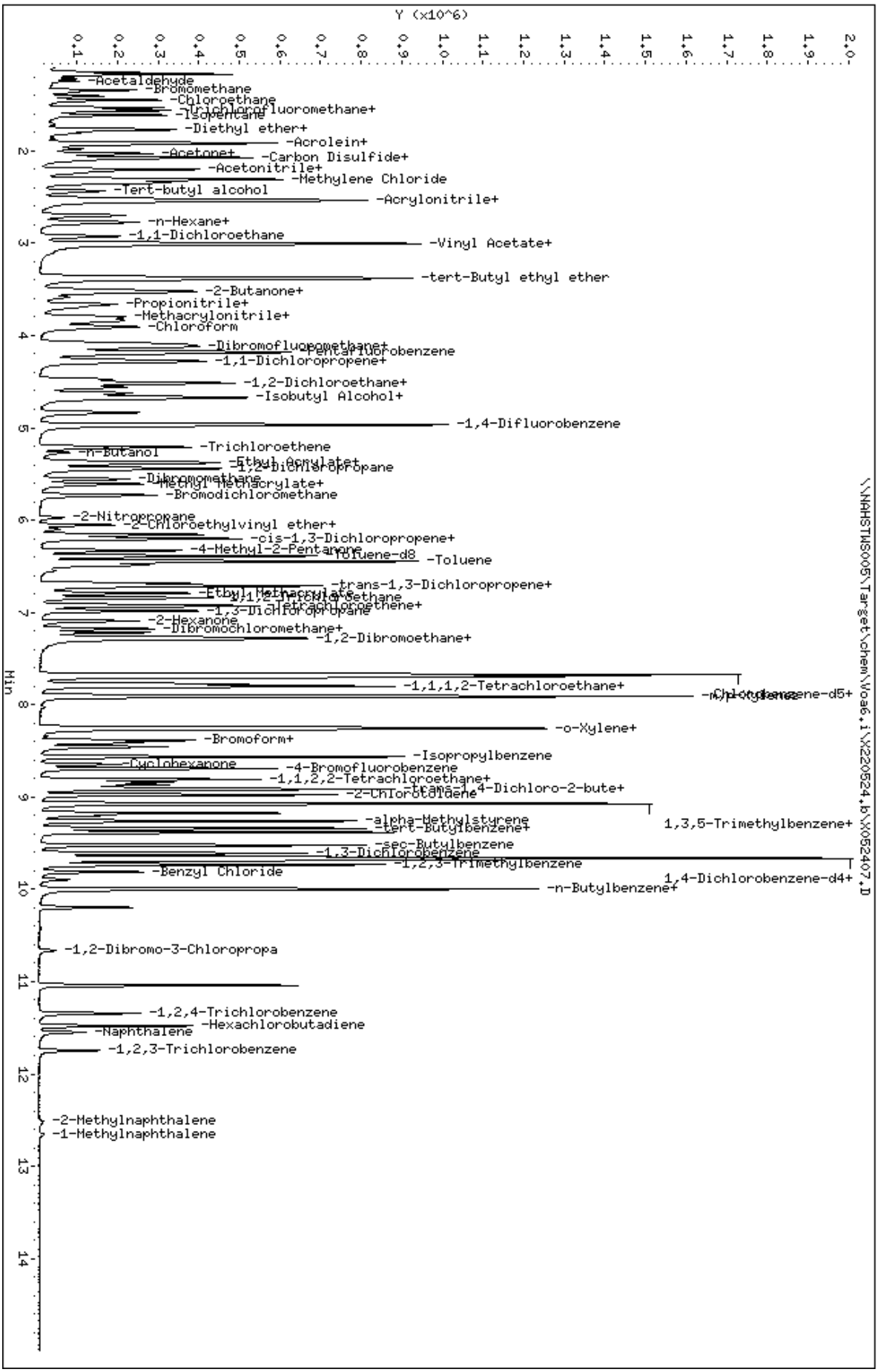
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 24-MAY-2022 13:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:12 Cal File: X052406.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.181	4.181	(1.000)	517604	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	827602	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	774241	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	369188	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	132108	20.0000	20.52
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	154990	20.0000	20.75
$ 30 Dibromofluoromethane	113	4.102	4.102	(0.981)	112071	20.0000	20.58
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	401816	20.0000	19.65
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	94053	20.0000	19.64
11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	105673	20.0000	19.57
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	168275	20.0000	20.36
27 cis-1,2-Dichloroethene	96	3.533	3.533	(0.845)	126310	20.0000	20.23
17 Methylene Chloride	84	2.307	2.307	(0.552)	123160	20.0000	18.84
38 Trichloroethene	130	5.208	5.208	(1.048)	122238	20.0000	19.66
5 Vinyl Chloride	62	1.145	1.145	(0.274)	143233	20.0000	19.62



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D
Date : 24-MAY-2022 13:33
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D
Inj Date : 24-MAY-2022 13:33
InstruID : voa6.i
LabSampID : VSTD020

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D Page 1
Report Date: 15-Jul-2022 12:20

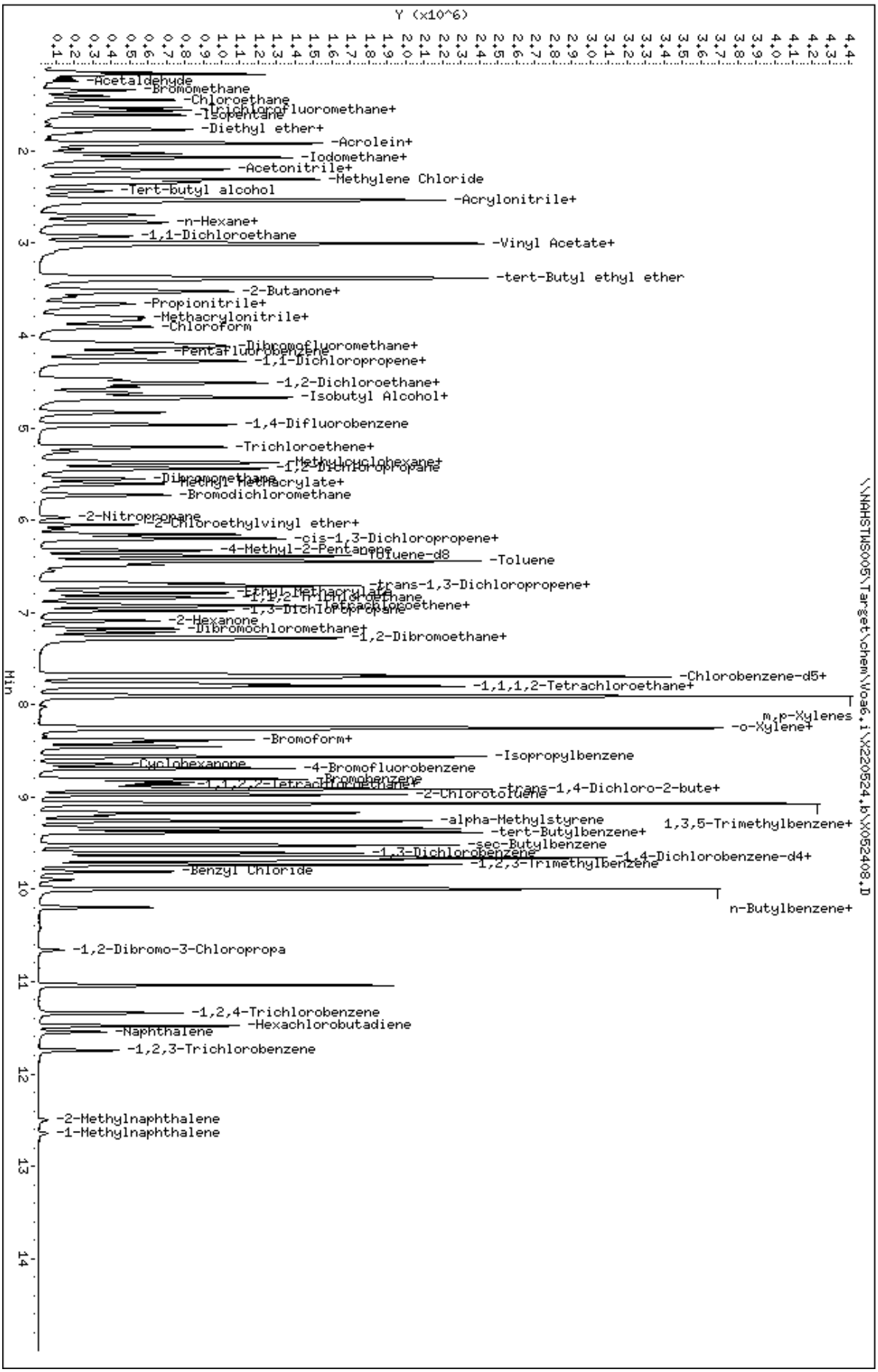
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-MAY-2022 13:54
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:33 Cal File: X052407.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.181	4.181	(1.000)	543171	50.0000	
*	36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	866710	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	807069	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	390008	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	325873	50.0000	48.69
$	69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	368870	50.0000	48.52
$	30 Dibromofluoromethane	113	4.099	4.099	(0.980)	273214	50.0000	47.84
$	48 Toluene-d8	98	6.389	6.389	(0.833)	997670	50.0000	46.80
	53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	236243	50.0000	47.33
	11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	276594	50.0000	48.83
	33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	425030	50.0000	49.12
	27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.843)	321139	50.0000	49.02
	17 Methylene Chloride	84	2.303	2.303	(0.551)	305506	50.0000	44.54
	38 Trichloroethene	130	5.208	5.208	(1.048)	321314	50.0000	49.34
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	377950	50.0000	49.35



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D
Date : 24-MAY-2022 13:54
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D
Inj Date : 24-MAY-2022 13:54
InstruID : voa6.i
LabSampID : VSTD050

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D Page 1
Report Date: 15-Jul-2022 12:20

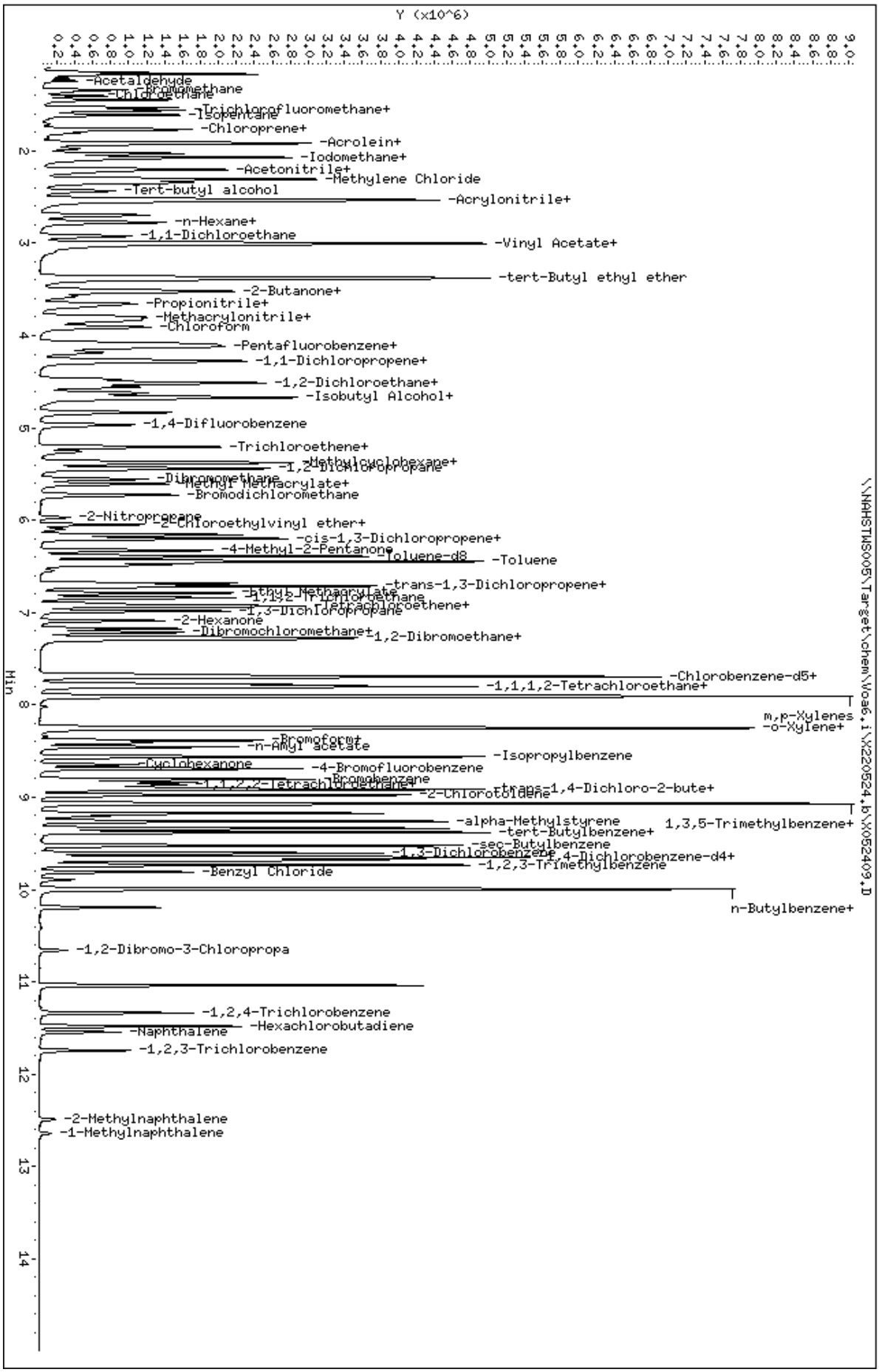
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 24-MAY-2022 14:15
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.181	4.181	(1.000)	540996	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	866045	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	812540	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	400085	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.473	4.473	(1.070)	671007	100.000	101.01
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	768821	100.000	101.39
$ 30 Dibromofluoromethane	113	4.099	4.099	(0.980)	573971	100.000	100.95
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	2066277	100.000	96.29
53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	483130	100.000	96.15
11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	552855	100.000	97.99
33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	851603	100.000	98.50
27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.843)	657416	100.000	100.75
17 Methylene Chloride	84	2.303	2.303	(0.551)	608232	100.000	89.04
38 Trichloroethene	130	5.204	5.204	(1.048)	650395	100.000	99.96
5 Vinyl Chloride	62	1.145	1.145	(0.274)	754890	100.000	98.97



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D
Date : 24-MAY-2022 14:15
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D
Inj Date : 24-MAY-2022 14:15
InstruID : voa6.i
LabSampID : VSTD100

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 24-MAY-2022 14:36
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:15 Cal File: X052409.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

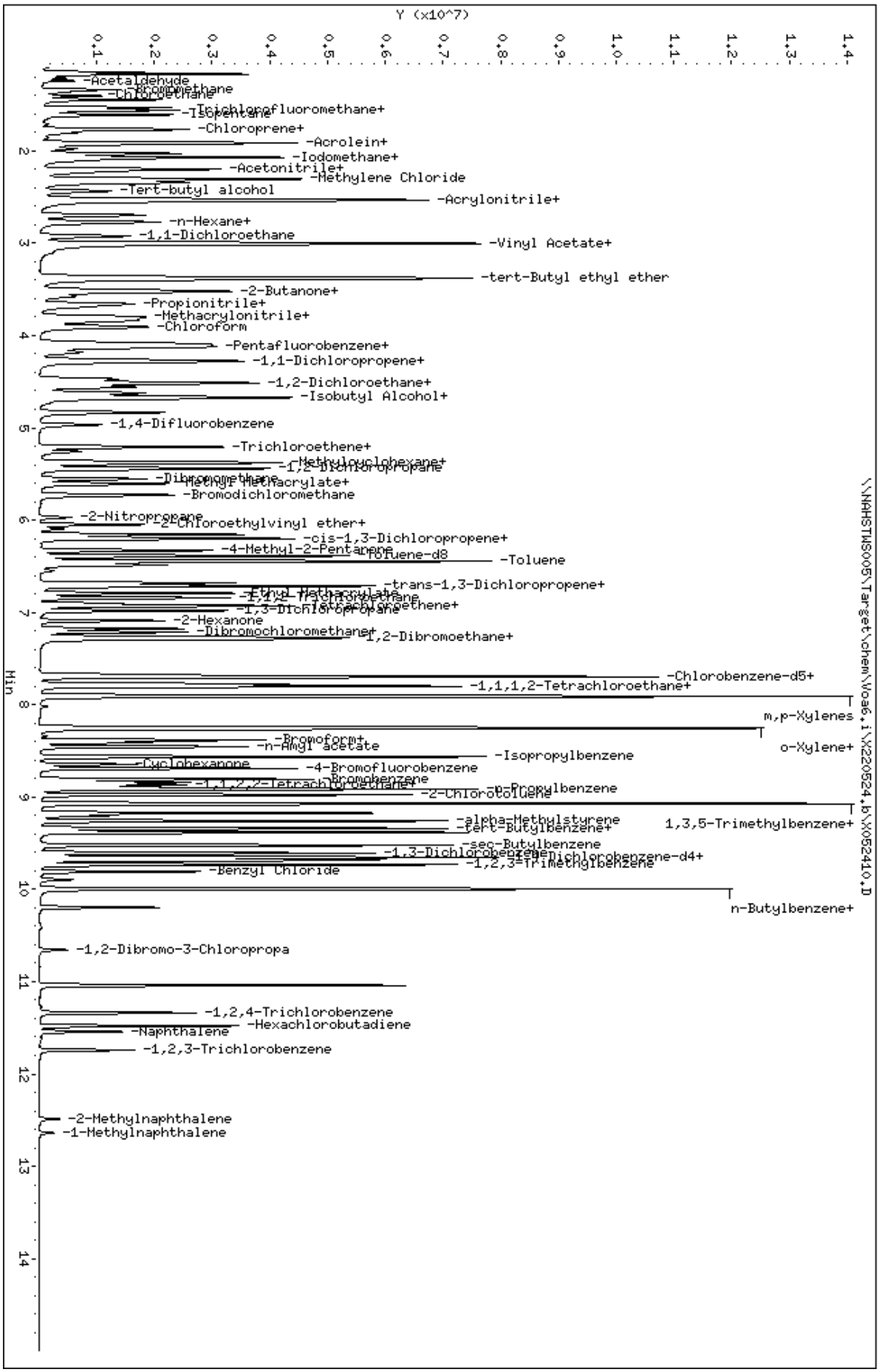
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	540150	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	872439	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	820461	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	403092	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	1000304	150.000	150.99
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	1156873	150.000	151.53
$ 30 Dibromofluoromethane	113	4.099	4.099	(0.979)	857897	150.000	151.13
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	3071727	150.000	141.76(A)
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	738253	150.000	145.51
11 1,1-Dichloroethene	96	1.913	1.913	(0.457)	834706	150.000	148.18
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	1337696	150.000	153.59
27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.842)	1009093	150.000	154.90
17 Methylene Chloride	84	2.303	2.303	(0.550)	930781	150.000	136.47
38 Trichloroethene	130	5.208	5.208	(1.048)	1000791	150.000	152.68
5 Vinyl Chloride	62	1.145	1.145	(0.274)	1153438	150.000	151.47

QC Flag Legend

A - Target compound detected but, quantitated amount

exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D
Date : 24-MAY-2022 14:36
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D

Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D
Inj Date : 24-MAY-2022 14:36
InstruID : voa6.i
LabSampID : VSTD150

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 24-MAY-2022 14:57
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:36 Cal File: X052410.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

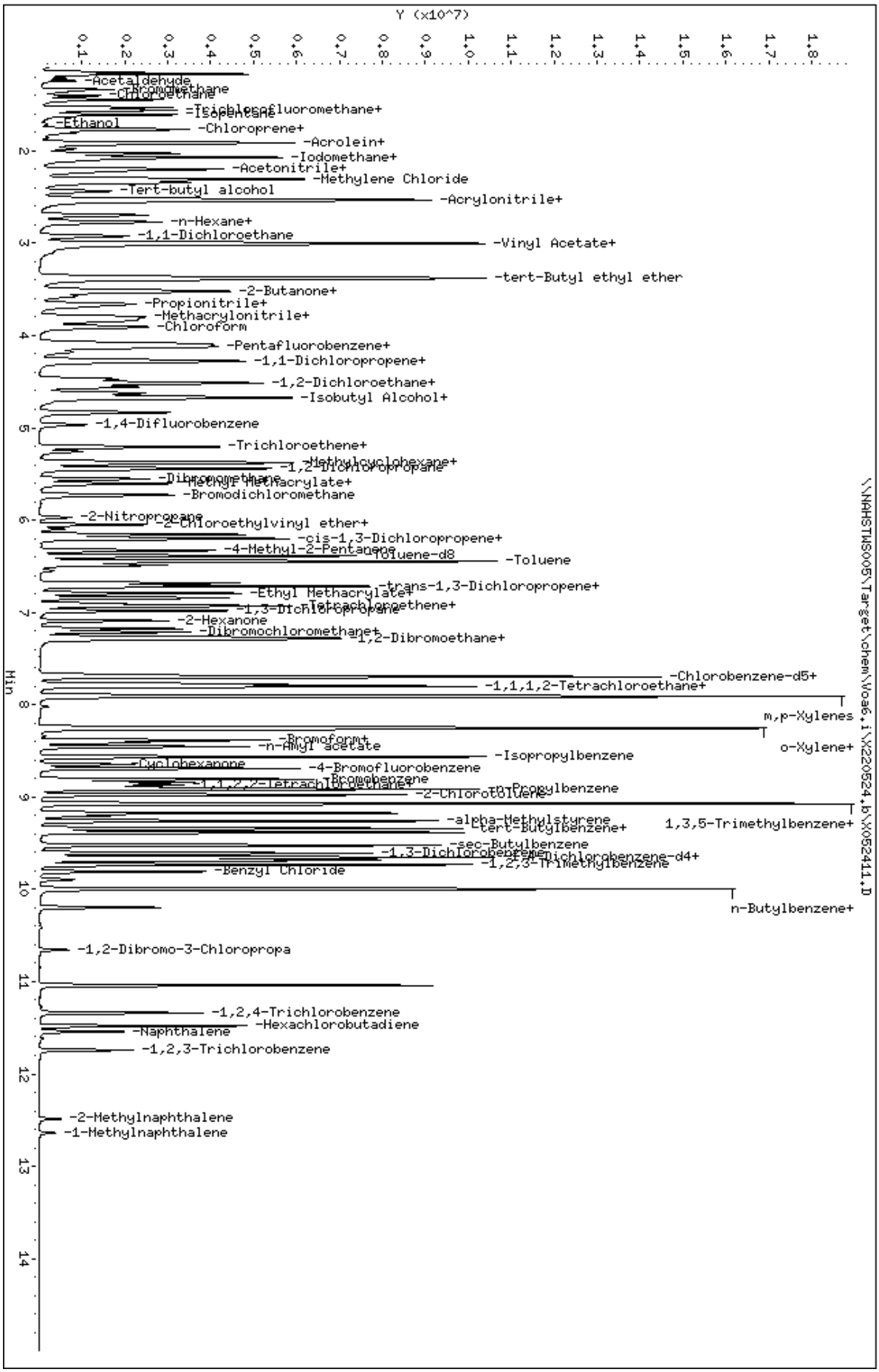
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	550666	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	892902	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	845028	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	413231	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	1343168	200.000	198.98
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	1557639	200.000	198.36
$ 30 Dibromofluoromethane	113	4.102	4.102	(0.980)	1152135	200.000	199.10
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	4136842	200.000	185.37(A)
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	1005726	200.000	192.47
11 1,1-Dichloroethene	96	1.913	1.913	(0.457)	1111897	200.000	193.62
33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	1803872	200.000	202.38(A)
27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.842)	1368508	200.000	206.06(A)
17 Methylene Chloride	84	2.303	2.303	(0.550)	1243727	200.000	178.87
38 Trichloroethene	130	5.205	5.205	(1.048)	1348299	200.000	200.99(A)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	1555289	200.000	200.34(A)

QC Flag Legend

A - Target compound detected but, quantitated amount

exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D
Date : 24-MAY-2022 14:57
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D
Inj Date : 24-MAY-2022 14:57
InstruID : voa6.i
LabSampID : VSTD200

   NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D Page 1
Report Date: 15-Jul-2022 12:20

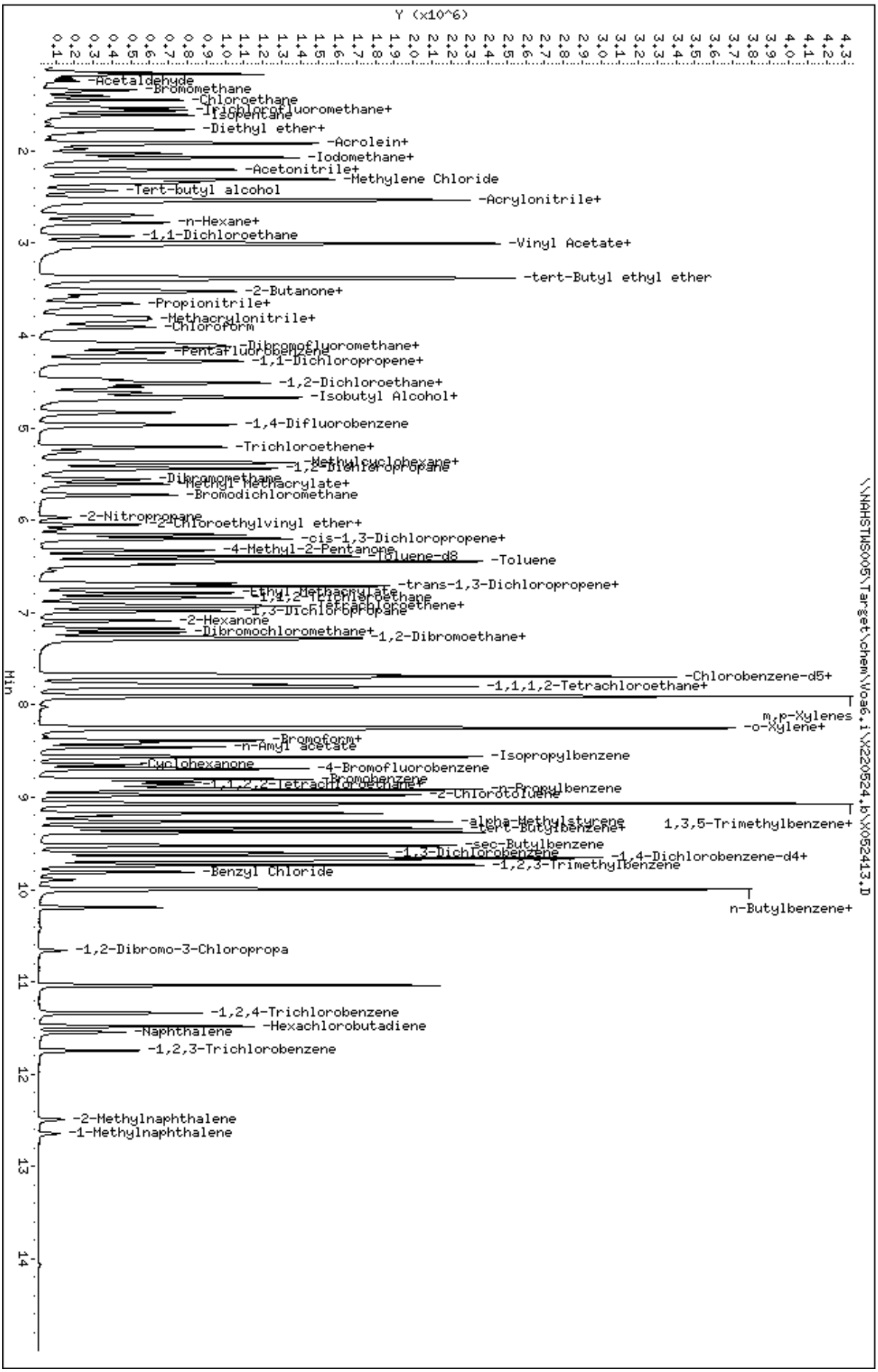
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-MAY-2022 15:39
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:57 Cal File: X052411.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	538516	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	859799	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	806383	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	395952	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	333237	50.2317	50.23
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	381181	50.2151	50.21
$ 30 Dibromofluoromethane	113	4.102	4.102	(0.980)	280144	49.4867	49.48
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1005171	47.2013	47.20
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	239579	48.0487	48.04
11 1,1-Dichloroethene	96	1.917	1.913	(0.458)	267231	47.5859	47.58
33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	428857	49.9671	49.96
27 cis-1,2-Dichloroethene	96	3.529	3.525	(0.843)	323496	49.8087	49.80
17 Methylene Chloride	84	2.307	2.303	(0.551)	310763	45.7033	45.70
38 Trichloroethene	130	5.208	5.205	(1.048)	319638	49.4835	49.48
5 Vinyl Chloride	62	1.145	1.145	(0.274)	371097	48.8808	48.88



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D
Date : 24-MAY-2022 15:39
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D
Inj Date : 24-MAY-2022 15:39
InstruID : voa6.i
LabSampID : ICV

NO MANUAL INTEGRATIONS

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right partner.

Raw Data VOA6 411321

Volatiles Organics by Method 8260C

Wokorder

HS22061145

Client

Aptim Environmental & Infrastucture, Inc.

Project

LHAAP 16 June 2022

07/15/2022

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062201.D Page 1
Report Date: 22-Jun-2022 11:35

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062201.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 22-JUN-2022 11:15
Operator : PC Inst ID: voa6.i
Smp Info : BFB;BFB;3;;BFB
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\voa6.i\X220622.b\bfb.m
Meth Date : 14-Jun-2022 12:47 Linh.Pham Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 1 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: NAHSTW7051

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
Vi	2.000	Injection Volume
Cpnd Variable		Local Compound Variable

					CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/l)		
RT	EXP RT	REL RT	MASS	RESPONSE			TARGET RANGE	RATIO
1 bfb							CAS #: 460-00-4	
8.691	8.889	(0.000)	95	172032			0.00- 100.00	100.00
8.691	8.889	(0.000)	50	32512			15.00- 40.00	18.90
8.691	8.889	(0.000)	75	80360			30.00- 60.00	46.71
8.691	8.889	(0.000)	96	11586			5.00- 9.00	6.73
8.691	8.889	(0.000)	173	888			0.00- 2.00	0.66
8.691	8.889	(0.000)	174	134336			50.00- 0.00	78.09
8.691	8.889	(0.000)	175	10535			5.00- 9.00	7.84
8.691	8.889	(0.000)	176	132672			95.00- 101.00	98.76
8.691	8.889	(0.000)	177	9022			5.00- 9.00	6.80

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	18.90
75	30.00 - 60.00% of mass 95	46.71
96	5.00 - 9.00% of mass 95	6.73
173	Less than 2.00% of mass 174	0.52 (0.66)
174	Greater than 50.00% of mass 95	78.09
175	5.00 - 9.00% of mass 174	6.12 (7.84)
176	95.00 - 101.00% of mass 174	77.12 (98.76)
177	5.00 - 9.00% of mass 176	5.24 (6.80)

Data File: X062201.D
Spectrum: Scan 2160 (8.68)
Location of Maximum: 95.00
Number of points: 114

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1844	66.10	64	97.10	398	140.90	1447
37.00	8651	67.00	486	98.00	1734	141.70	381
38.10	7608	68.00	17208	99.10	168	142.90	1309
39.10	4051	69.00	17984	102.90	276	143.90	68
40.00	1074	70.10	2276	104.00	951	144.90	138
41.00	1524	70.90	291	104.90	683	145.90	206
42.00	2763	72.00	1078	105.90	512	146.80	99
43.10	1000	73.00	7021	107.00	351	148.00	304
44.00	2069	74.00	27200	108.80	141	149.60	129
44.90	1504	75.00	80360	110.00	88	151.80	103
45.80	88	76.00	6747	110.80	200	152.70	81
47.00	1836	76.90	1096	111.70	117	153.80	97
48.00	956	77.80	655	112.90	131	154.80	509
49.00	6290	78.90	5125	114.90	256	155.90	91
50.00	32512	80.00	1578	115.90	436	156.80	257
51.10	10273	80.90	4993	116.90	896	158.90	134
52.00	551	82.00	1089	117.90	640	160.90	181
53.10	312	83.00	499	118.90	1026	170.60	59
54.10	426	84.30	50	123.90	102	172.10	86
55.00	3947	85.10	144	125.60	56	172.90	888
56.00	3302	86.00	227	127.00	69	173.90	134336
57.00	4664	87.00	7281	127.90	613	174.90	10535
58.10	305	88.00	6720	129.00	282	175.90	132672
60.00	1724	90.90	749	129.80	577	176.90	9022
61.00	7534	92.00	4283	130.80	415	177.80	283
62.00	7919	93.00	6706	134.90	348	185.90	131
63.00	6083	94.00	18480	136.90	197	261.70	63
63.90	655	95.00	172032	138.80	141		
64.90	141	96.00	11586	139.80	121		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062201.D Page 1

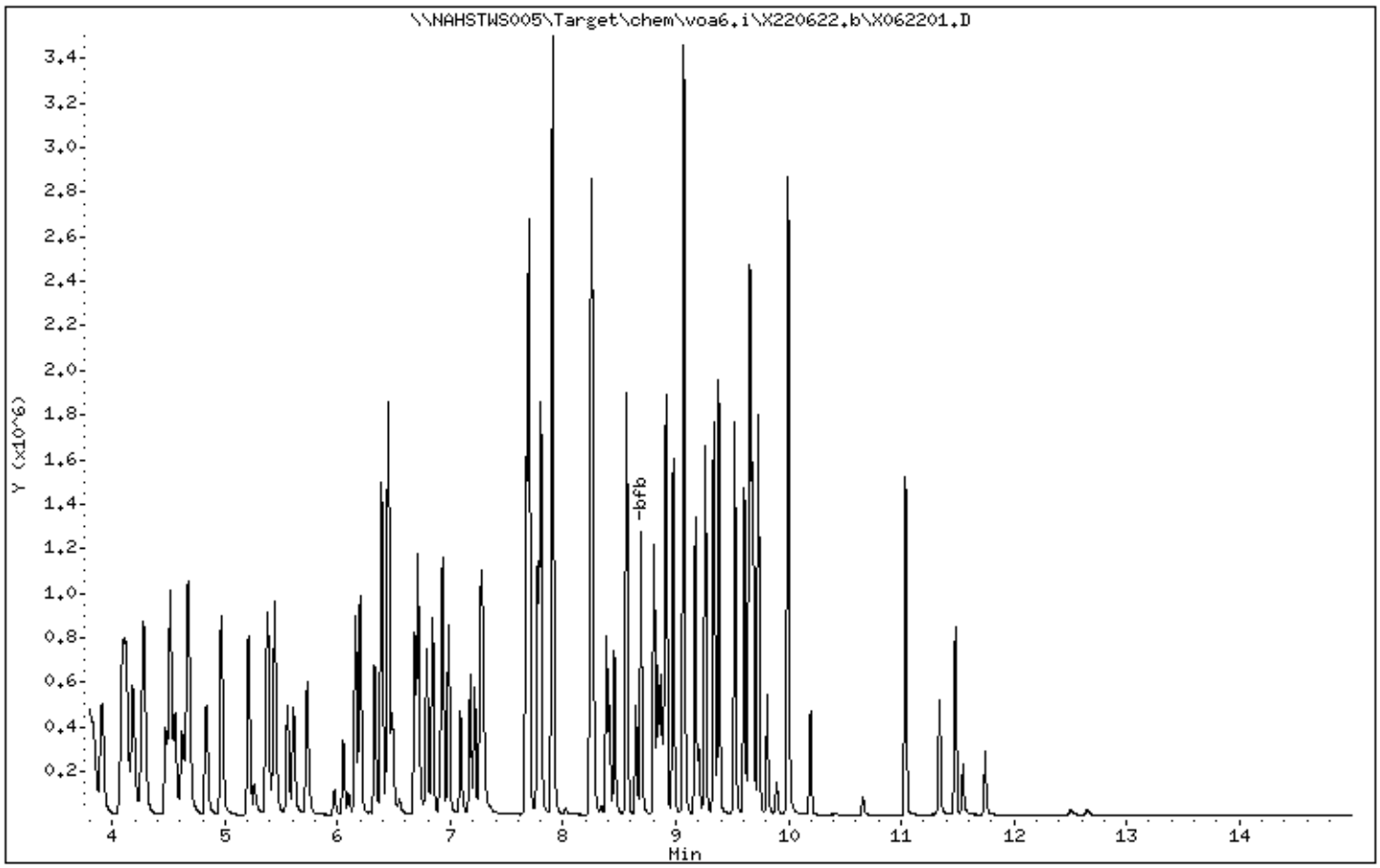
Date : 22-JUN-2022 11:15

Client ID: BFB Instrument: voa6.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\voa6.i\X220622.b\X062201.D Page 2

Date : 22-JUN-2022 11:15

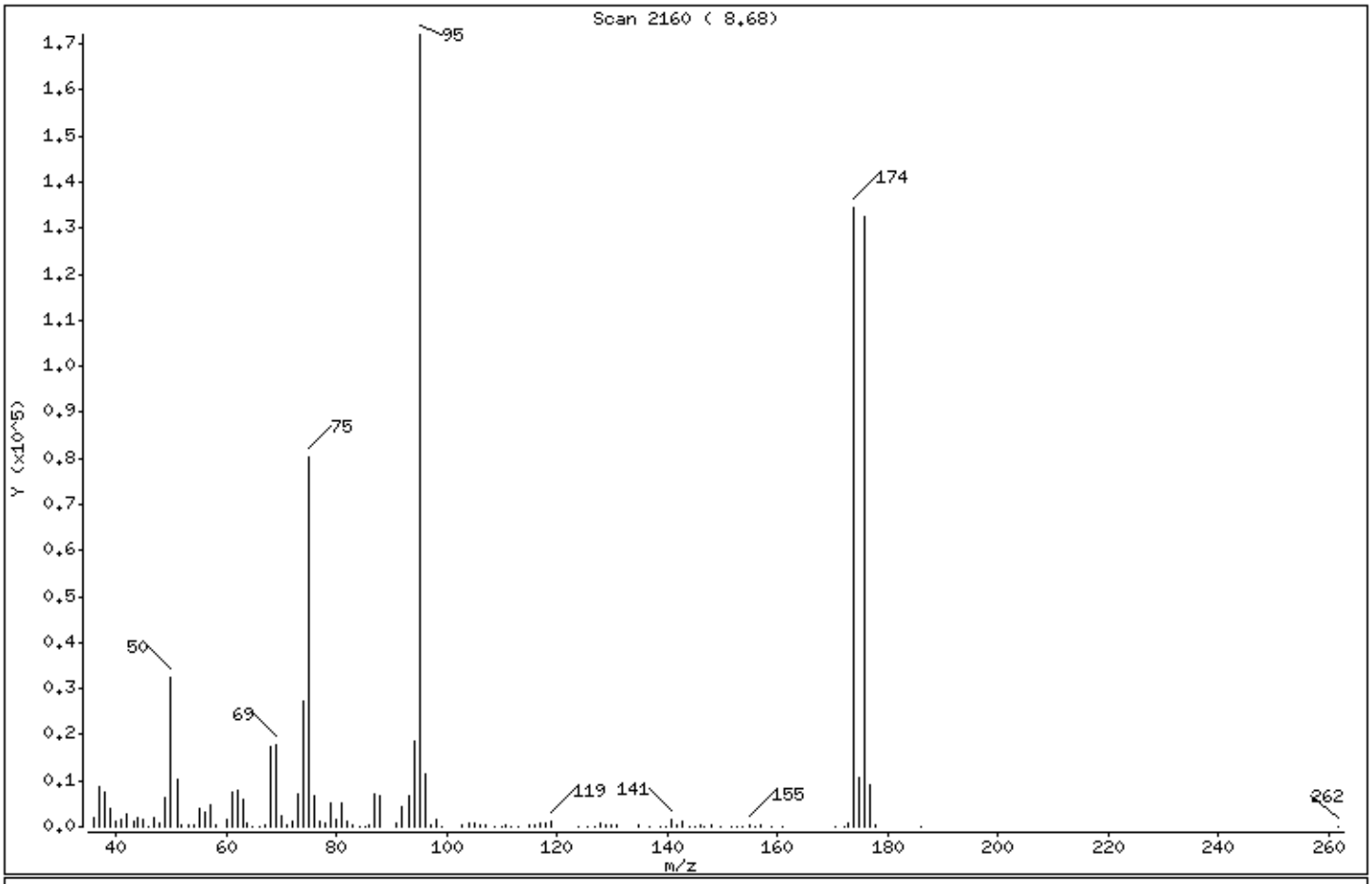
Client ID: BFB Instrument: voa6.i

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	18.90
75	30.00 - 60.00% of mass 95	46.71
96	5.00 - 9.00% of mass 95	6.73
173	Less than 2.00% of mass 174	0.52 (0.66)
174	Greater than 50.00% of mass 95	78.09
175	5.00 - 9.00% of mass 174	6.12 (7.84)
176	95.00 - 101.00% of mass 174	77.12 (98.76)
177	5.00 - 9.00% of mass 176	5.24 (6.80)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062201.D

Date : 22-JUN-2022 11:15

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X062201.D
Spectrum: Scan 2160 (8.68)
Location of Maximum: 95.00
Number of points: 114

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1844	66.10	64	97.10	398	140.90	1447
37.00	8651	67.00	486	98.00	1734	141.70	381
38.10	7608	68.00	17208	99.10	168	142.90	1309
39.10	4051	69.00	17984	102.90	276	143.90	68
40.00	1074	70.10	2276	104.00	951	144.90	138
41.00	1524	70.90	291	104.90	683	145.90	206
42.00	2763	72.00	1078	105.90	512	146.80	99
43.10	1000	73.00	7021	107.00	351	148.00	304
44.00	2069	74.00	27200	108.80	141	149.60	129
44.90	1504	75.00	80360	110.00	88	151.80	103
45.80	88	76.00	6747	110.80	200	152.70	81
47.00	1836	76.90	1096	111.70	117	153.80	97
48.00	956	77.80	655	112.90	131	154.80	509
49.00	6290	78.90	5125	114.90	256	155.90	91
50.00	32512	80.00	1578	115.90	436	156.80	257
51.10	10273	80.90	4993	116.90	896	158.90	134
52.00	551	82.00	1089	117.90	640	160.90	181
53.10	312	83.00	499	118.90	1026	170.60	59
54.10	426	84.30	50	123.90	102	172.10	86
55.00	3947	85.10	144	125.60	56	172.90	888
56.00	3302	86.00	227	127.00	69	173.90	134336
57.00	4664	87.00	7281	127.90	613	174.90	10535
58.10	305	88.00	6720	129.00	282	175.90	132672
60.00	1724	90.90	749	129.80	577	176.90	9022
61.00	7534	92.00	4283	130.80	415	177.80	283
62.00	7919	93.00	6706	134.90	348	185.90	131
63.00	6083	94.00	18480	136.90	197	261.70	63
63.90	655	95.00	172032	138.80	141		
64.90	141	96.00	11586	139.80	121		

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062203.D Page 1
Report Date: 15-Jul-2022 12:19

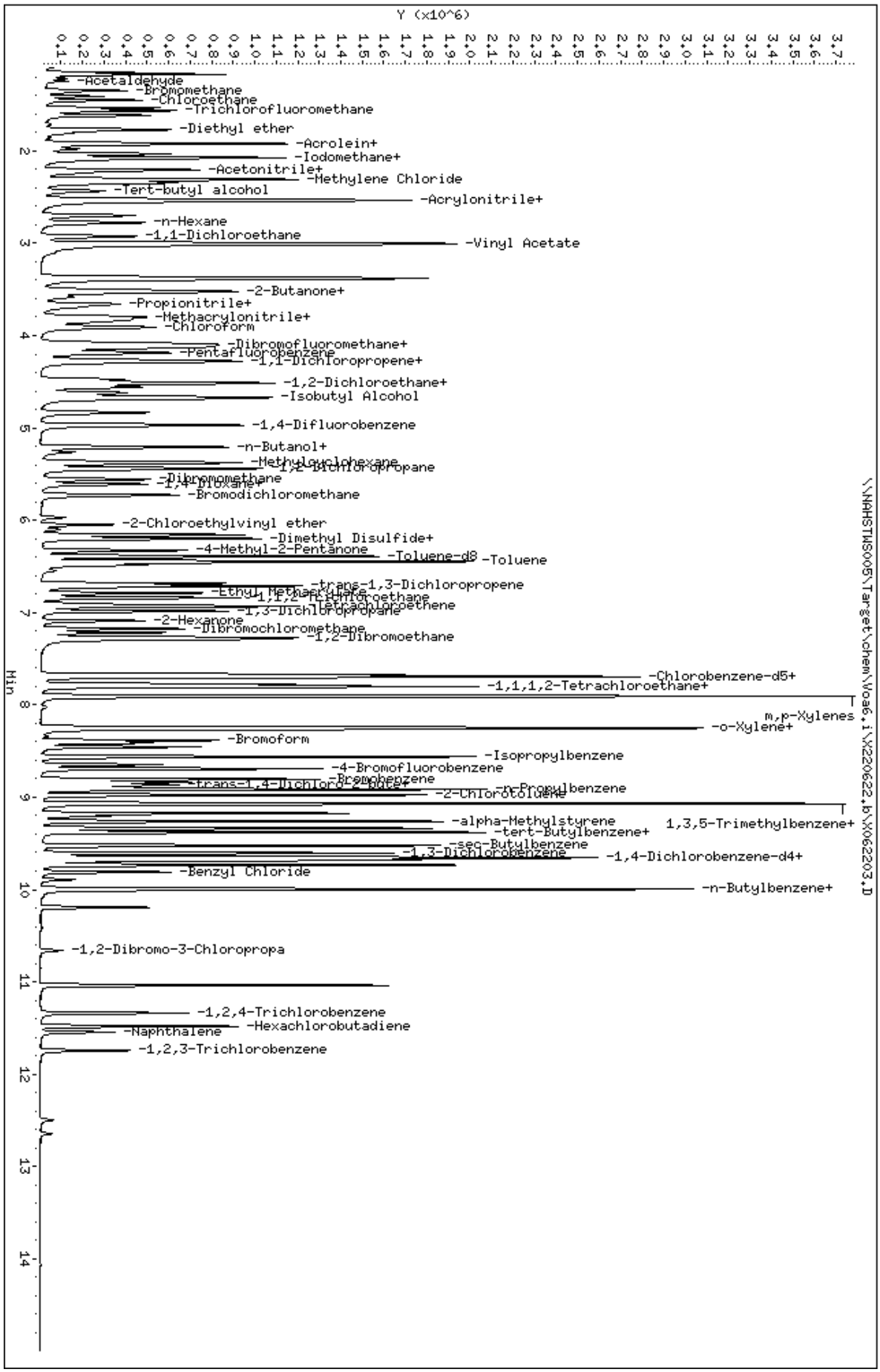
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062203.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 22-JUN-2022 11:57
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	496060	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	771243	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	721276	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	350578	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.478	4.478	(1.070)	289123	50.0000	47.29
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	345464	50.0000	50.89
$ 30 Dibromofluoromethane	113	4.099	4.099	(0.979)	260428	50.0000	49.94
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	932980	50.0000	48.98
53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	203578	50.0000	45.64
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	217911	50.0000	42.12
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	371078	50.0000	48.19
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	292419	50.0000	48.87
17 Methylene Chloride	84	2.307	2.307	(0.551)	269619	50.0000	43.04
38 Trichloroethene	130	5.209	5.209	(1.048)	288381	50.0000	49.77
5 Vinyl Chloride	62	1.149	1.149	(0.275)	279754	50.0000	40.00



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062203.D
Date : 22-JUN-2022 11:57
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062203.D
Inj Date : 22-JUN-2022 11:57
InstruID : voa6.i
LabSampID : CCV

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062204.D Page 1
Report Date: 22-Jun-2022 21:38

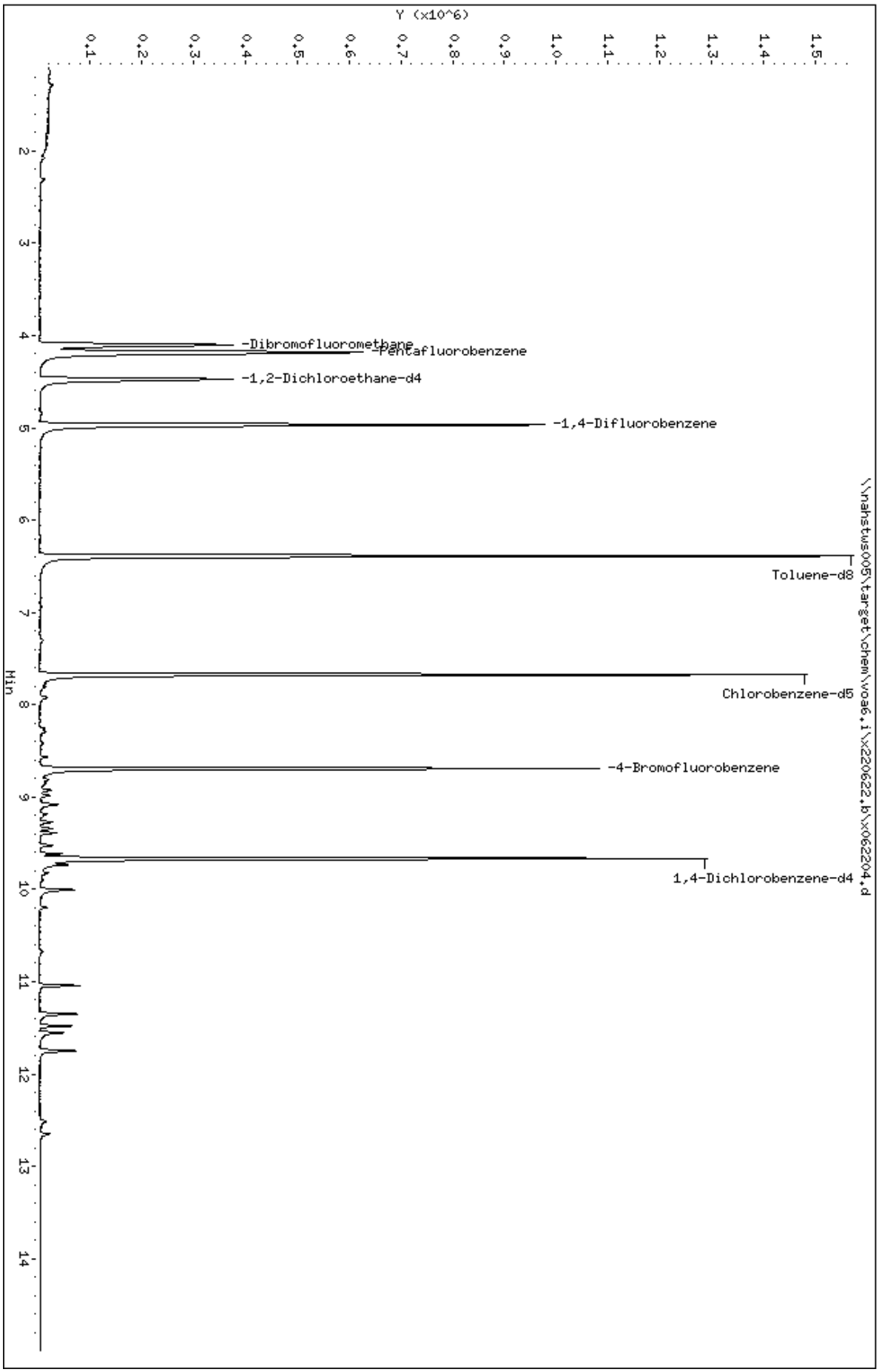
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062204.D
Lab Smp Id: CCB Client Smp ID: CCB
Inj Date : 22-JUN-2022 12:19
Operator : PC Inst ID: voa6.i
Smp Info : CCB;CCB;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\voa6.i\X220622.b\8260W.m
Meth Date : 22-Jun-2022 19:15 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB.sub
Target Version: 4.14
Processing Host: NAHSTWS005

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	4.181	4.185	(1.000)	535434	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.981)	261818	46.5142	46.51
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	293371	44.4385	44.43
* 36 1,4-Difluorobenzene	114	4.968	4.969	(1.000)	826889	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	738305	50.0000	
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	964578	49.4717	49.47
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	322213	46.2933	46.29
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	314792	50.0000	



Data File: \\nahstws005\target\chem\voa6.i\x220622.b\x062204.d
Date : 22-JUN-2022 12:19
Client ID: CCB
Sample Info: CCB;CCB;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062204.D
Inj Date : 22-JUN-2022 12:19
InstruID : voa6.i
LabSampID : CCB

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062205.D Page 1
Report Date: 15-Jul-2022 12:19

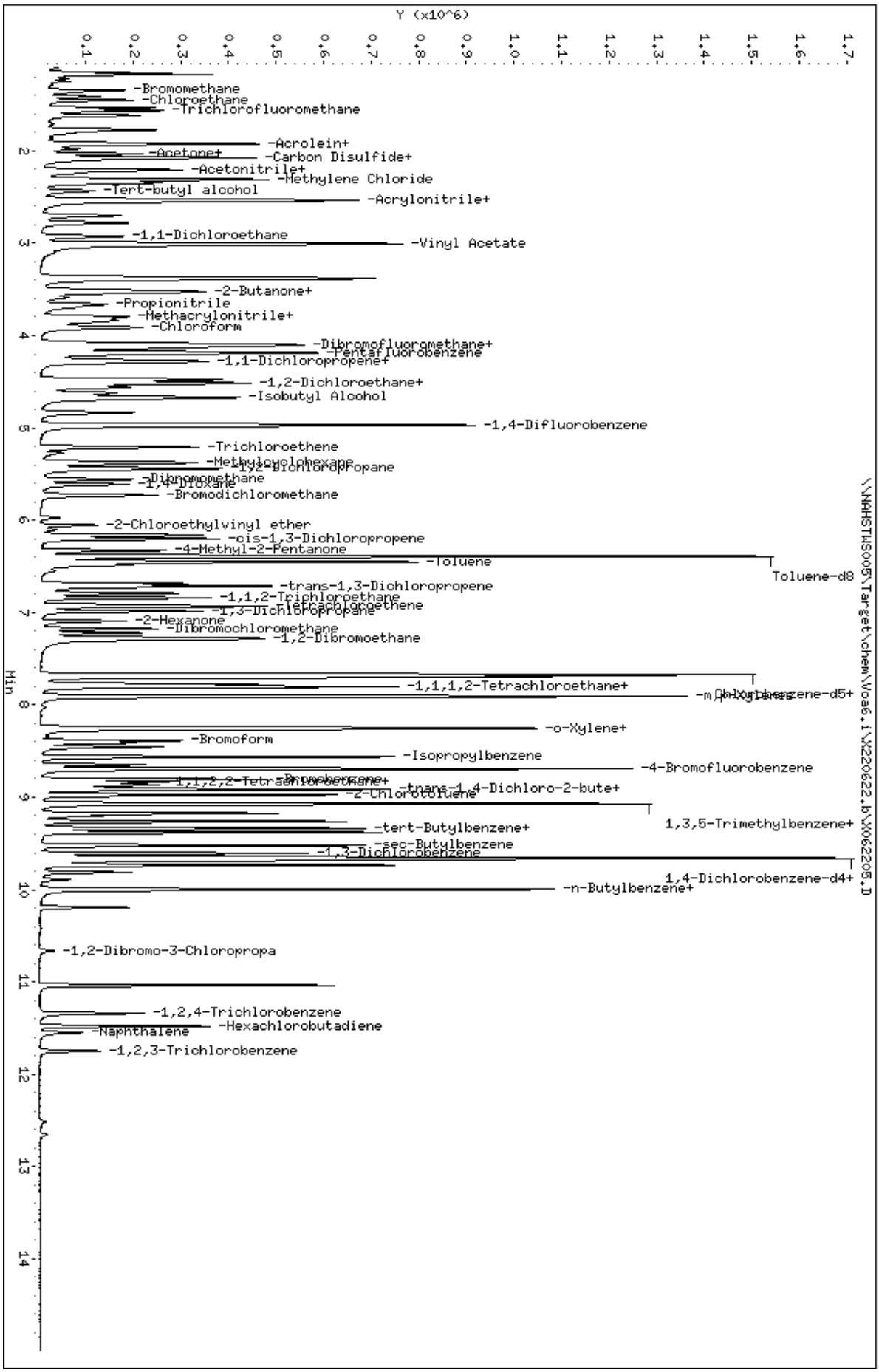
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062205.D
Lab Smp Id: VLCSW-220622 Client Smp ID: VLCSW-220622
Inj Date : 22-JUN-2022 12:39
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-220622;VLCSW-220622;3;;LCS
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	493758	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	757859	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	700541	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	333360	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	300674	49.4263	49.42
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	334402	50.7170	50.71
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	259749	50.0435	50.04
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	935514	50.5676	50.56
53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	78455	18.1118	18.11
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	87022	16.9007	16.90
33 1,2-Dichloroethane	62	4.564	4.560	(0.919)	142098	18.7831	18.78
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	114675	19.2570	19.25
17 Methylene Chloride	84	2.307	2.307	(0.551)	114141	18.3082	18.30
38 Trichloroethene	130	5.208	5.209	(1.048)	112631	19.7819	19.78
5 Vinyl Chloride	62	1.149	1.149	(0.275)	113792	16.3473	16.34



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062205.D
Date : 22-JUN-2022 12:39
Client ID: VLCSW-220622
Sample Info: VLCSW-220622;VLCSW-220622;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062205.D
Inj Date : 22-JUN-2022 12:39
InstruID : voa6.i
LabSampID : VLCSW-220622

    NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062207.D Page 1
Report Date: 15-Jul-2022 12:19

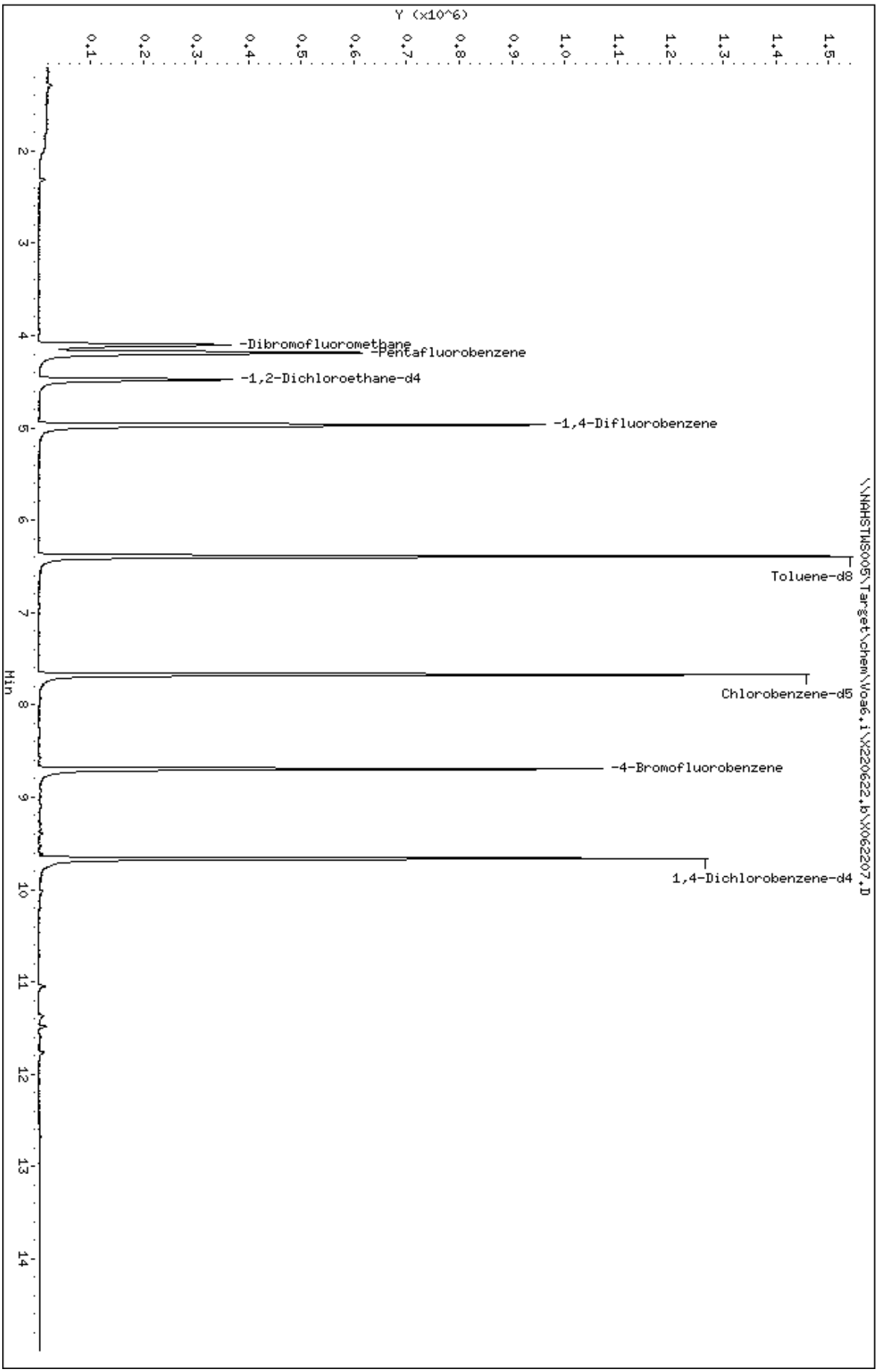
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062207.D
Lab Smp Id: VBLKW-220622 Client Smp ID: VBLKW-220622
Inj Date : 22-JUN-2022 13:22
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-220622;VBLKW-220622;3;;BLANK
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.181	4.185	(1.000)	531218	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.969	(1.000)	821364	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	740644	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.662	(1.000)	323330	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.070)	286723	43.7712	43.77
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	325045	46.5576	46.55
$ 30 Dibromofluoromethane	113	4.102	4.099	(0.981)	259067	46.3907	46.39
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	956975	48.9267	48.92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Sample Info: VBLKW-220622;VBLKW-220622;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Page 1
Y (x10^6)
Min
-Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062207.D

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062207.D
Inj Date : 22-JUN-2022 13:22
InstruID : voa6.i
LabSampID : VBLKW-220622

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062209.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062209.D
Lab Smp Id: HS22061145-09 Client Smp ID: HS22061145-09
Inj Date : 22-JUN-2022 14:04
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-09;HS22061145-09;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

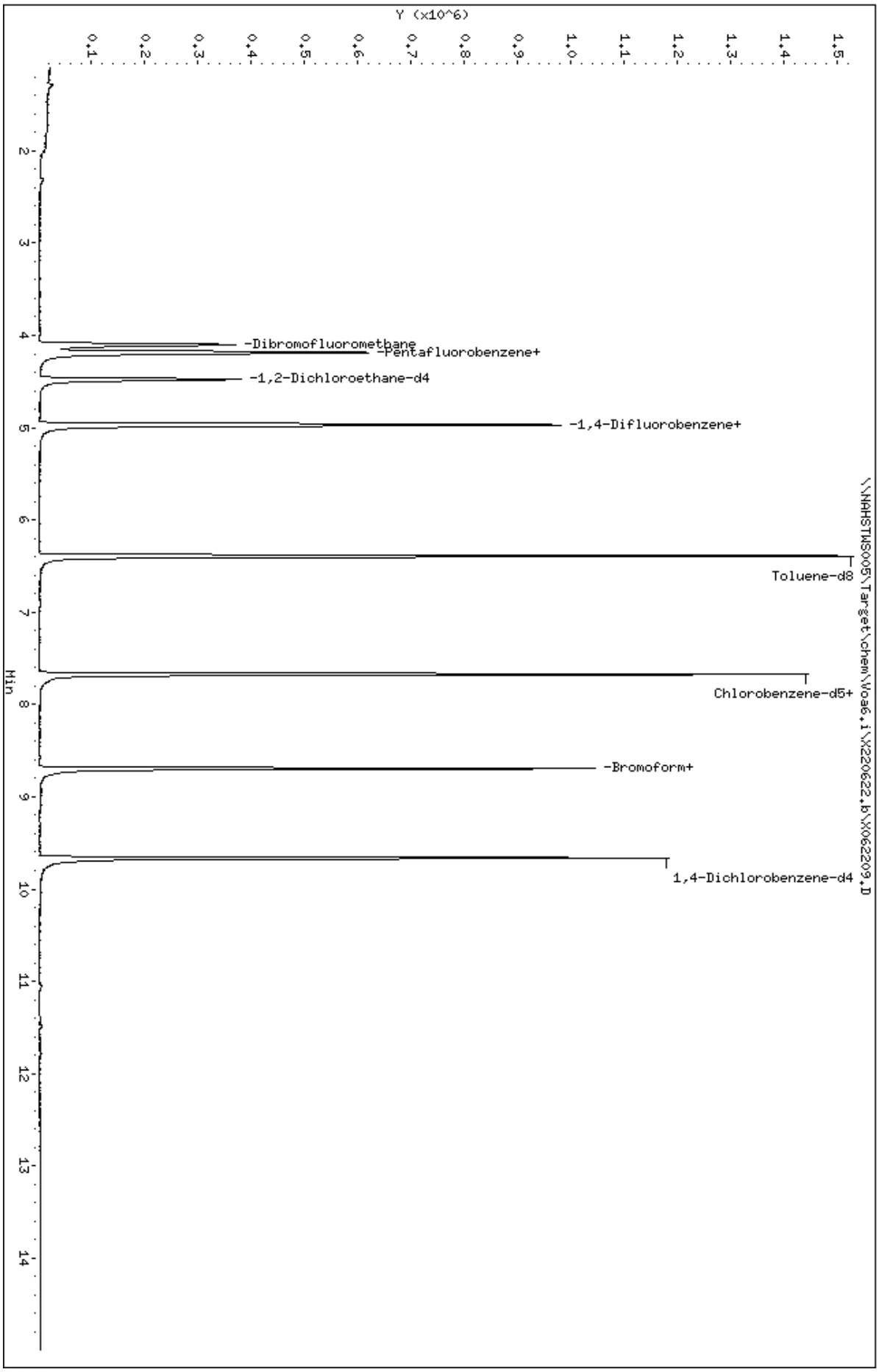
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	537367	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	820715	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	742964	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	316355	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	291797	44.0381	44.03
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	323726	46.2176	46.21
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	259472	45.9313	45.93
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	962542	49.0577	49.05

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062209.D
Date : 22-JUN-2022 14:04
Client ID: HS22061145-09
Sample Info: HS22061145-09;HS22061145-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Inj Date : 22-JUN-2022 14:04
InstruID : voa6.i
LabSampID : HS22061145-09

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062211.D Page 1
Report Date: 15-Jul-2022 12:19

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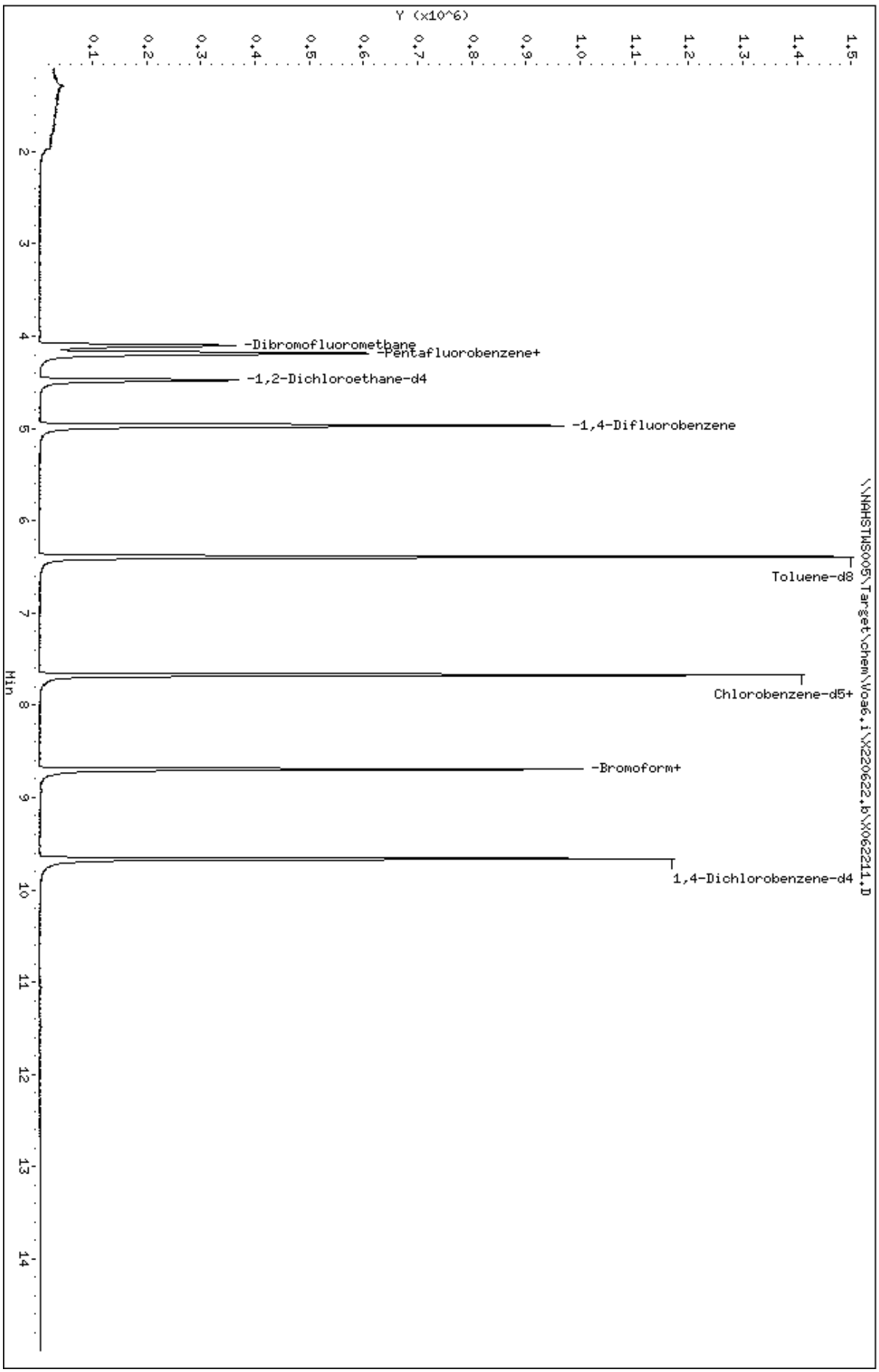
Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062211.D
Lab Smp Id: HS22061145-03 Client Smp ID: HS22061145-03
Inj Date : 22-JUN-2022 14:46
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-03;HS22061145-03;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	524696	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	810369	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	718790	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	306132	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	285483	44.1264	44.12
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	312913	46.1755	46.17
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	257649	46.7104	46.71
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	949203	50.0049	50.00



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Date : 22-JUN-2022 14:46
Client ID: HS22061145-03
Sample Info: HS22061145-03;HS22061145-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062211.D
Inj Date : 22-JUN-2022 14:46
InstruID : voa6.i
LabSampID : HS22061145-03

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062212.D Page 1
Report Date: 15-Jul-2022 12:19

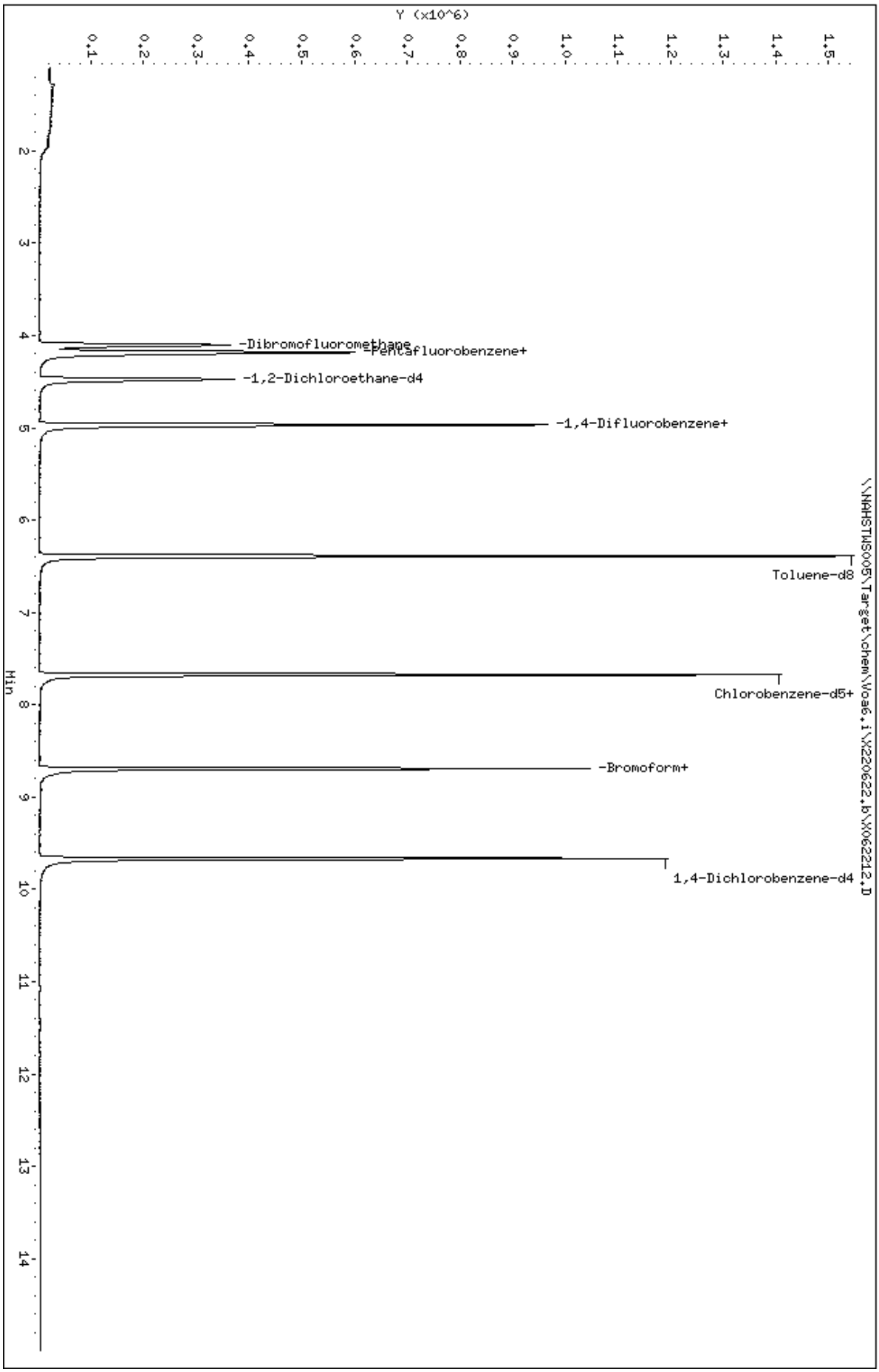
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062212.D
Lab Smp Id: HS22061145-04 Client Smp ID: HS22061145-04
Inj Date : 22-JUN-2022 15:07
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-04;HS22061145-04;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	530557	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.969	(1.000)	814275	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	732814	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.662	(1.000)	315326	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	287988	44.0210	44.02
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	316038	45.7359	45.73
$ 30 Dibromofluoromethane	113	4.102	4.099	(0.980)	257159	46.1063	46.10
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	958325	49.5193	49.51



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Date : 22-JUN-2022 15:07
Client ID: HS22061145-04
Sample Info: HS22061145-04;HS22061145-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062212.D
Inj Date : 22-JUN-2022 15:07
InstruID : voa6.i
LabSampID : HS22061145-04

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062213.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062213.D
Lab Smp Id: HS22061145-01 Client Smp ID: HS22061145-01
Inj Date : 22-JUN-2022 15:28
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-01;HS22061145-01;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

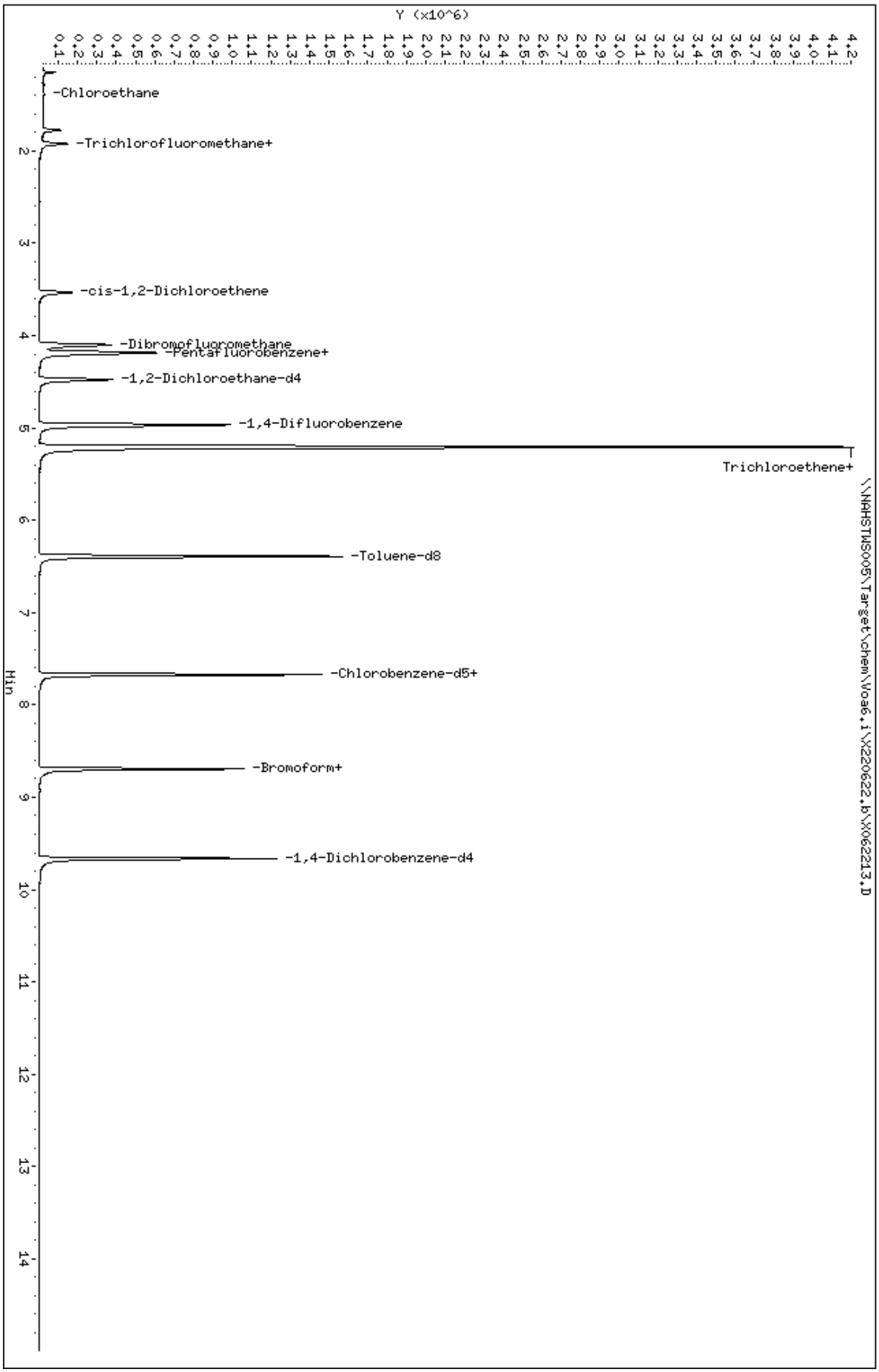
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	529742	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.969	(1.000)	826868	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	734363	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	317719	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	295122	45.1897	45.18
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	324790	46.9258	46.92
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	260280	46.7380	46.73
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	960923	49.5488	49.54
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	7072	1.28017	1.28(a)
27 cis-1,2-Dichloroethene	96	3.537	3.529	(0.845)	91627	14.3415	14.34
38 Trichloroethene	130	5.208	5.209	(1.048)	1389011	223.598	223.59(A)
5 Vinyl Chloride	62	1.149	1.149	(0.275)	46944	6.28587	6.28

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\Voa6.i\X220622.b\X062213.D
Date : 22-JUN-2022 15:28
Client ID: HS22061145-01
Sample Info: HS22061145-01;HS22061145-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062213.D Page 2

Date : 22-JUN-2022 15:28

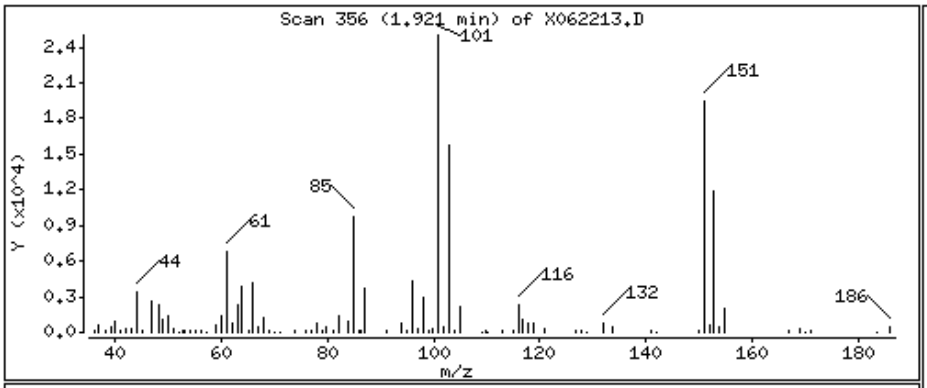
Client ID: HS22061145-01 Instrument: voa6.i

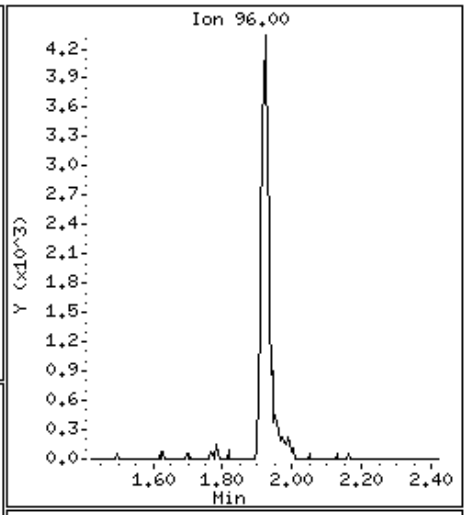
Sample Info: HS22061145-01;HS22061145-01;;;

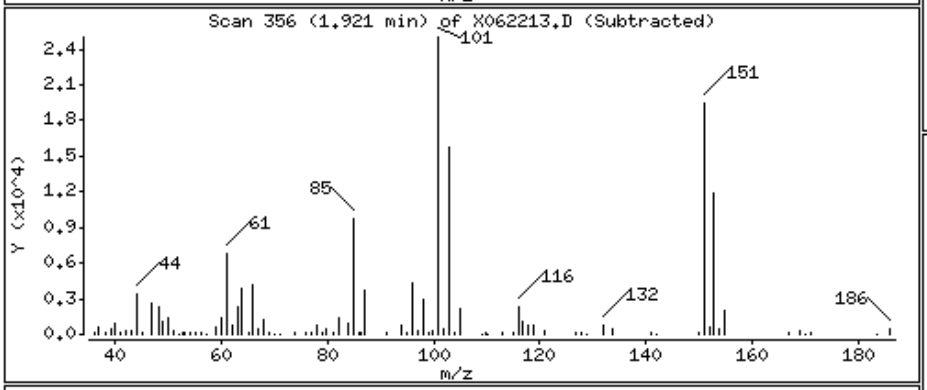
Purge Volume: 5.0 Operator: PC

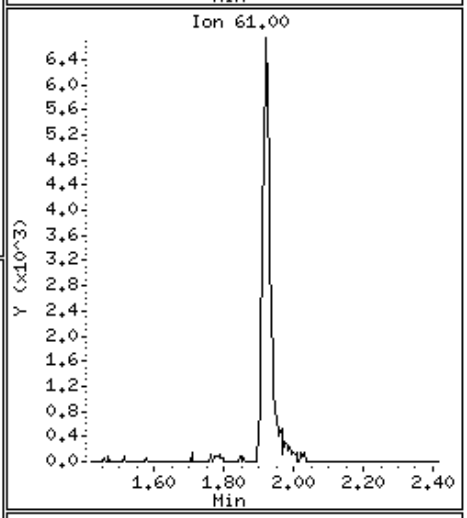
Column phase: DB624 Column diameter: 0.18

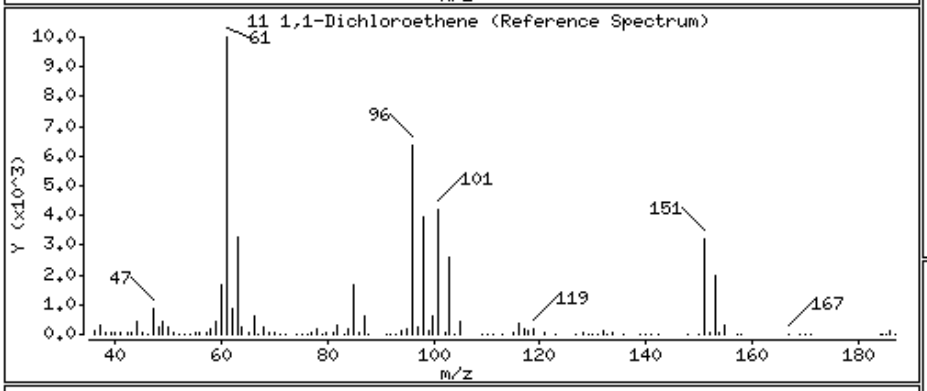
11 1,1-Dichloroethene Concentration: 1.28 ug/l

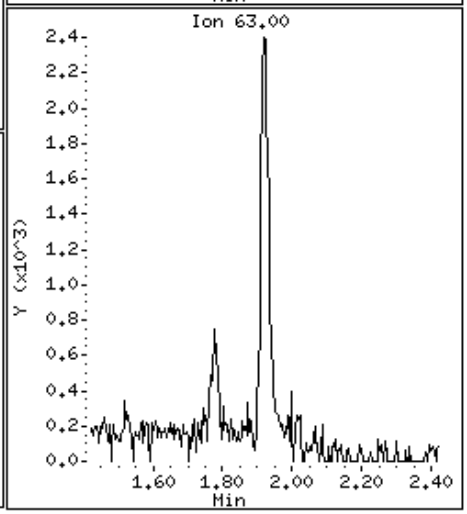


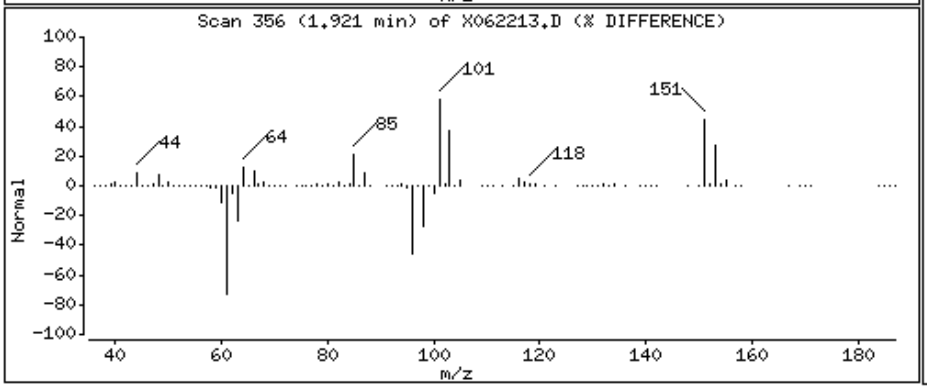












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062213.D Page 3

Date : 22-JUN-2022 15:28

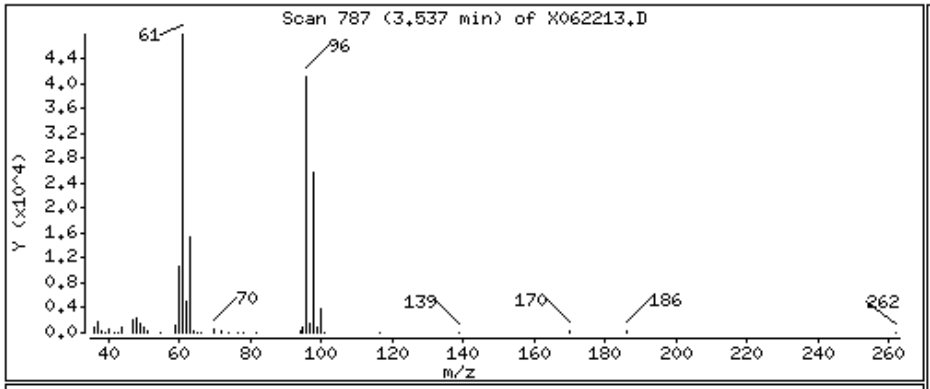
Client ID: HS22061145-01 Instrument: voa6.i

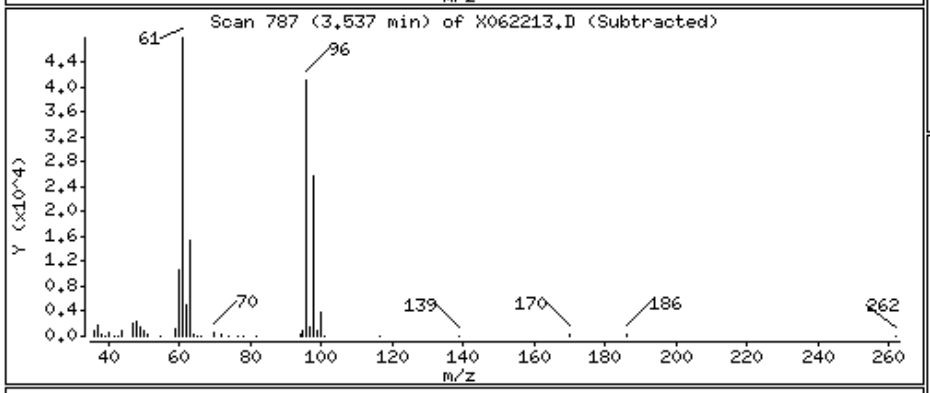
Sample Info: HS22061145-01;HS22061145-01;;;

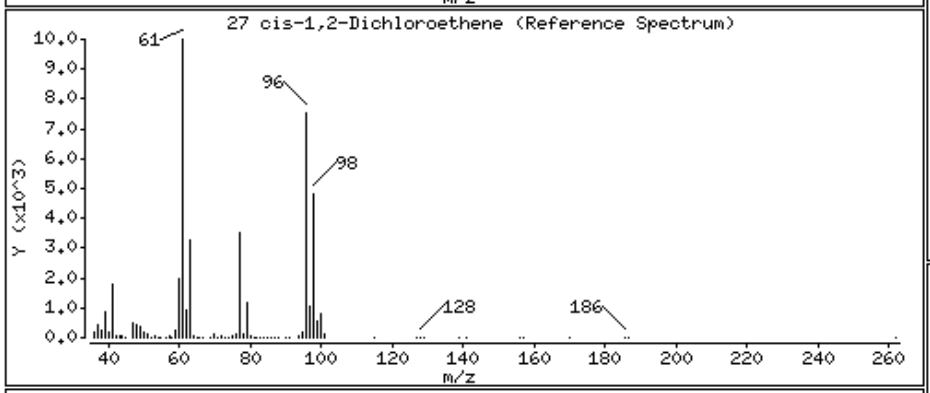
Purge Volume: 5.0 Operator: PC

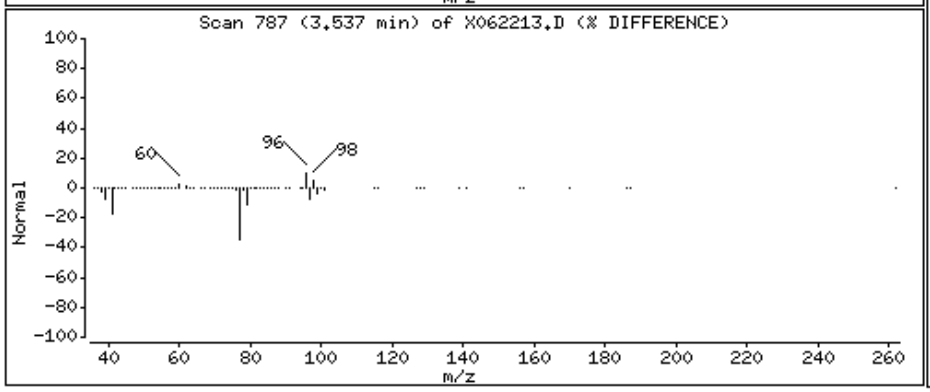
Column phase: DB624 Column diameter: 0.18

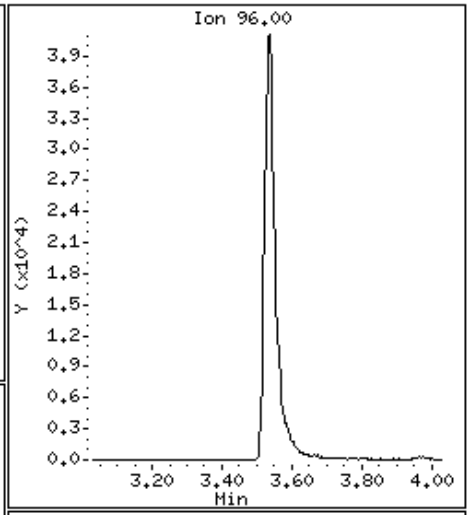
27 cis-1,2-Dichloroethene Concentration: 14.34 ug/l

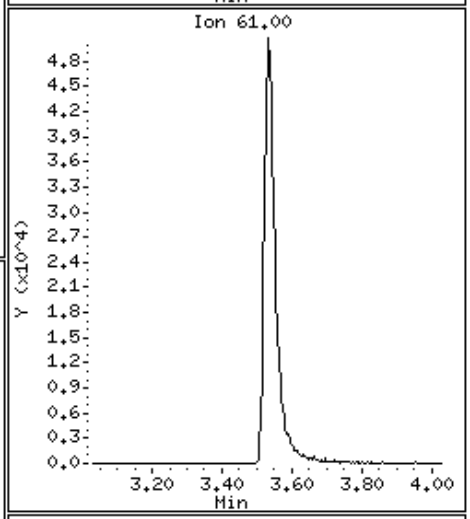


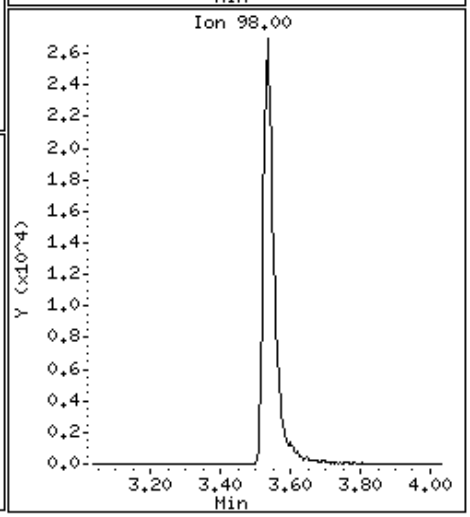












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062213.D Page 4

Date : 22-JUN-2022 15:28

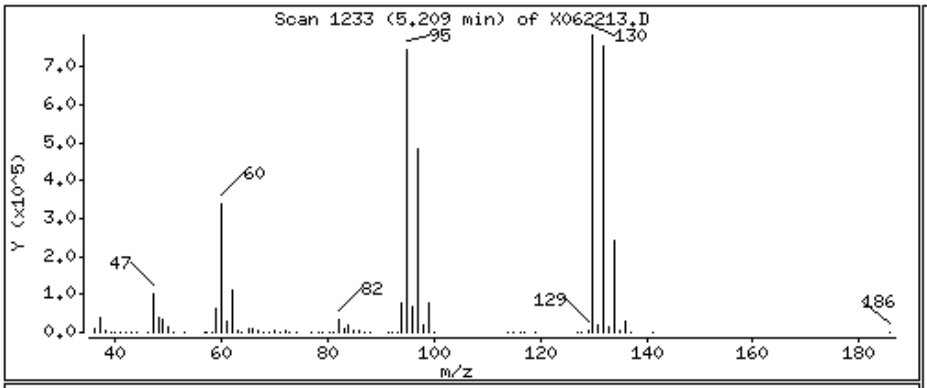
Client ID: HS22061145-01 Instrument: voa6.i

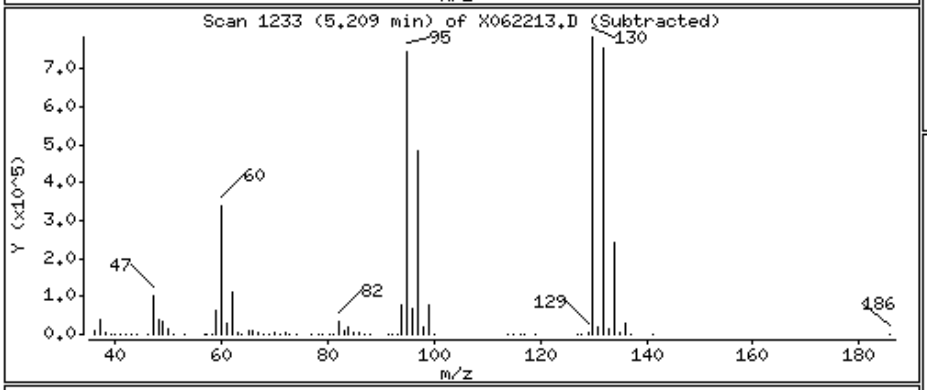
Sample Info: HS22061145-01;HS22061145-01;;;

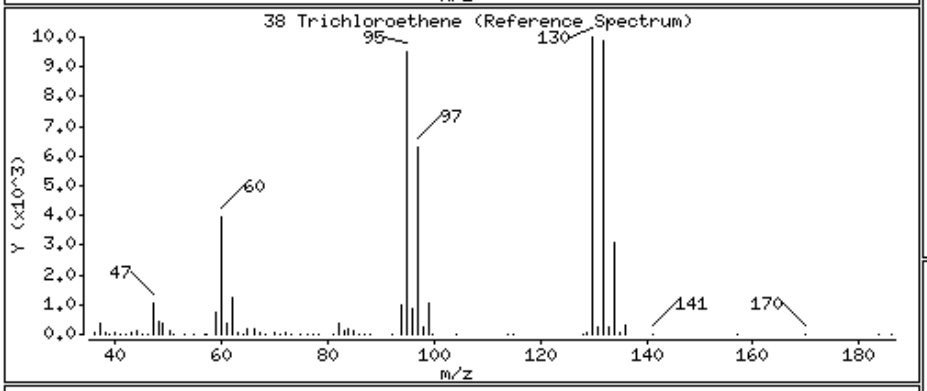
Purge Volume: 5.0 Operator: PC

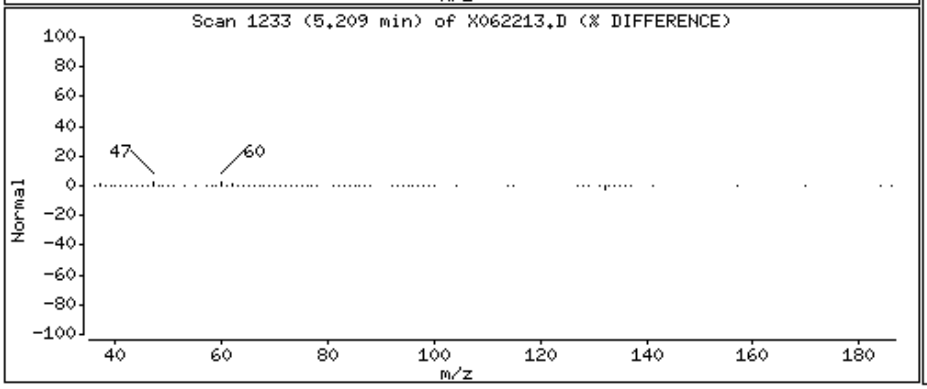
Column phase: DB624 Column diameter: 0.18

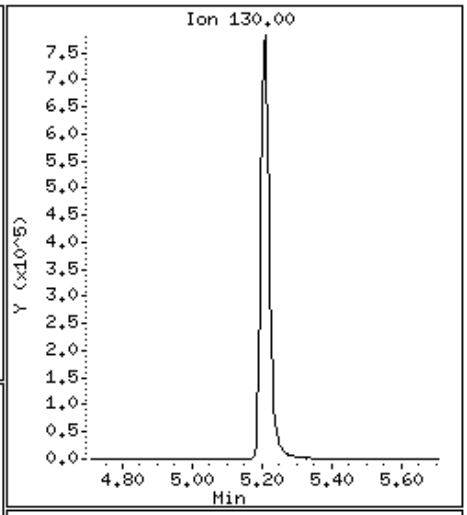
38 Trichloroethene Concentration: 223.59 ug/l

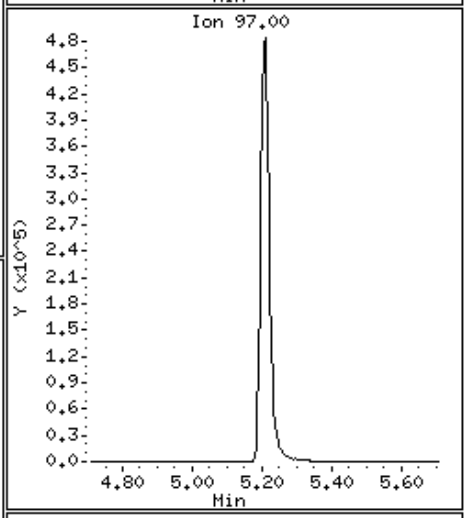


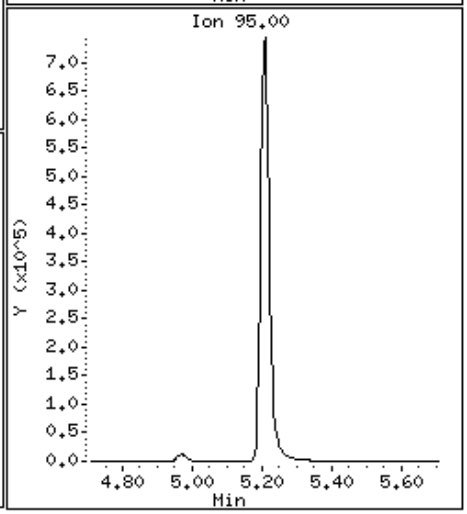












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Date : 22-JUN-2022 15:28

Client ID: HS22061145-01

Instrument: voa6.i

Sample Info: HS22061145-01;HS22061145-01;;;

Purge Volume: 5.0

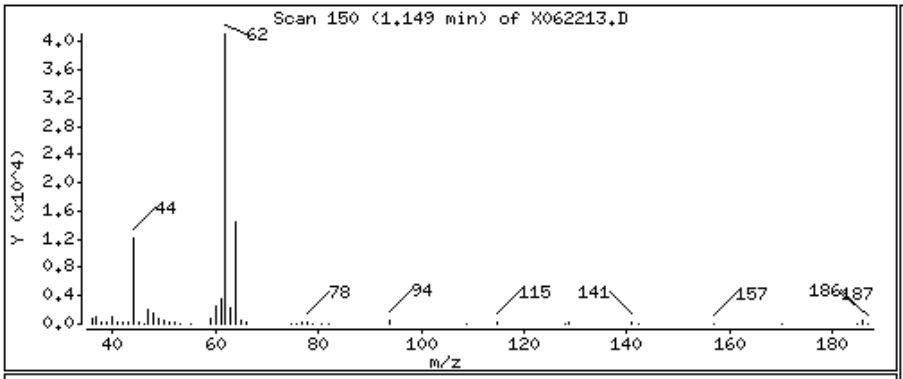
Operator: PC

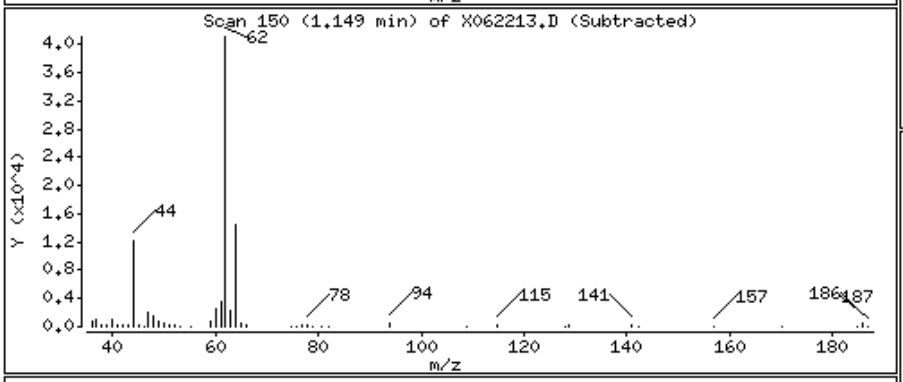
Column phase: DB624

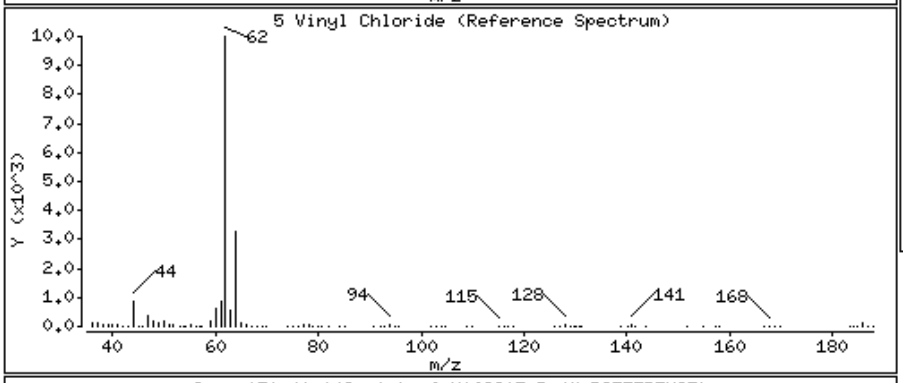
Column diameter: 0.18

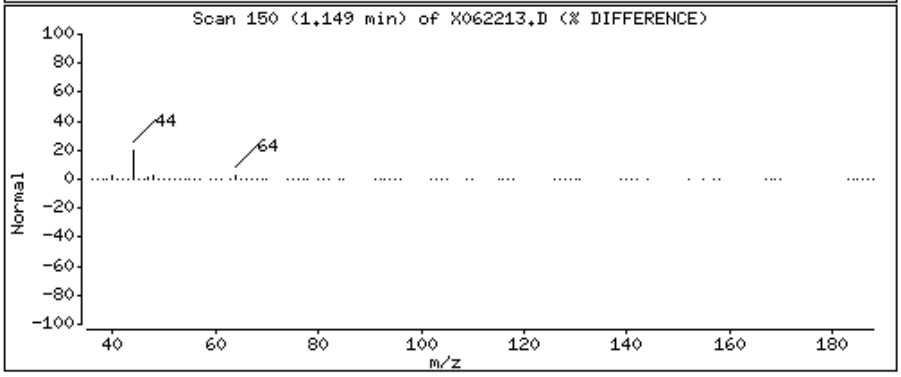
5 Vinyl Chloride

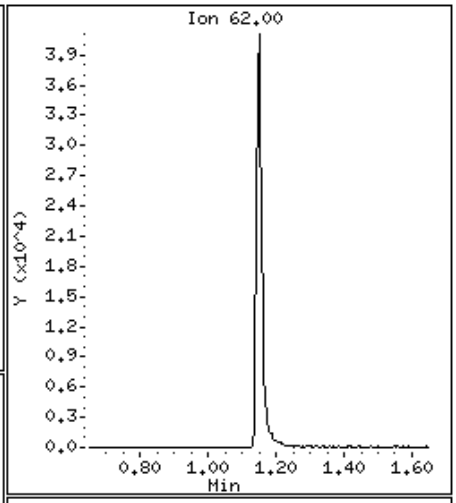
Concentration: 6.28 ug/l

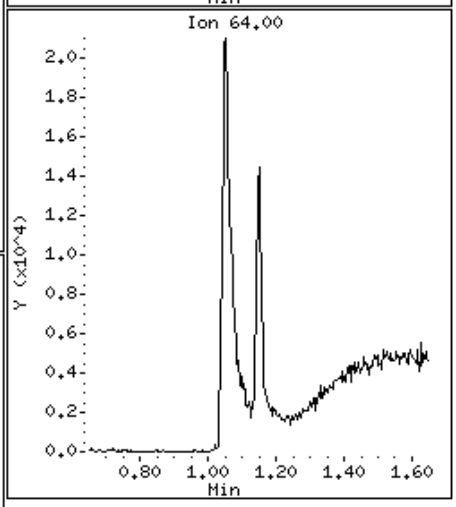












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062213.D
Inj Date : 22-JUN-2022 15:28
InstruID : voa6.i
LabSampID : HS22061145-01

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D
Lab Smp Id: HS22061145-02 Client Smp ID: HS22061145-02
Inj Date : 22-JUN-2022 15:49
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-02;HS22061145-02;;;
Misc Info : HS22052000V6;WATER;0;5;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 14
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

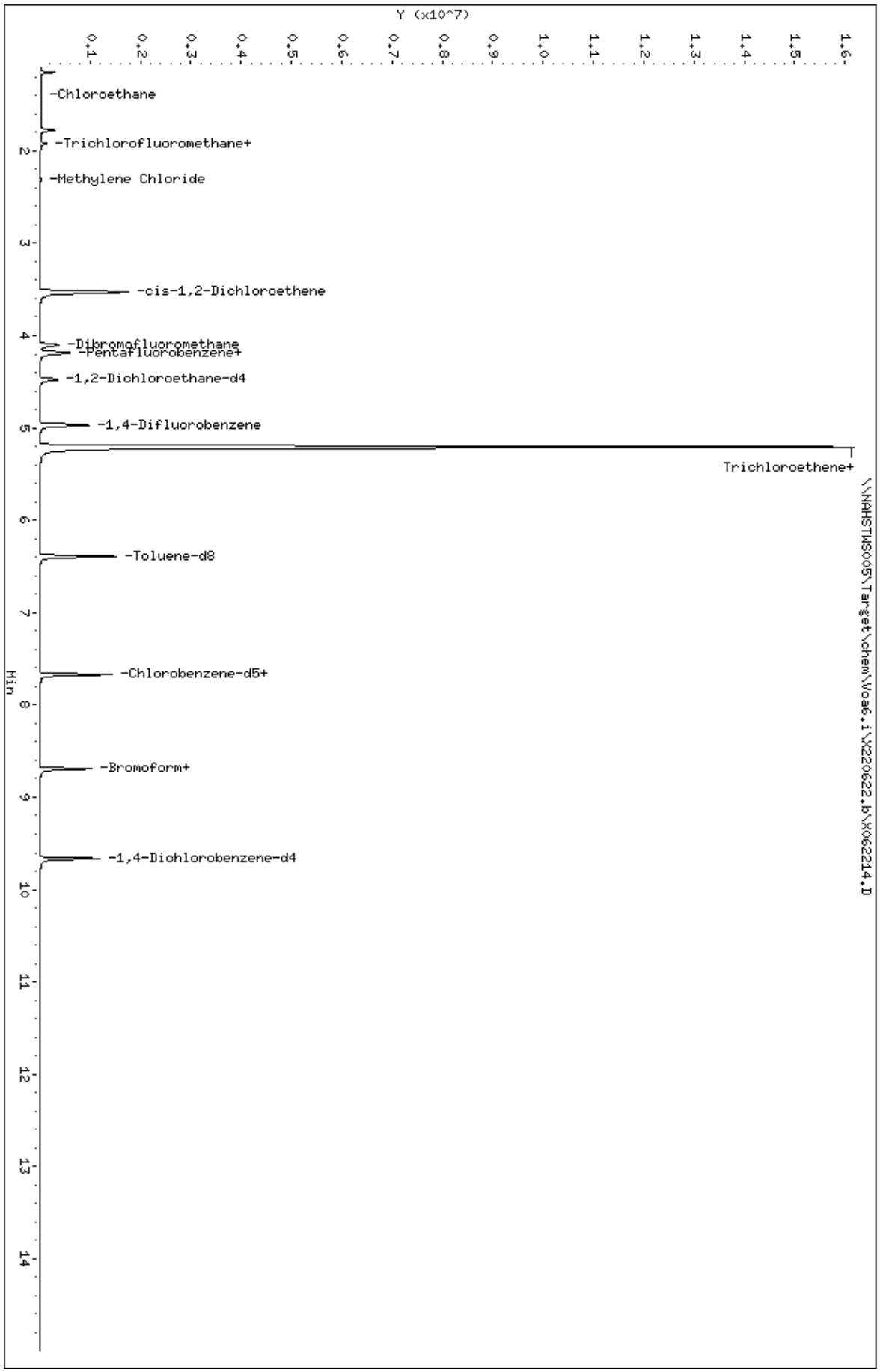
Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	529786	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	816102	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	732265	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	315846	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	289347	44.2952	44.29
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	320740	46.4649	46.46
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	257867	46.3006	46.30
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	945910	48.9144	48.91
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	22116	4.00310	20.01(a)
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	901105	141.029	705.14
17 Methylene Chloride	84	2.311	2.307	(0.552)	11218	1.67700	8.38(a)
38 Trichloroethene	130	5.208	5.209	(1.048)	5152857	840.432	4202.16(A)
5 Vinyl Chloride	62	1.149	1.149	(0.275)	192415	25.7625	128.81

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\Voa6.i\X220622.b\X062214.D
Date : 22-JUN-2022 15:49
Client ID: HS22061145-02
Sample Info: HS22061145-02;HS22061145-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D Page 2

Date : 22-JUN-2022 15:49

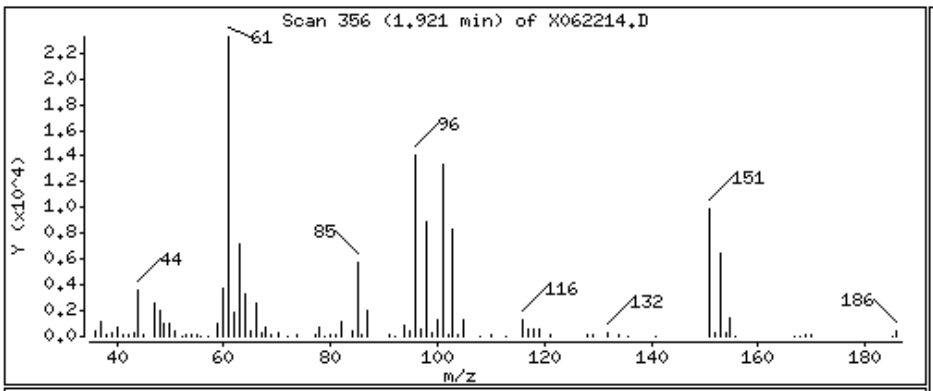
Client ID: HS22061145-02 Instrument: voa6.i

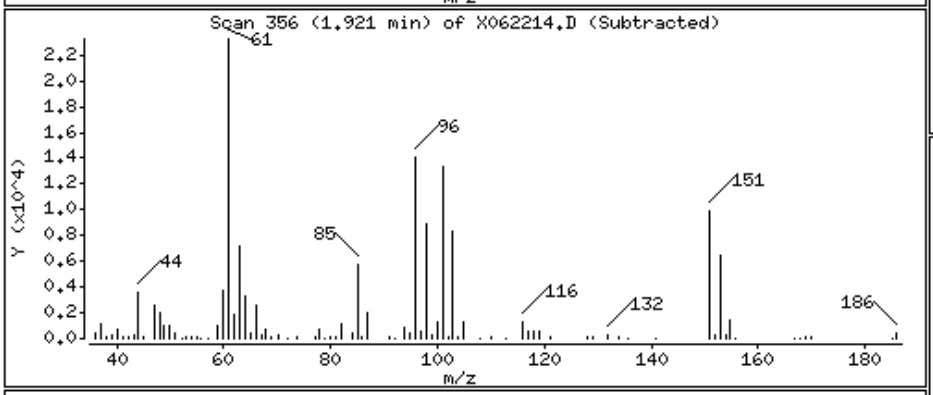
Sample Info: HS22061145-02;HS22061145-02;;;

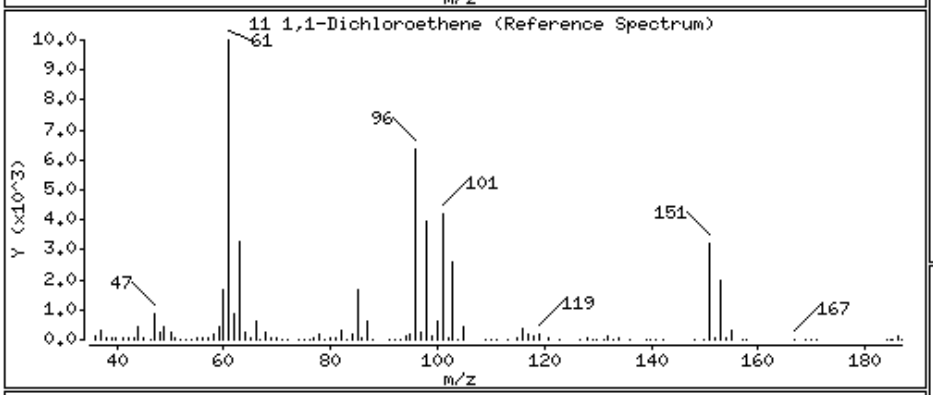
Purge Volume: 5.0 Operator: PC

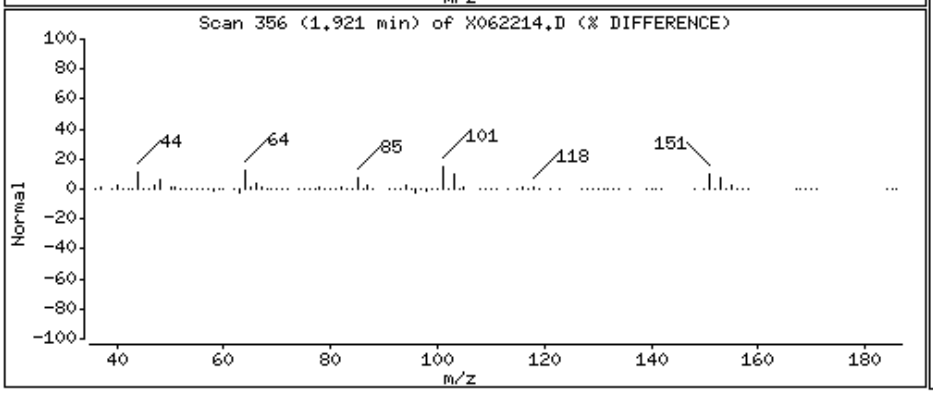
Column phase: DB624 Column diameter: 0.18

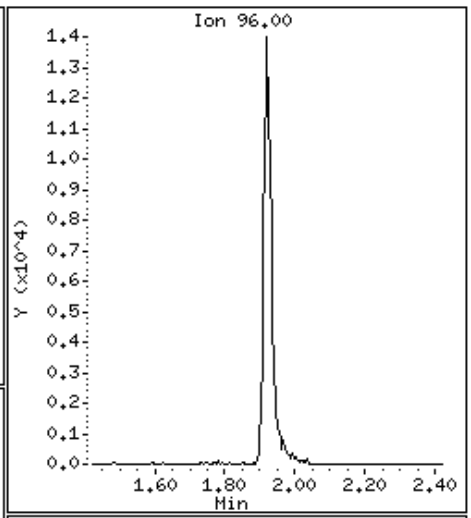
11 1,1-Dichloroethene Concentration: 20.01 ug/l

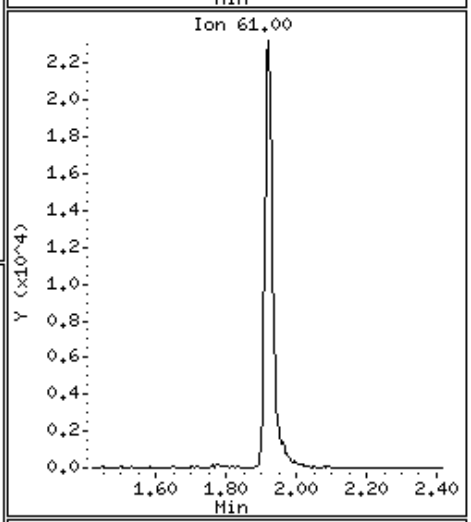


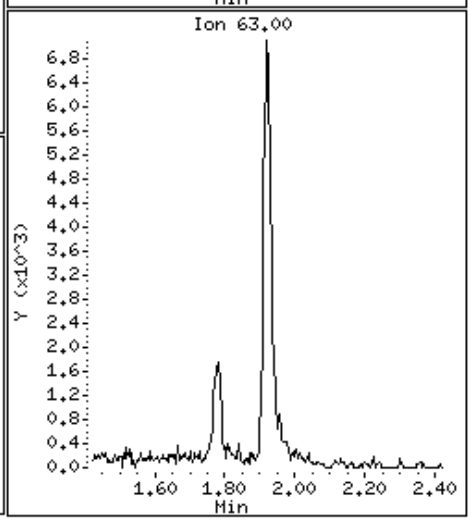












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D Page 3

Date : 22-JUN-2022 15:49

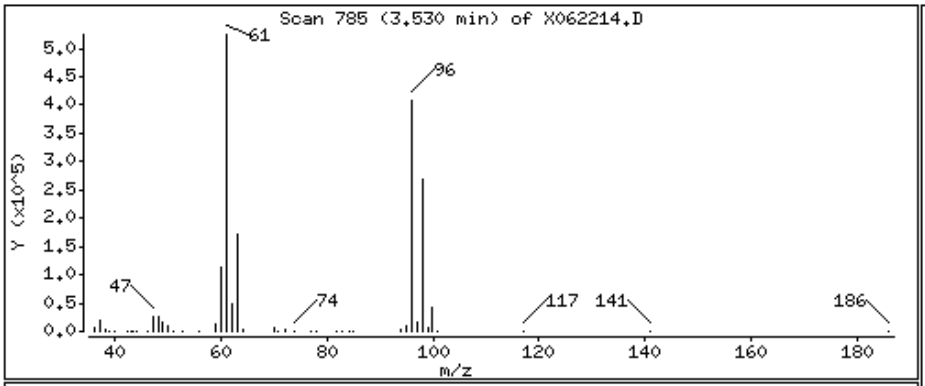
Client ID: HS22061145-02 Instrument: voa6.i

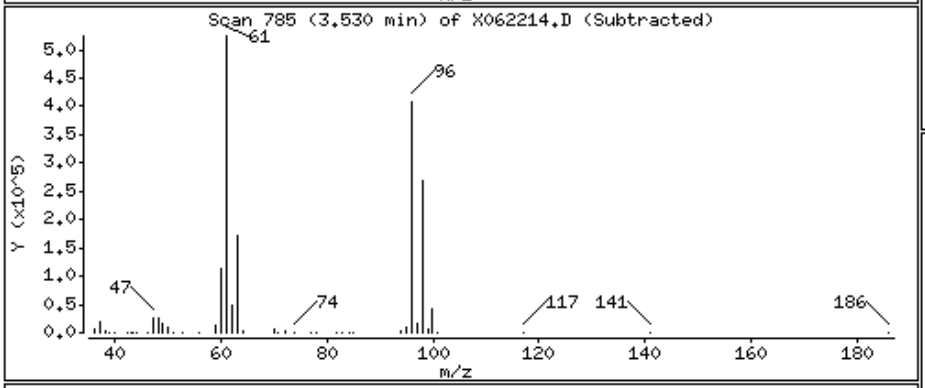
Sample Info: HS22061145-02;HS22061145-02;;;

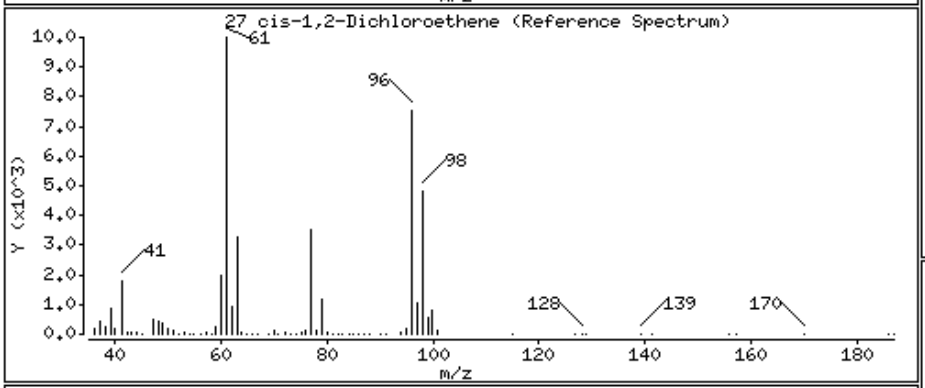
Purge Volume: 5.0 Operator: PC

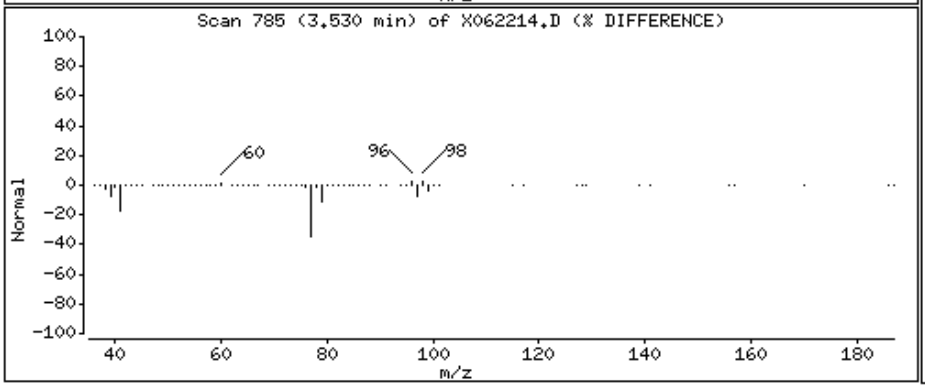
Column phase: DB624 Column diameter: 0.18

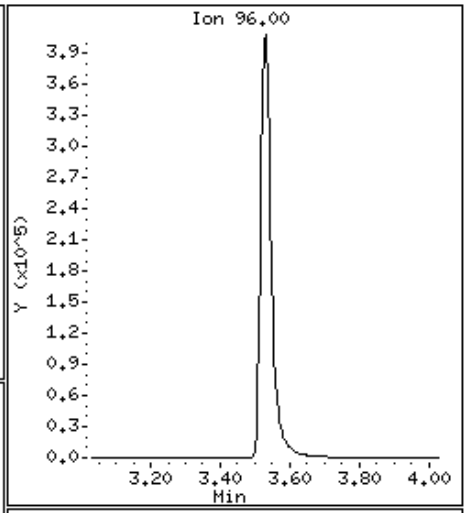
27 cis-1,2-Dichloroethene Concentration: 705.14 ug/l

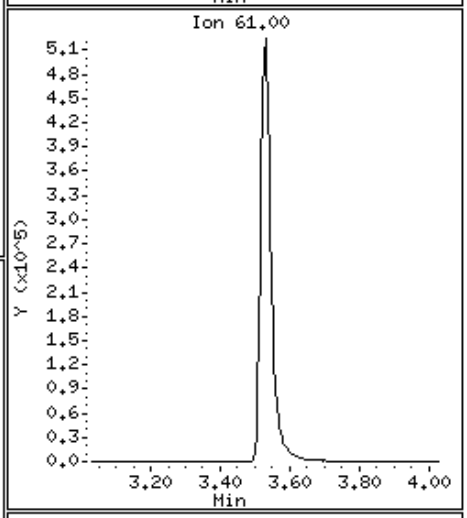


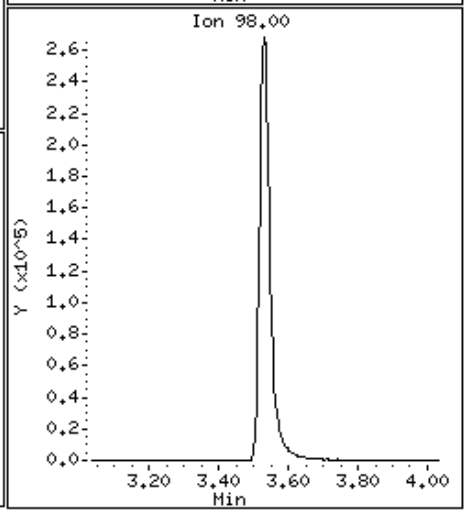












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D Page 4

Date : 22-JUN-2022 15:49

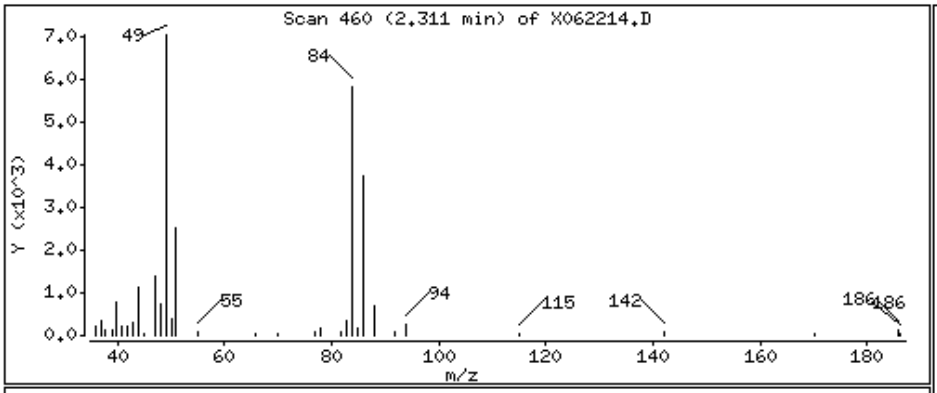
Client ID: HS22061145-02 Instrument: voa6.i

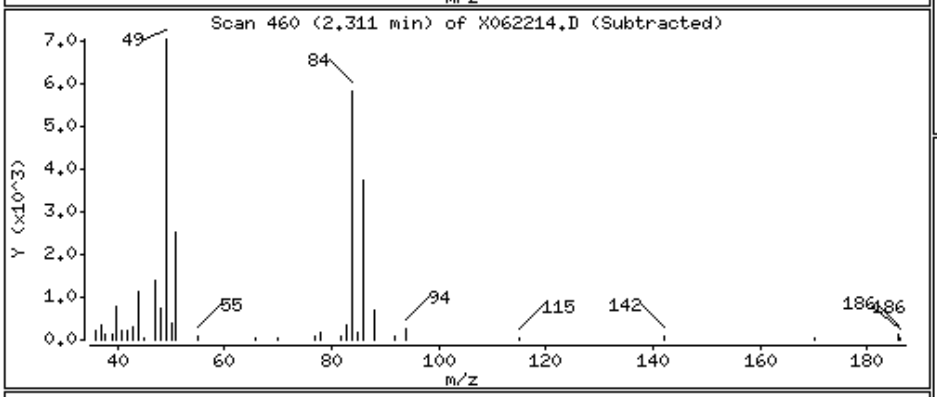
Sample Info: HS22061145-02;HS22061145-02;;;

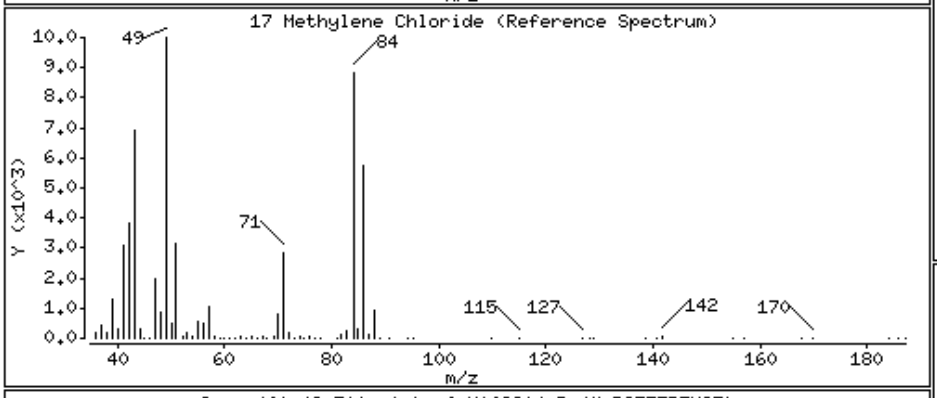
Purge Volume: 5.0 Operator: PC

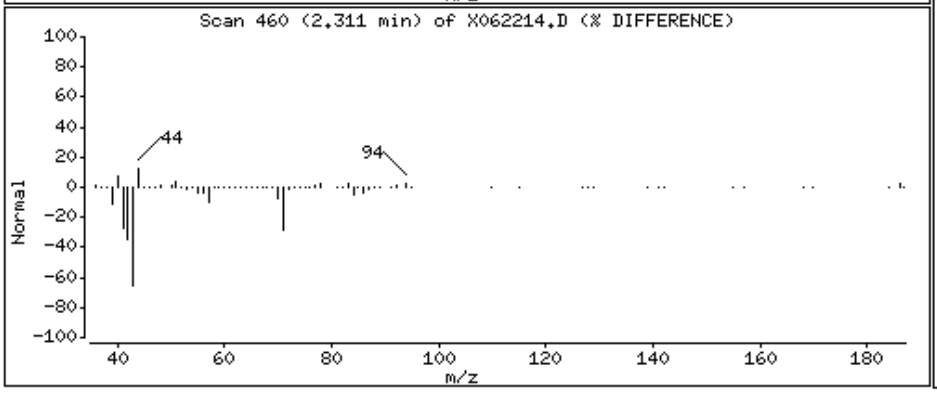
Column phase: DB624 Column diameter: 0.18

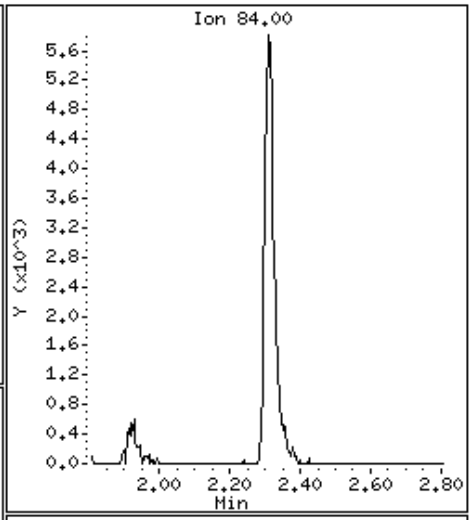
17 Methylene Chloride Concentration: 8.38 ug/l

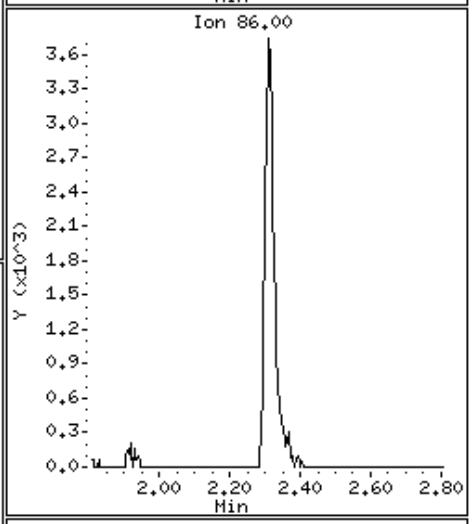


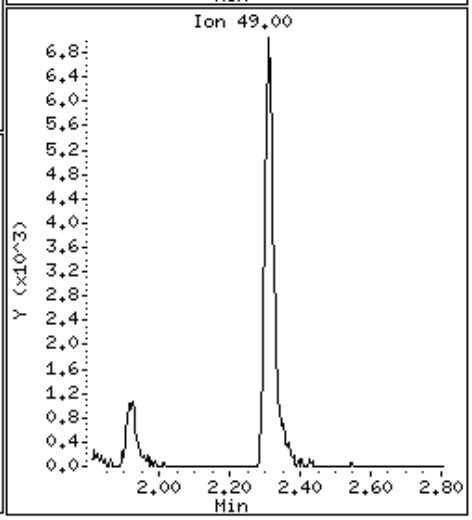












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D Page 5

Date : 22-JUN-2022 15:49

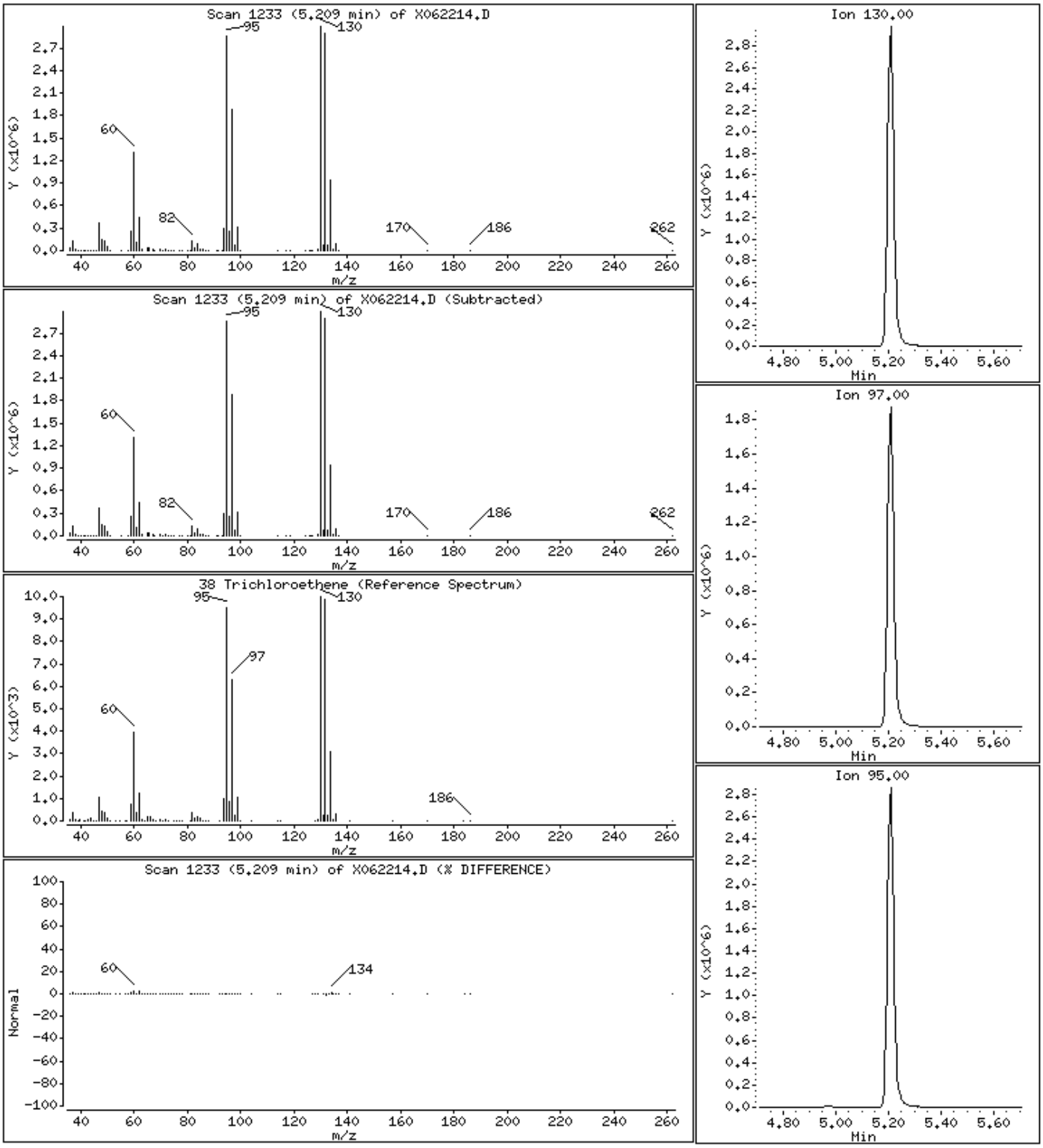
Client ID: HS22061145-02 Instrument: voa6.i

Sample Info: HS22061145-02;HS22061145-02;;;

Purge Volume: 5.0 Operator: PC

Column phase: DB624 Column diameter: 0.18

38 Trichloroethene Concentration: 4202.16 ug/l



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Date : 22-JUN-2022 15:49

Client ID: HS22061145-02

Instrument: voa6.i

Sample Info: HS22061145-02;HS22061145-02;;;

Purge Volume: 5.0

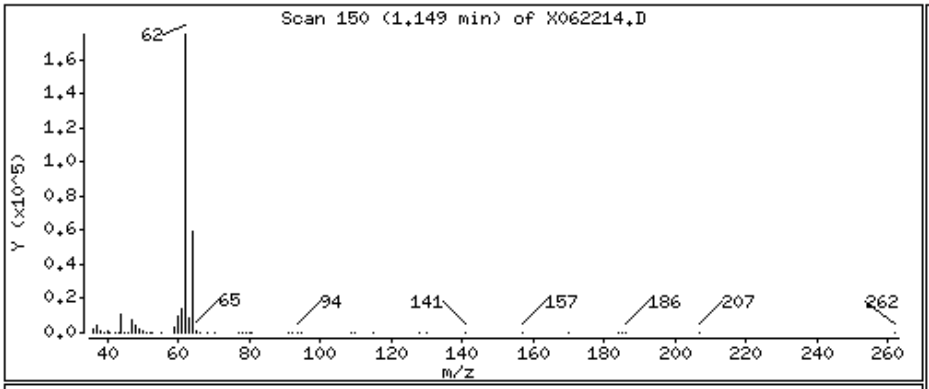
Operator: PC

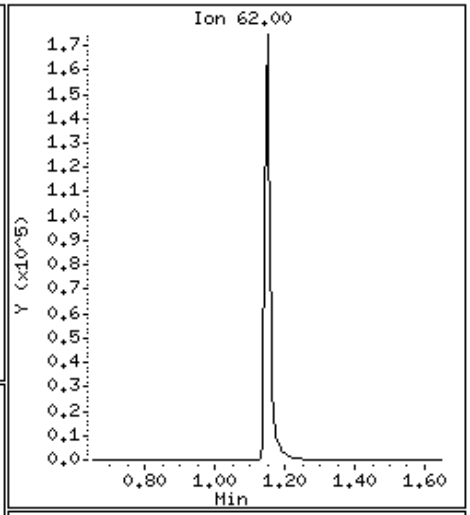
Column phase: DB624

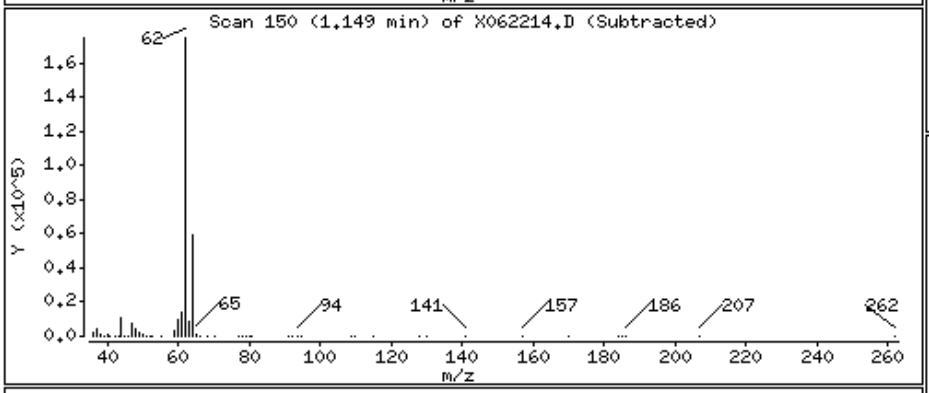
Column diameter: 0.18

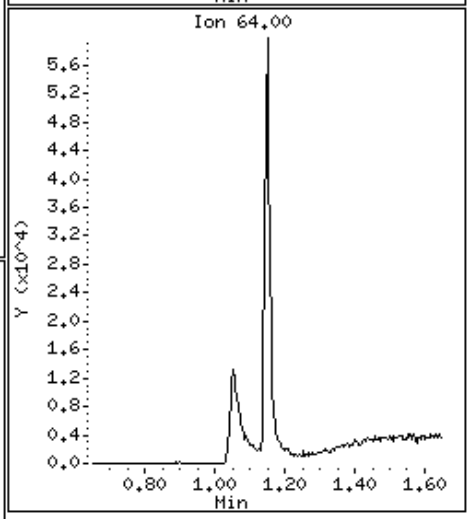
5 Vinyl Chloride

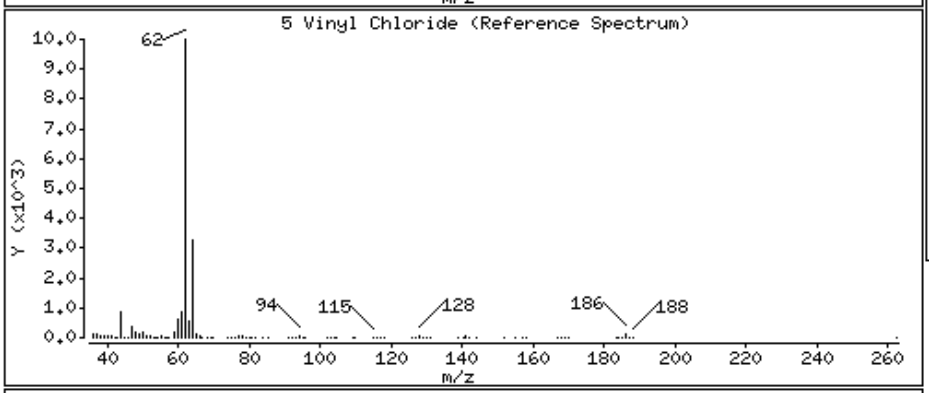
Concentration: 128.81 ug/l

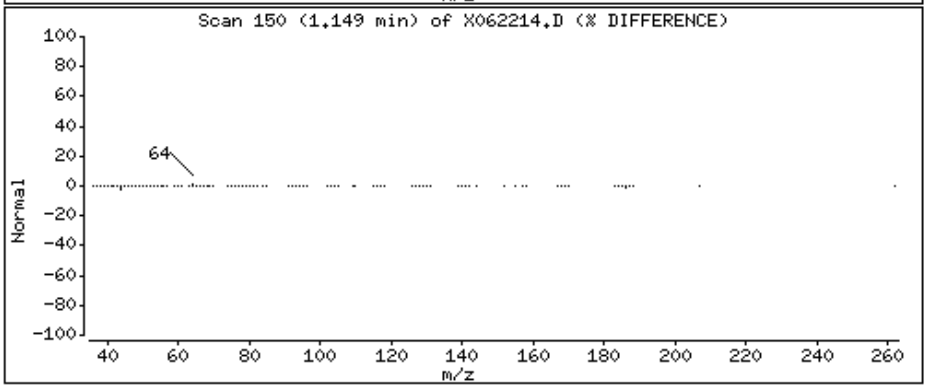












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062214.D
Inj Date : 22-JUN-2022 15:49
InstruID : voa6.i
LabSampID : HS22061145-02

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062215.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062215.D
Lab Smp Id: HS22061142-01MS Client Smp ID: HS22061142-01MS
Inj Date : 22-JUN-2022 16:10
Operator : PC Inst ID: voa6.i
Smp Info : HS22061142-01MS;HS22061142-01MS;3;;MS
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

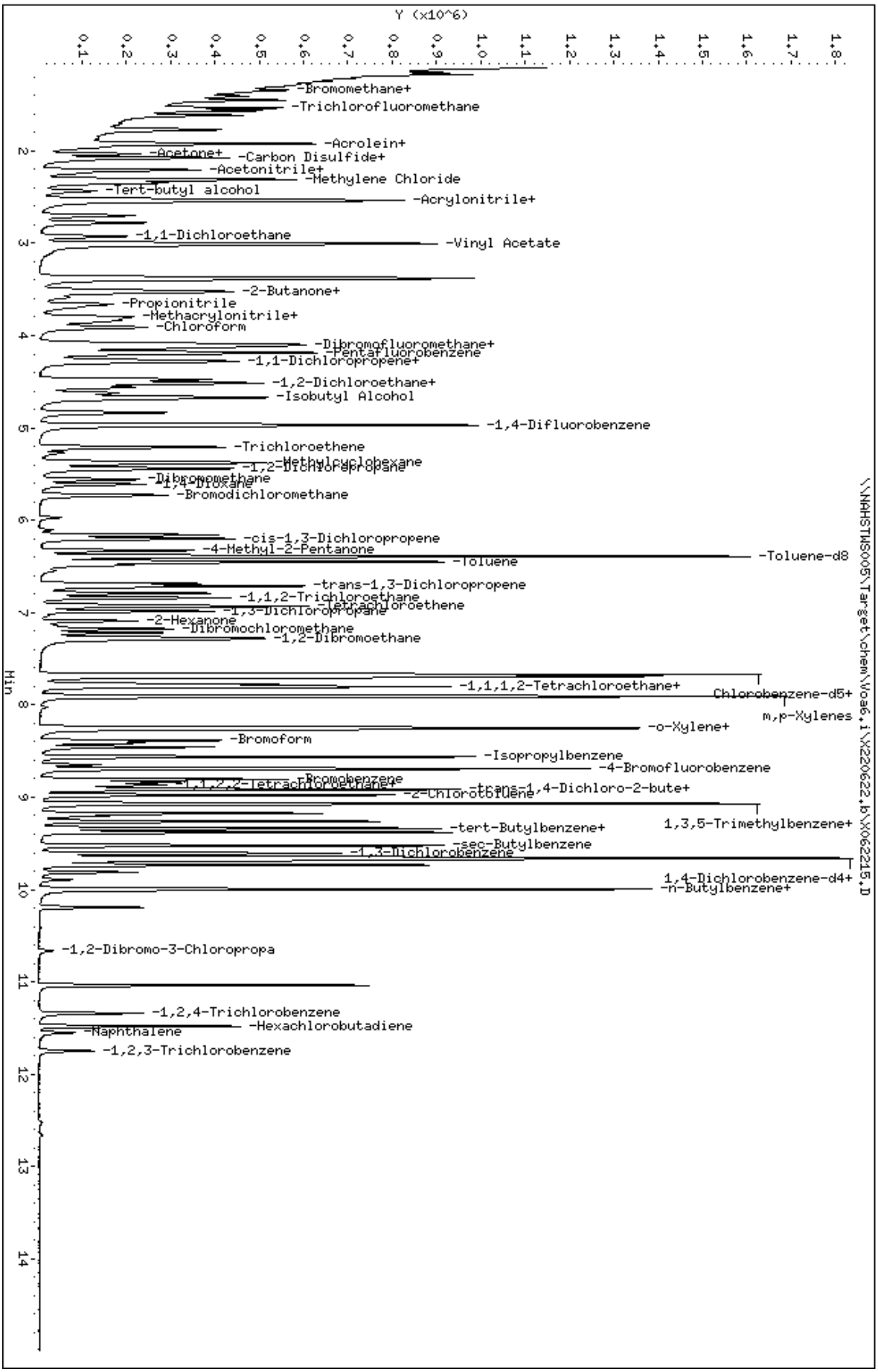
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	527334	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	812179	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	734807	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	335318	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	288599	44.3868	44.38
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	329919	47.6514	47.65
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	258657	46.6586	46.65
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	956552	49.2936	49.29
53 1,1,2-Trichloroethane	83	6.843	6.839	(0.892)	93058	20.4812	20.48
11 1,1-Dichloroethene	96	1.917	1.921	(0.458)	93739	17.0461	17.04
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	165062	20.3593	20.35
27 cis-1,2-Dichloroethene	96	3.533	3.529	(0.844)	151159	23.7675	23.76
17 Methylene Chloride	84	2.307	2.307	(0.551)	116551	17.5044	17.50
38 Trichloroethene	130	5.208	5.209	(1.048)	141298	23.1570	23.15
5 Vinyl Chloride	62	1.149	1.149	(0.275)	72129	9.70228	9.70(M)

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062215.D
Date : 22-JUN-2022 16:10
Client ID: HS22061142-01MS
Sample Info: HS22061142-01MS;HS22061142-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

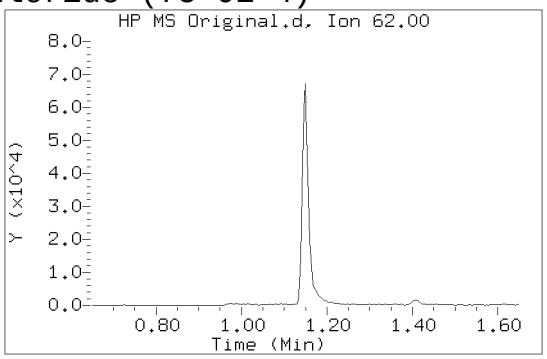
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062215.D
Inj Date : 22-JUN-2022 16:10
InstruID : voa6.i
LabSampID : HS22061142-01MS

Vinyl Chloride (75-01-4)

Reason Code:

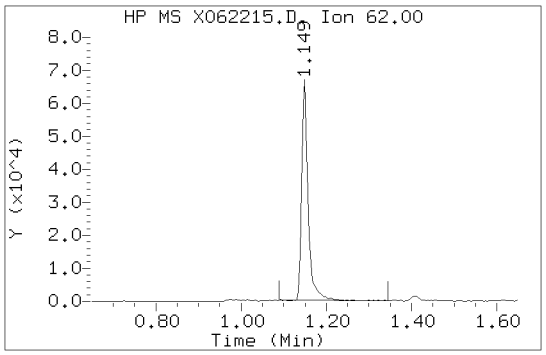
BEFORE

MASS
64
AREA
9033647
HEIGHT
1079499
22-Jun-2022
16:27
ALSHS
Server



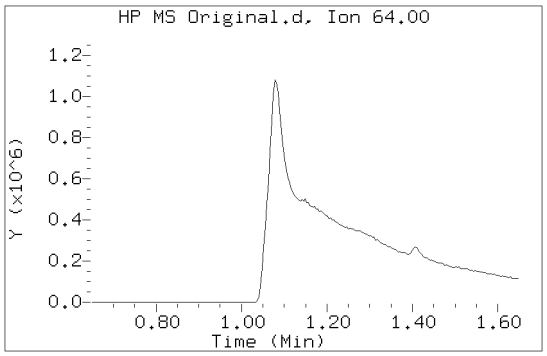
AFTER

MASS
62
AREA
72129
HEIGHT
66855
15-Jul-2022
12:19
ALSHS
Ser



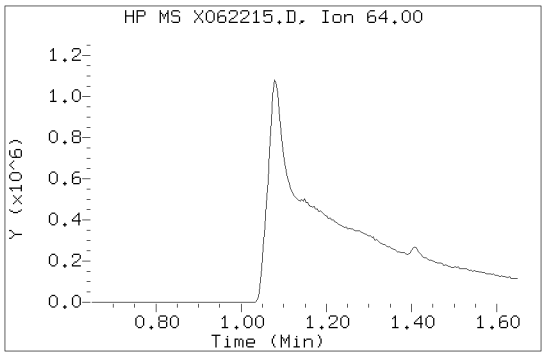
BEFORE

MASS
66
AREA
407362
HEIGHT
52305
22-Jun-2022
16:27
ALSHS
Server



AFTER

MASS
64
AREA
0
HEIGHT
0
15-Jul-2022
12:19
ALSHS
Ser



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062216.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062216.D
Lab Smp Id: HS22061142-01MSD Client Smp ID: HS22061142-01MSD
Inj Date : 22-JUN-2022 16:31
Operator : PC Inst ID: voa6.i
Smp Info : HS22061142-01MSD;HS22061142-01MSD;3;;MSD
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

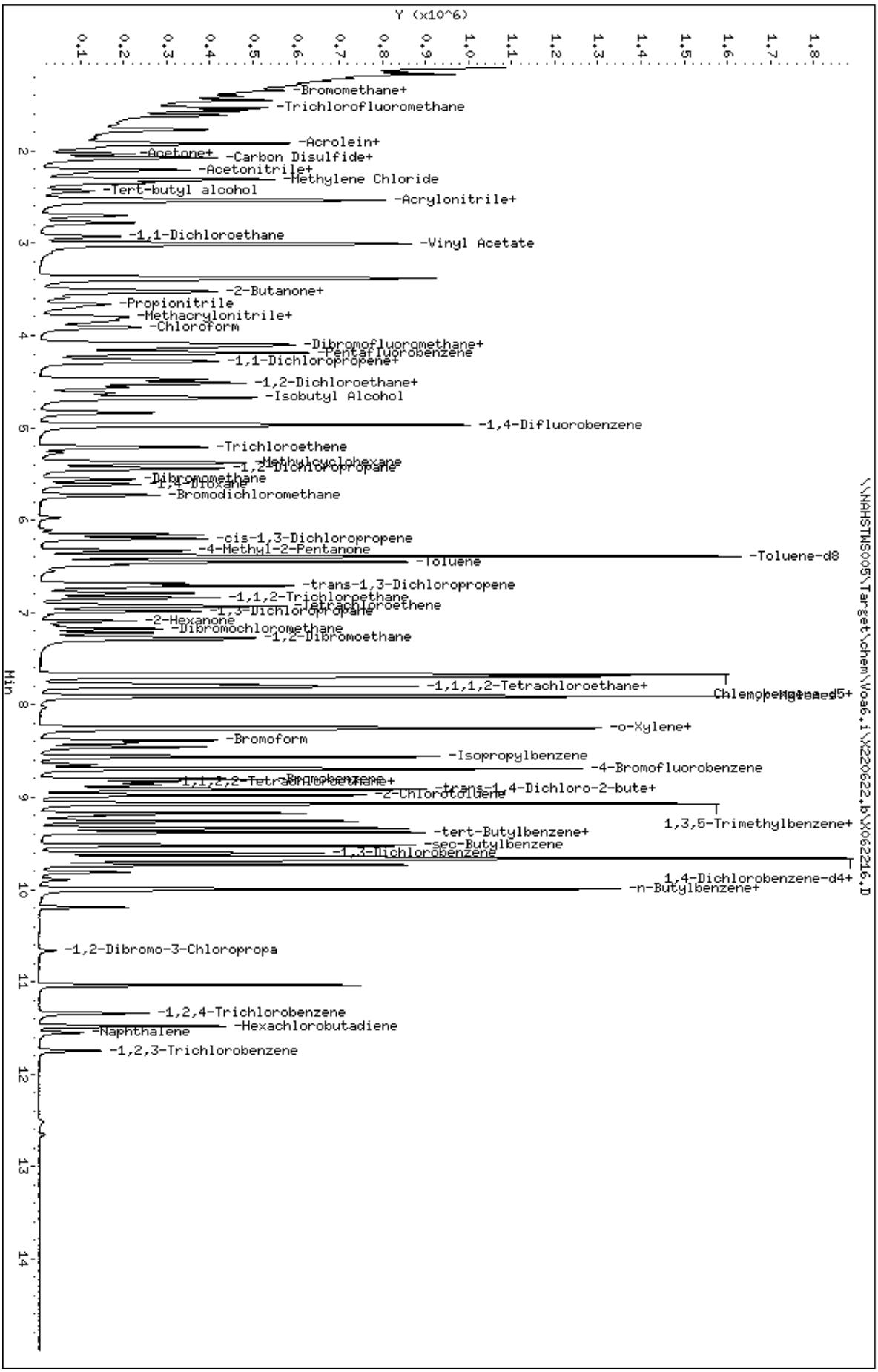
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	534988	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	833801	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	745582	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	350362	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	300723	45.5988	45.59
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	339513	48.3409	48.34
$ 30 Dibromofluoromethane	113	4.099	4.099	(0.979)	263995	46.9403	46.94
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	970033	49.2659	49.26
53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	89402	19.3922	19.39
11 1,1-Dichloroethene	96	1.917	1.921	(0.458)	87561	15.6948	15.69
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	161395	19.3908	19.39
27 cis-1,2-Dichloroethene	96	3.533	3.529	(0.844)	144227	22.3531	22.35
17 Methylene Chloride	84	2.307	2.307	(0.551)	114400	16.9355	16.93
38 Trichloroethene	130	5.209	5.209	(1.048)	128097	20.4492	20.44
5 Vinyl Chloride	62	1.149	1.149	(0.275)	65897	8.73718	8.73(M)

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062216.D
Date : 22-JUN-2022 16:31
Client ID: HS22061142-01MSD
Sample Info: HS22061142-01MSD;HS22061142-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

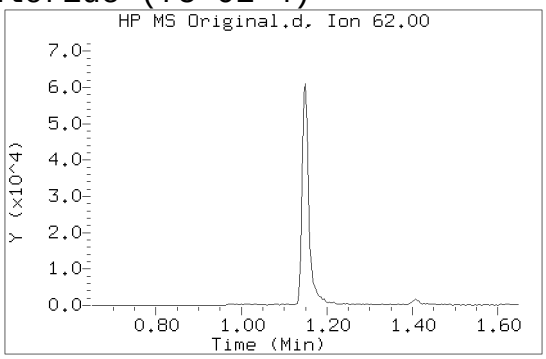
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062216.D
Inj Date : 22-JUN-2022 16:31
InstruID : voa6.i
LabSampID : HS22061142-01MSD

Vinyl Chloride (75-01-4)

Reason Code:

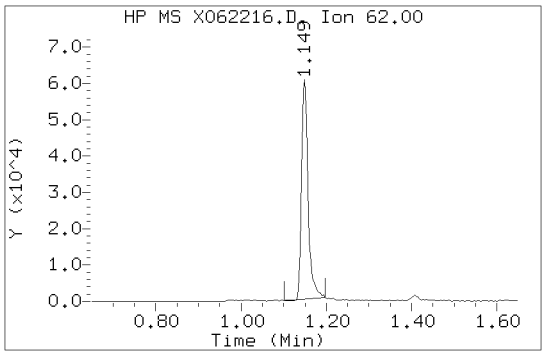
BEFORE

MASS
64
AREA
0
HEIGHT
0
22-Jun-2022
16:48
ALSHS
Server



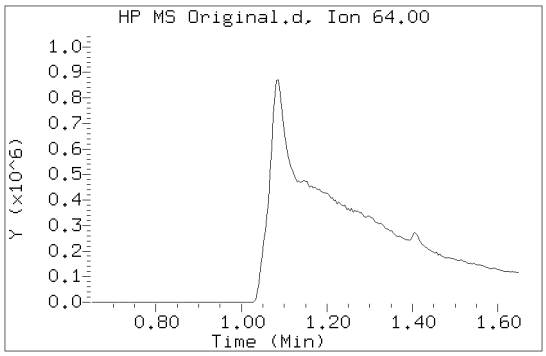
AFTER

MASS
62
AREA
65897
HEIGHT
60397
15-Jul-2022
12:19
ALSHS
Ser



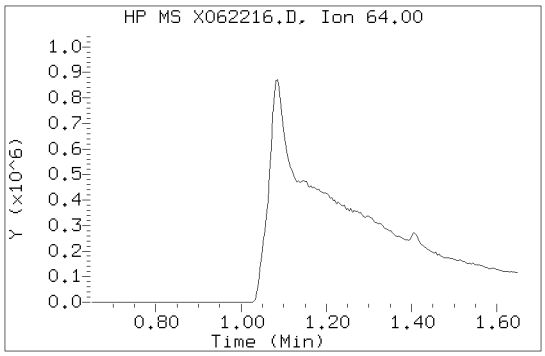
BEFORE

MASS
66
AREA
0
HEIGHT
0
22-Jun-2022
16:48
ALSHS
Server



AFTER

MASS
64
AREA
0
HEIGHT
0
15-Jul-2022
12:19
ALSHS
Ser



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D
Lab Smp Id: HS22061145-02 Client Smp ID: HS22061145-02
Inj Date : 22-JUN-2022 16:52
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-02;HS22061145-02;;;
Misc Info : HS22052000V6;WATER;0;25;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 16
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

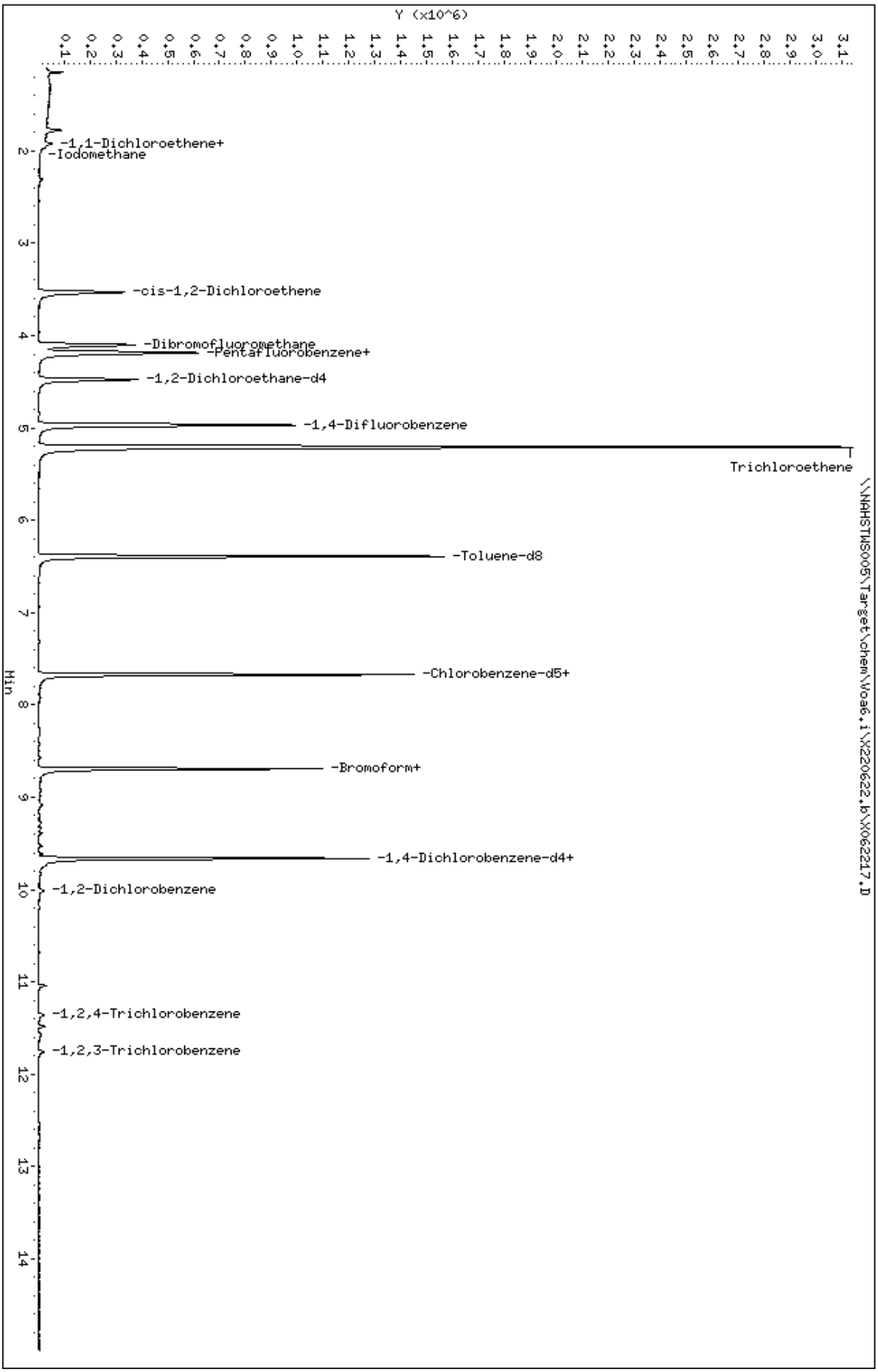
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	25.000	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	4.185	4.185	(1.000)	529515	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	829703	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	744369	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	320882	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	291739	44.6872	44.68
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	320980	45.7299	45.72
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	259771	46.6665	46.66
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	965316	49.1062	49.10
11 1,1-Dichloroethene	96	1.917	1.921	(0.458)	4965	0.89915	22.47(a)
27 cis-1,2-Dichloroethene	96	3.533	3.529	(0.844)	176749	27.6766	691.91
38 Trichloroethene	130	5.209	5.209	(1.048)	1041126	167.024	4175.60
5 Vinyl Chloride	62	1.149	1.149	(0.275)	39591	5.30356	132.58

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D
Date : 22-JUN-2022 16:52
Client ID: HS22061145-02
Sample Info: HS22061145-02;HS22061145-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D

Date : 22-JUN-2022 16:52

Client ID: HS22061145-02

Instrument: voa6.i

Sample Info: HS22061145-02;HS22061145-02;;;

Purge Volume: 5.0

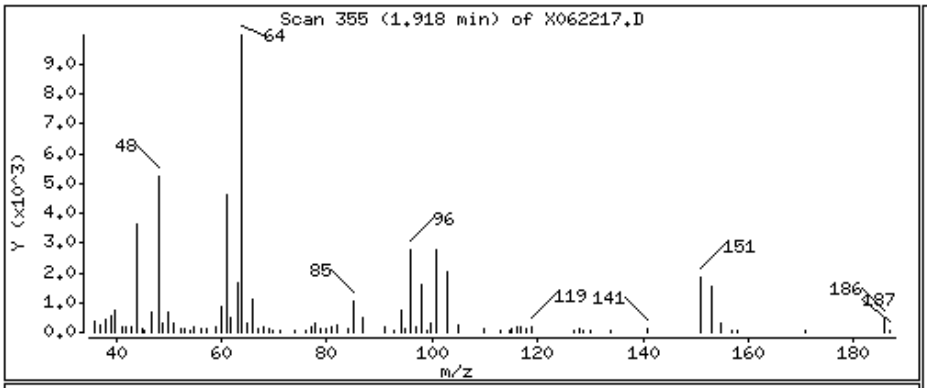
Operator: PC

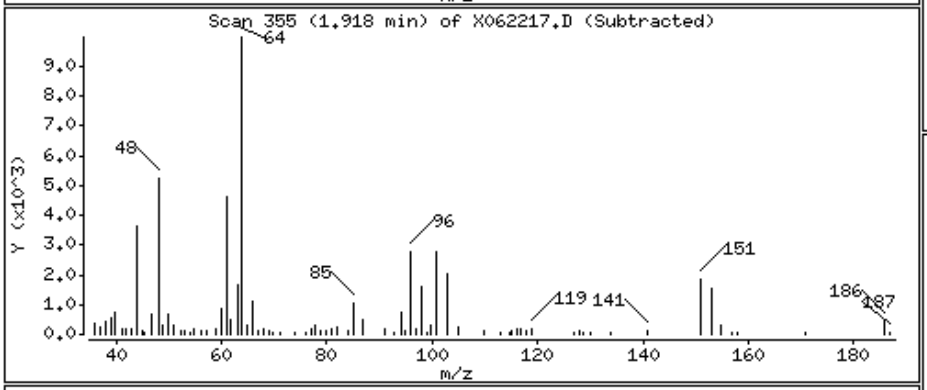
Column phase: DB624

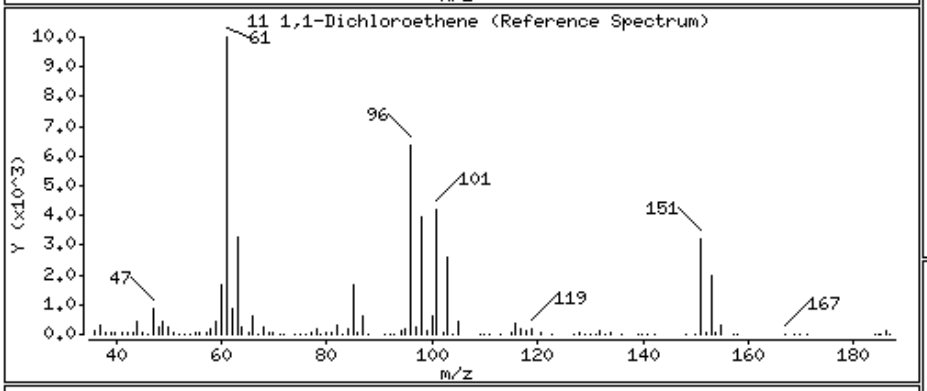
Column diameter: 0.18

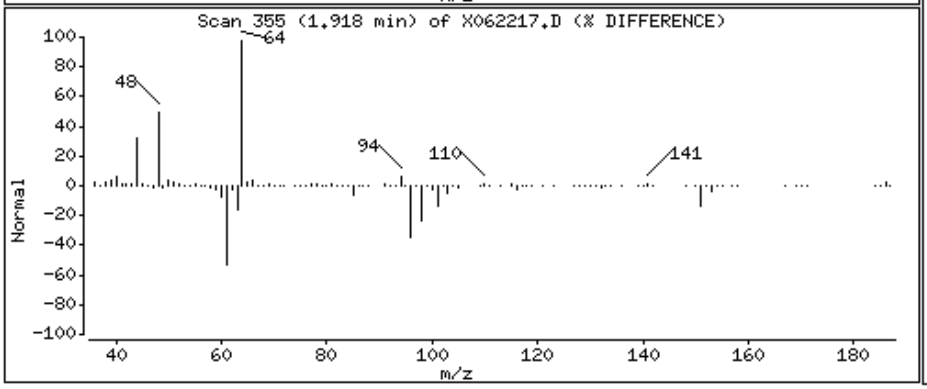
11 1,1-Dichloroethene

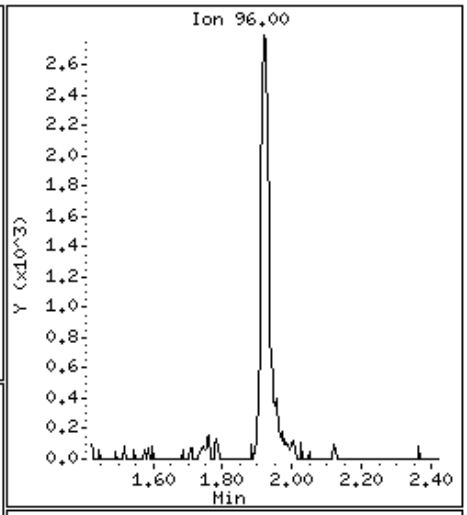
Concentration: 22.47 ug/l

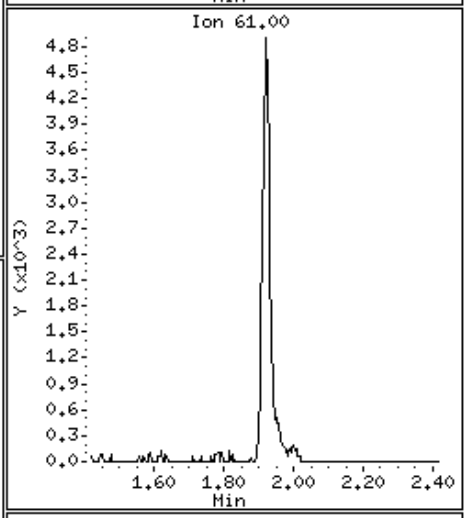


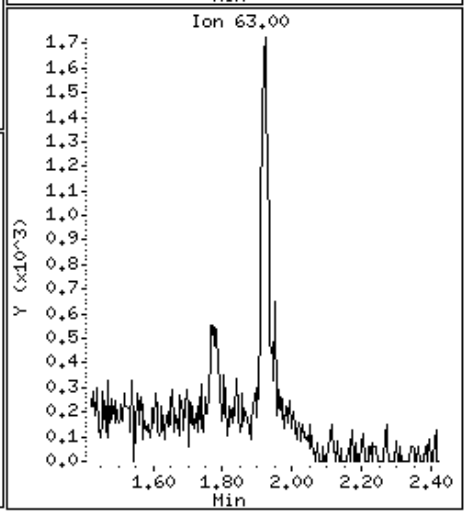












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D Page 3

Date : 22-JUN-2022 16:52

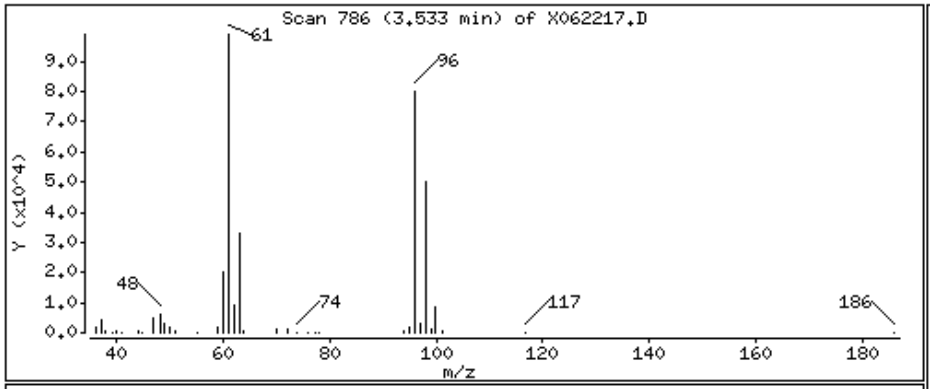
Client ID: HS22061145-02 Instrument: voa6.i

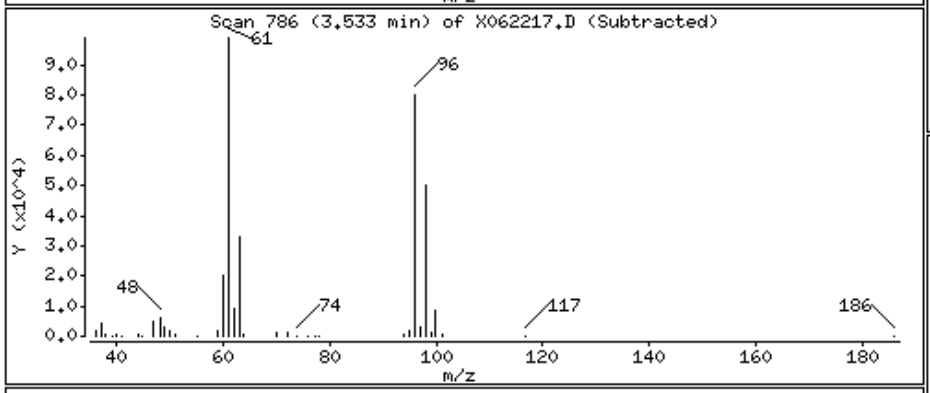
Sample Info: HS22061145-02;HS22061145-02;;;

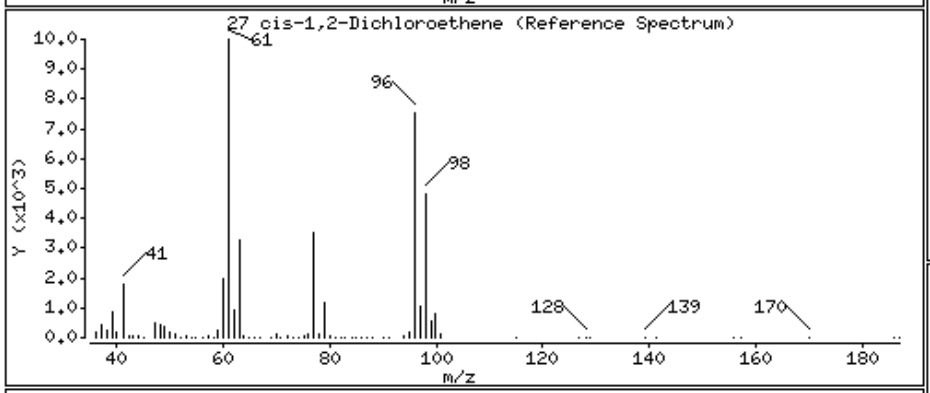
Purge Volume: 5.0 Operator: PC

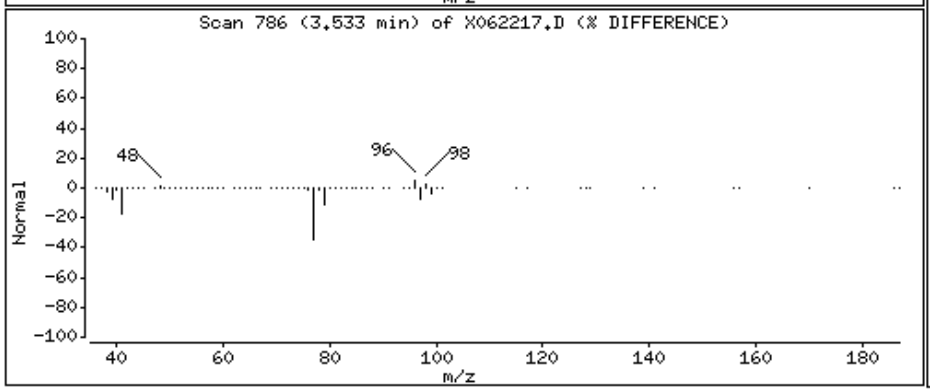
Column phase: DB624 Column diameter: 0.18

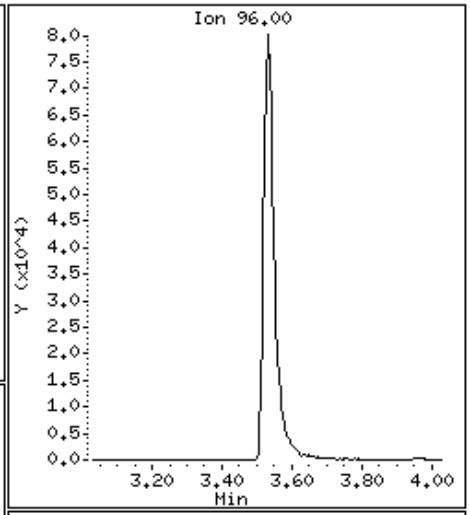
27 cis-1,2-Dichloroethene Concentration: 691.91 ug/l

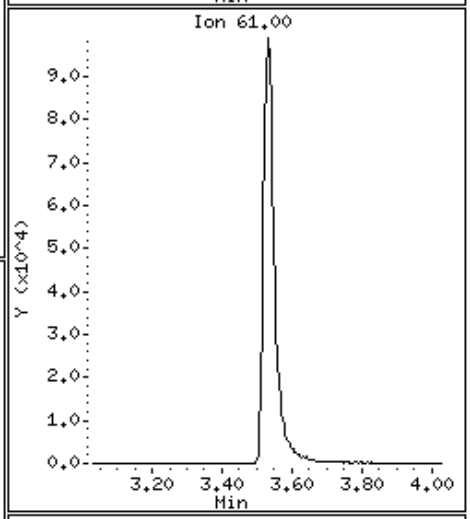


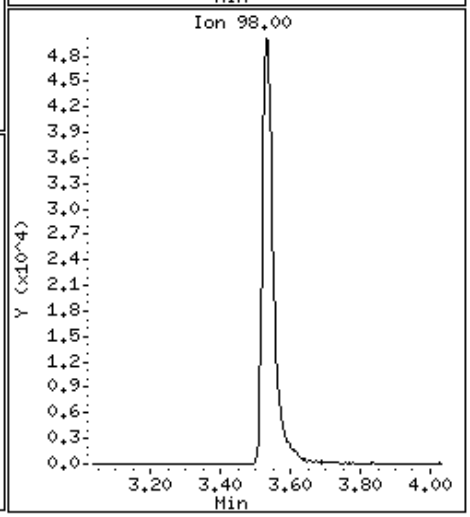












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D Page 4

Date : 22-JUN-2022 16:52

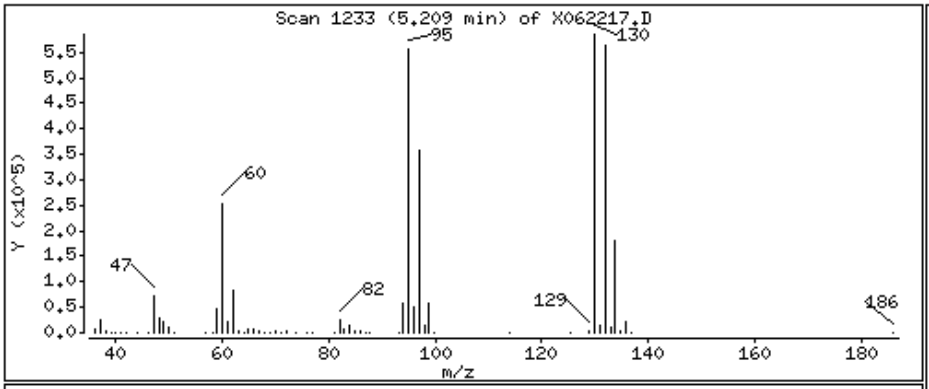
Client ID: HS22061145-02 Instrument: voa6.i

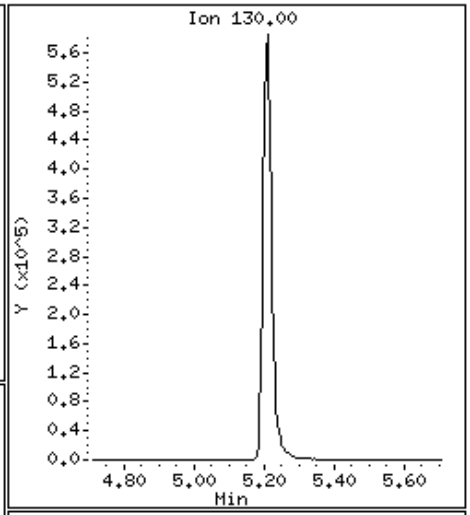
Sample Info: HS22061145-02;HS22061145-02;;;

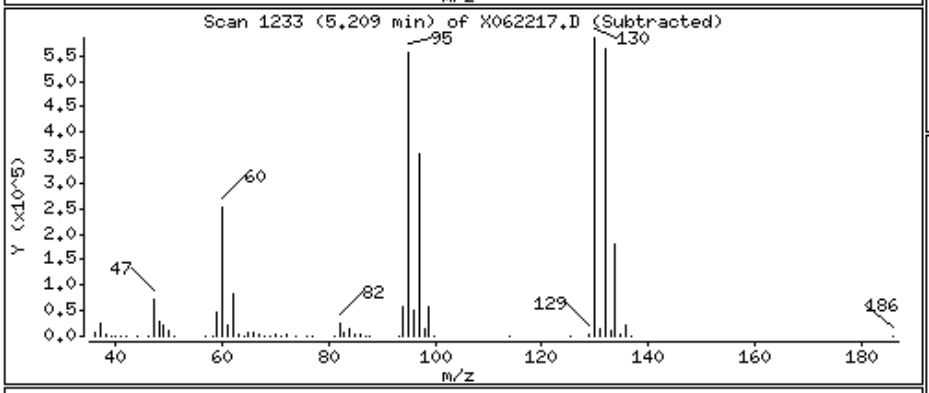
Purge Volume: 5.0 Operator: PC

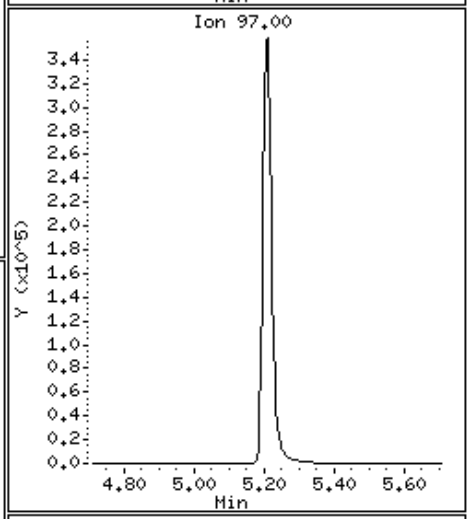
Column phase: DB624 Column diameter: 0.18

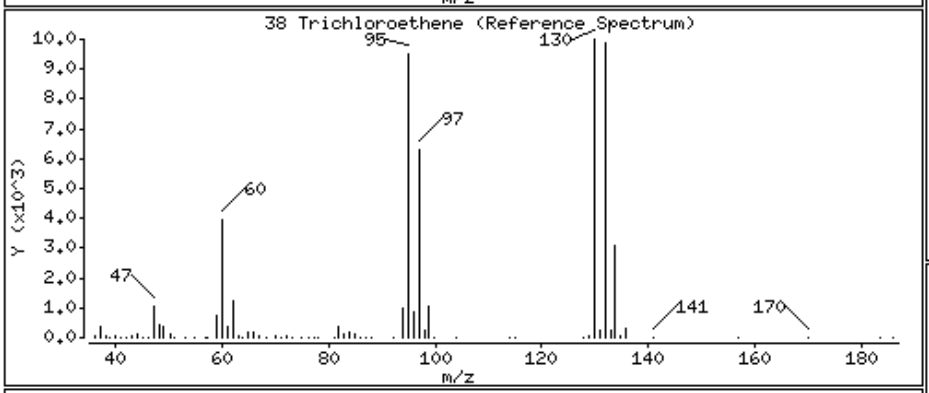
38 Trichloroethene Concentration: 4175.60 ug/l

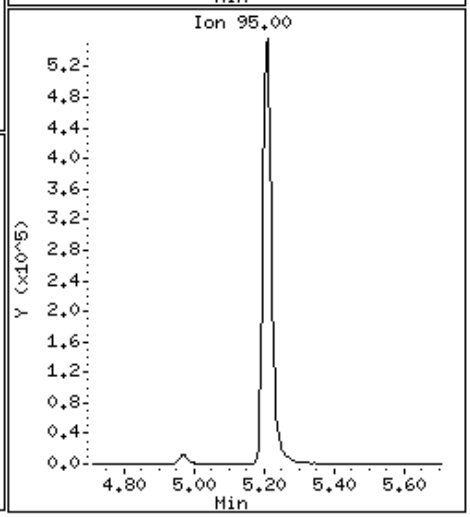


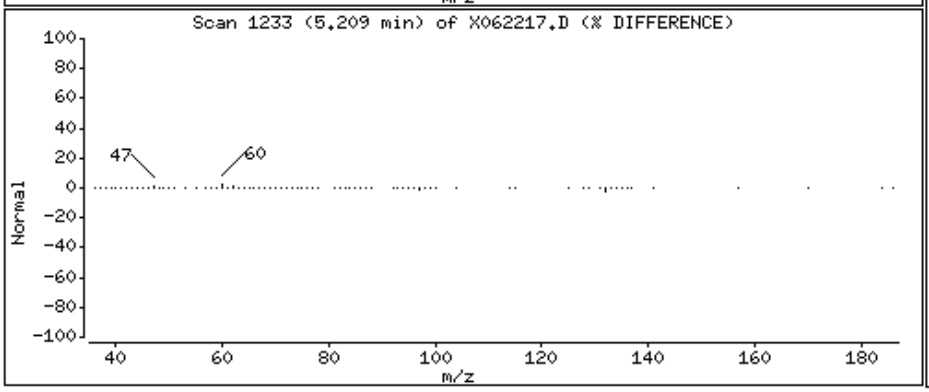












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Date : 22-JUN-2022 16:52

Client ID: HS22061145-02

Instrument: voa6.i

Sample Info: HS22061145-02;HS22061145-02;;;

Purge Volume: 5.0

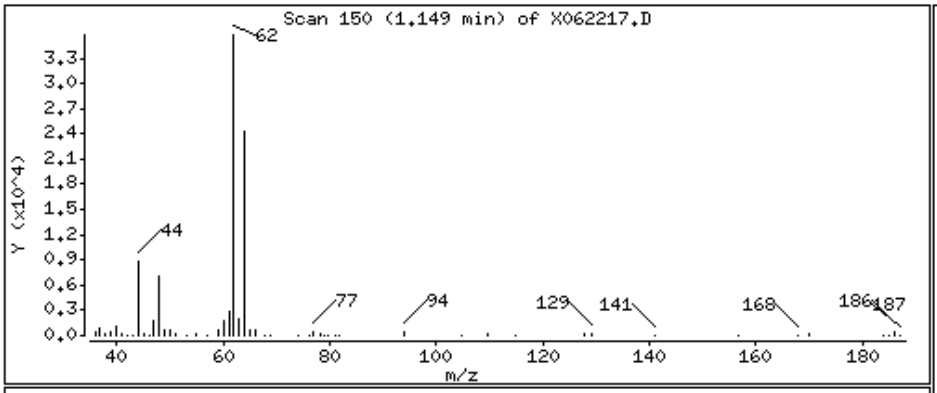
Operator: PC

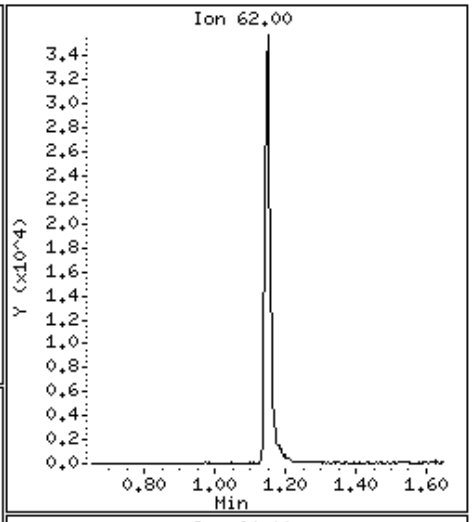
Column phase: DB624

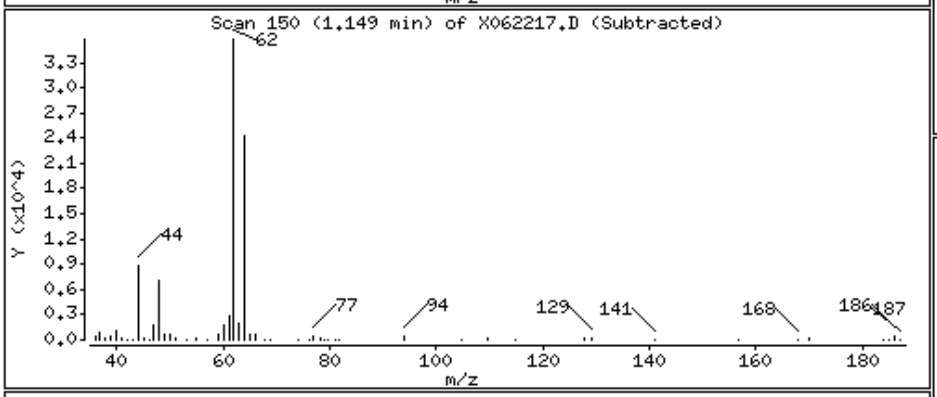
Column diameter: 0.18

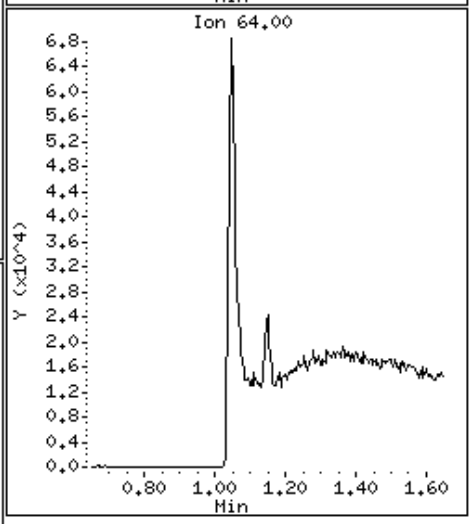
5 Vinyl Chloride

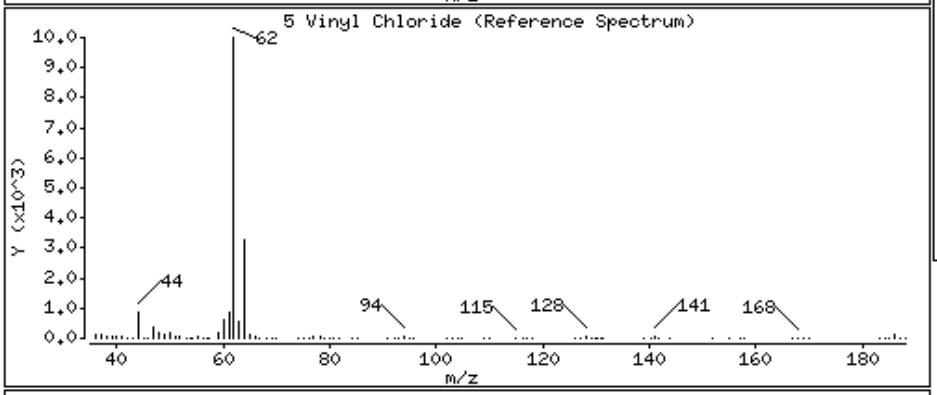
Concentration: 132.58 ug/l

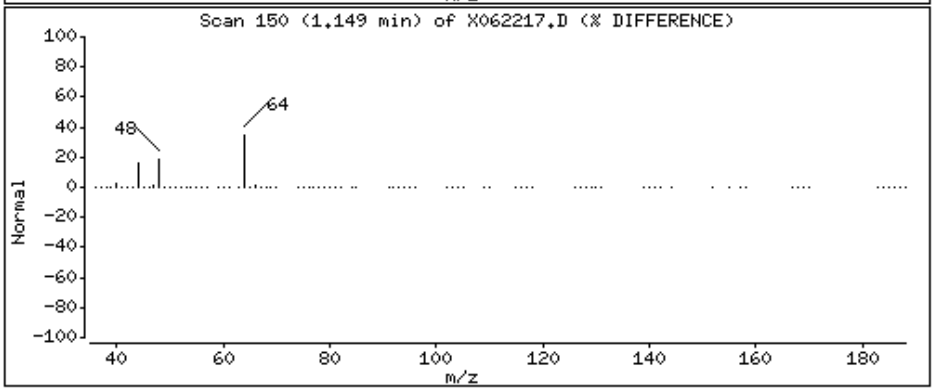












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062217.D
Inj Date : 22-JUN-2022 16:52
InstruID : voa6.i
LabSampID : HS22061145-02

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D Page 1
Report Date: 15-Jul-2022 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D
Lab Smp Id: HS22061145-01 Client Smp ID: HS22061145-01
Inj Date : 22-JUN-2022 17:13
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-01;HS22061145-01;;;
Misc Info : HS22052000V6;WATER;0;5;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 17
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

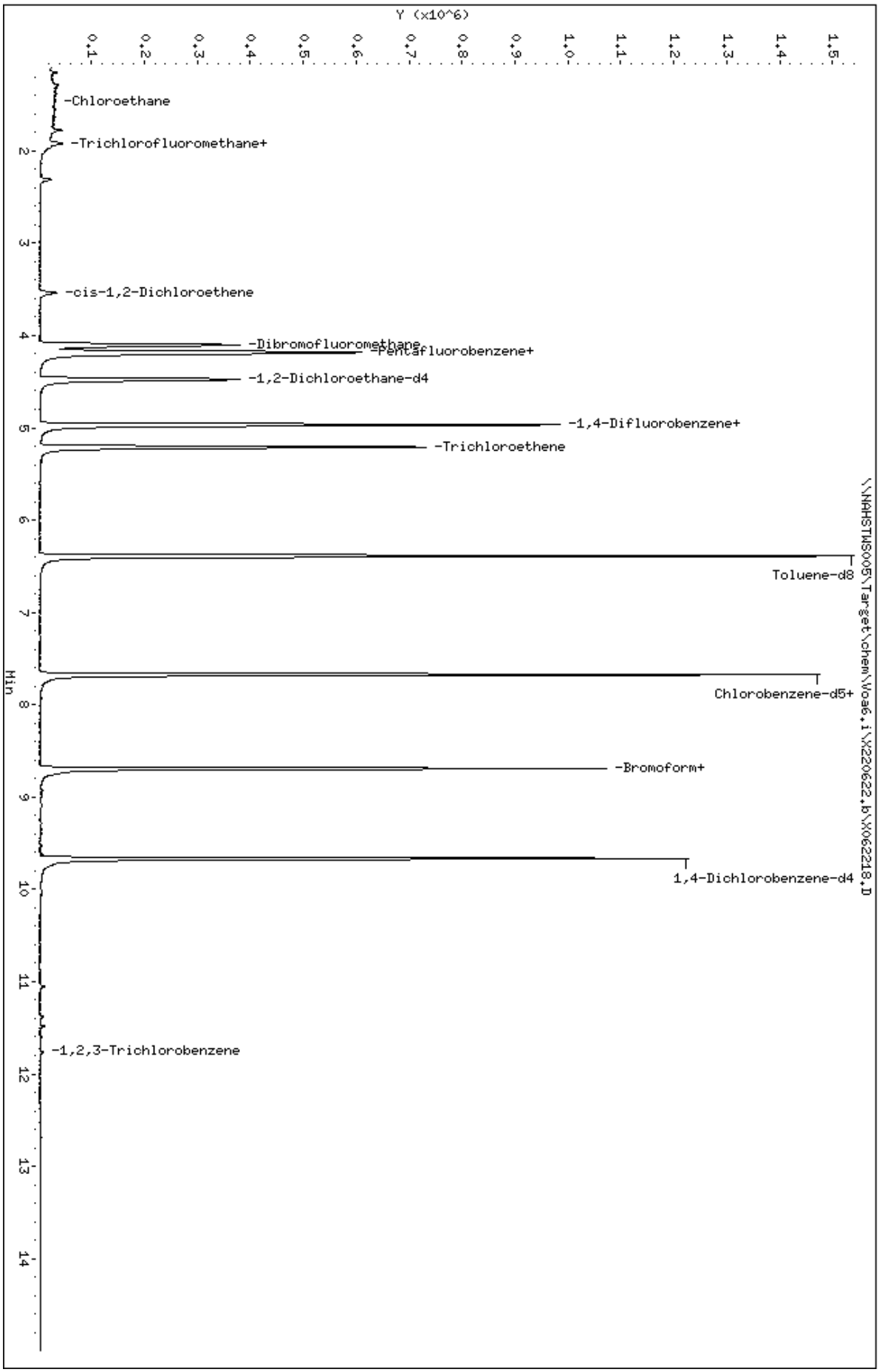
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	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	4.181	4.185	(1.000)	530418	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	822688	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	737771	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	323748	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.070)	290376	44.4005	44.40
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	319176	45.8824	45.88
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.981)	261745	46.9412	46.94
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	955327	49.0327	49.03
27 cis-1,2-Dichloroethene	96	3.540	3.529	(0.847)	17470	2.73092	13.65(a)
38 Trichloroethene	130	5.208	5.209	(1.048)	248974	40.2826	201.41
5 Vinyl Chloride	62	1.149	1.149	(0.275)	8388	1.12173	5.60(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D
Date : 22-JUN-2022 17:13
Client ID: HS22061145-01
Sample Info: HS22061145-01;HS22061145-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D Page 2

Date : 22-JUN-2022 17:13

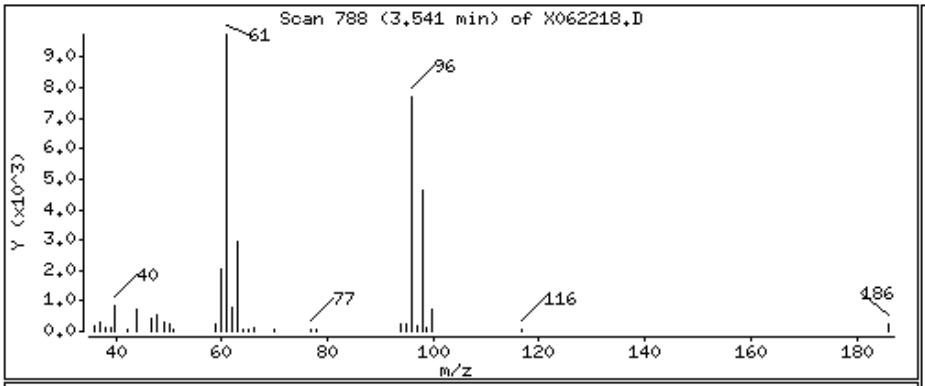
Client ID: HS22061145-01 Instrument: voa6.i

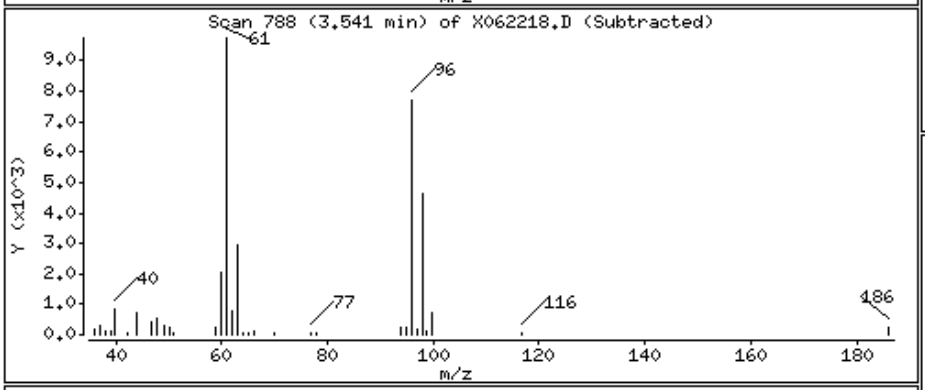
Sample Info: HS22061145-01;HS22061145-01;;;

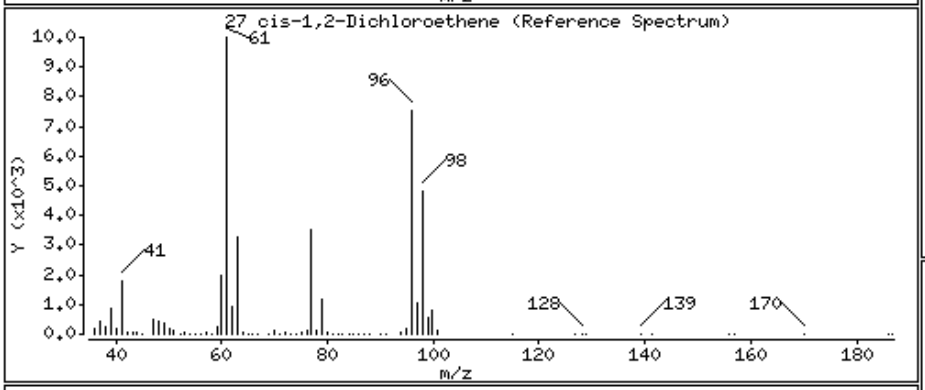
Purge Volume: 5.0 Operator: PC

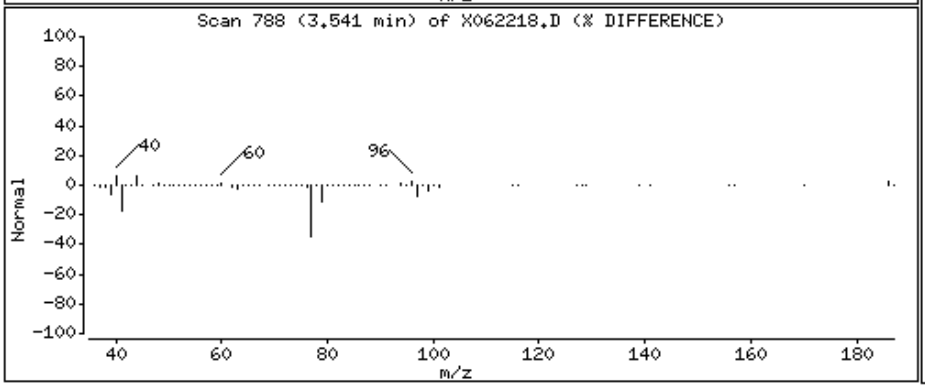
Column phase: DB624 Column diameter: 0.18

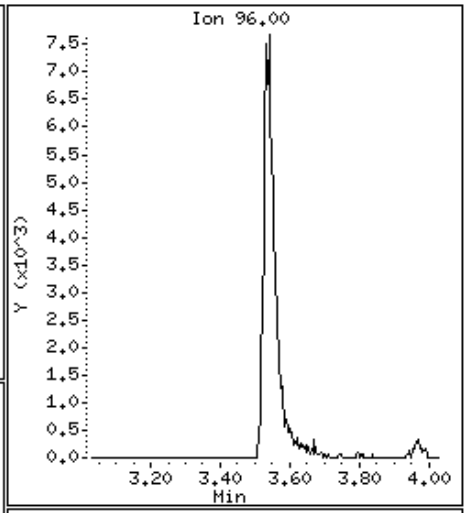
27 cis-1,2-Dichloroethene Concentration: 13.65 ug/l

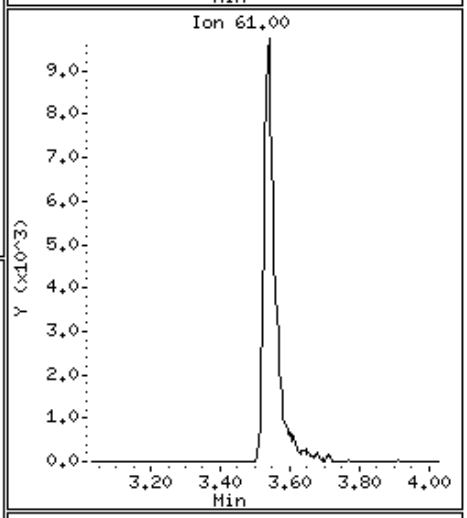


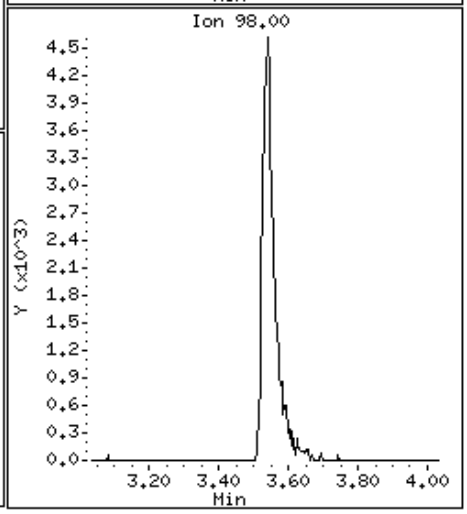












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D Page 3

Date : 22-JUN-2022 17:13

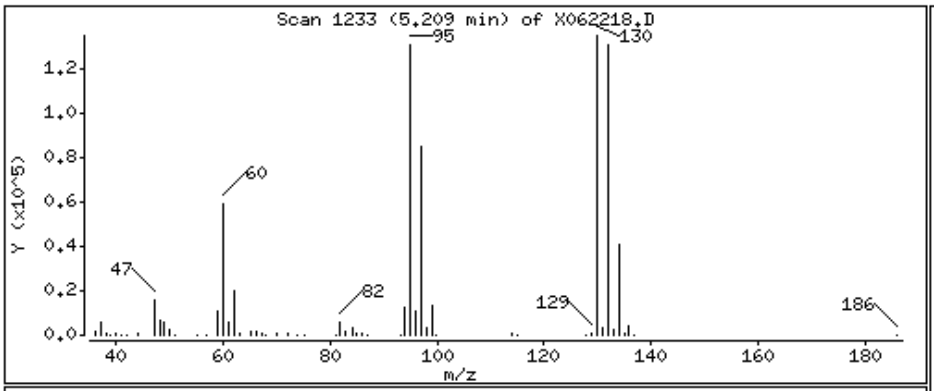
Client ID: HS22061145-01 Instrument: voa6.i

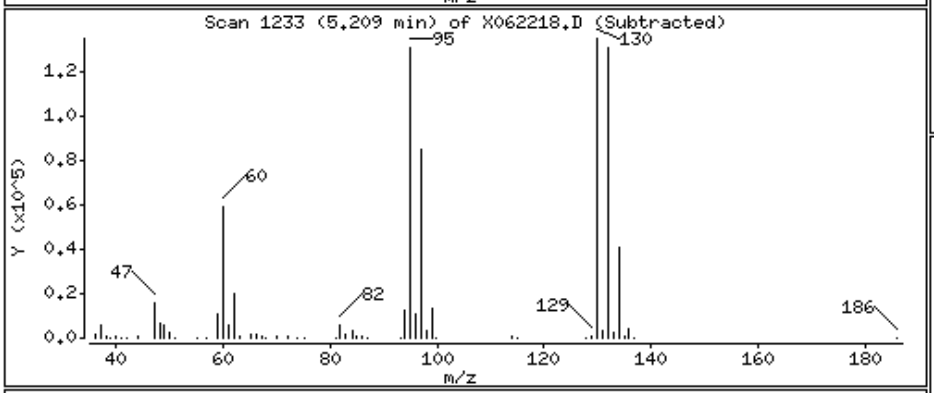
Sample Info: HS22061145-01;HS22061145-01;;;

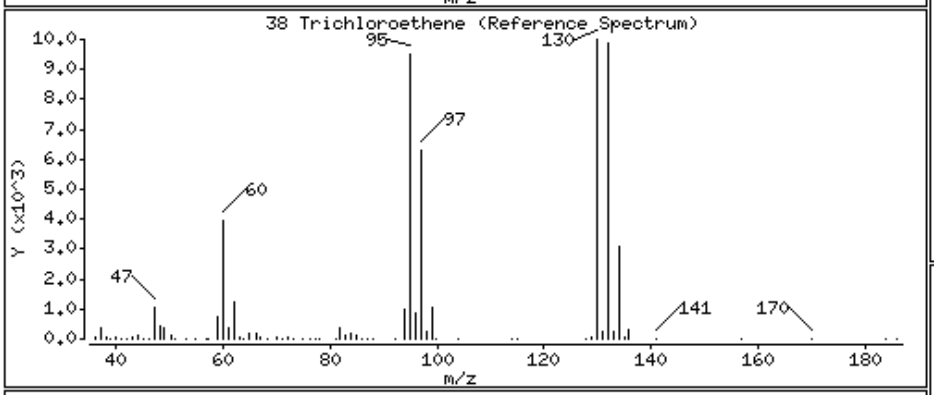
Purge Volume: 5.0 Operator: PC

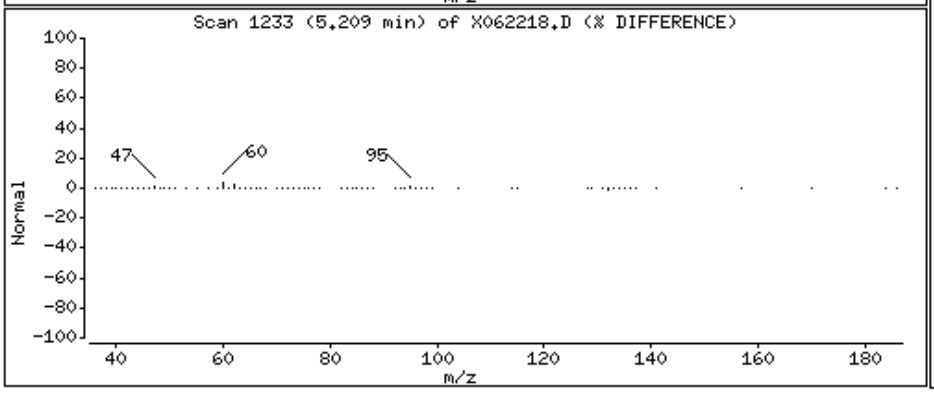
Column phase: DB624 Column diameter: 0.18

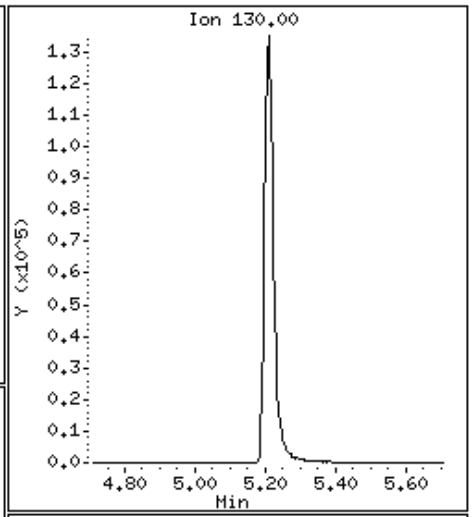
38 Trichloroethene Concentration: 201.41 ug/l

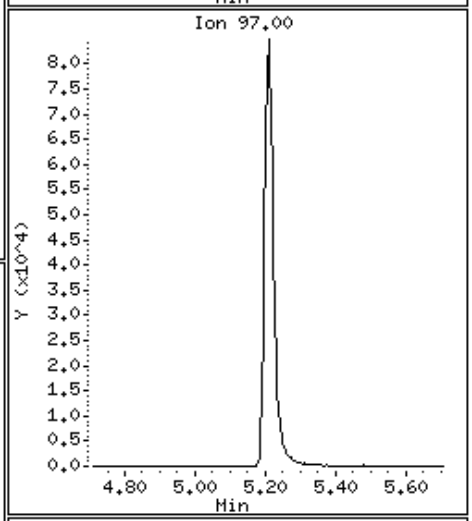


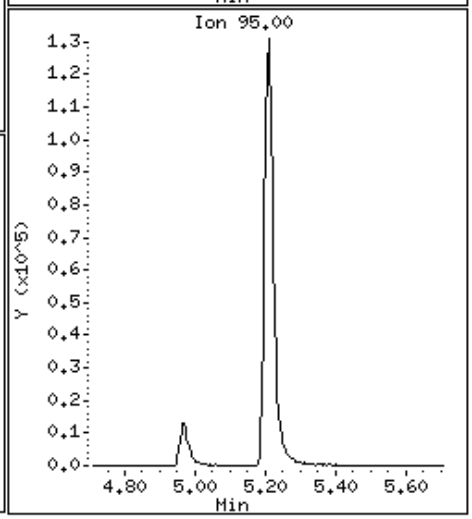












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D

Date : 22-JUN-2022 17:13

Client ID: HS22061145-01

Instrument: voa6.i

Sample Info: HS22061145-01;HS22061145-01;;;

Purge Volume: 5.0

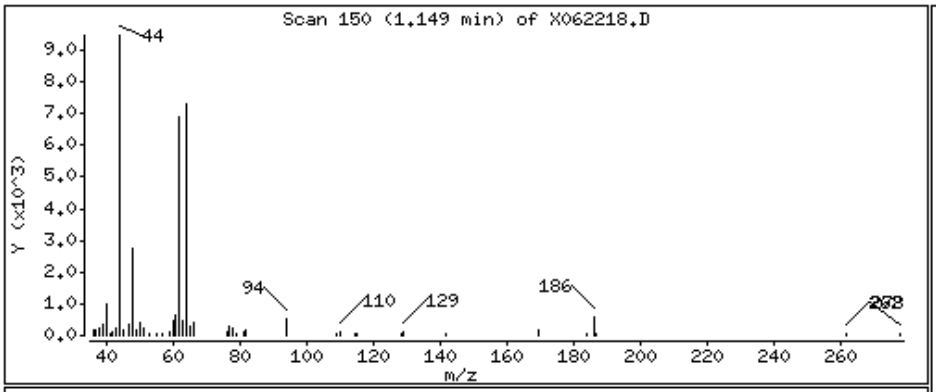
Operator: PC

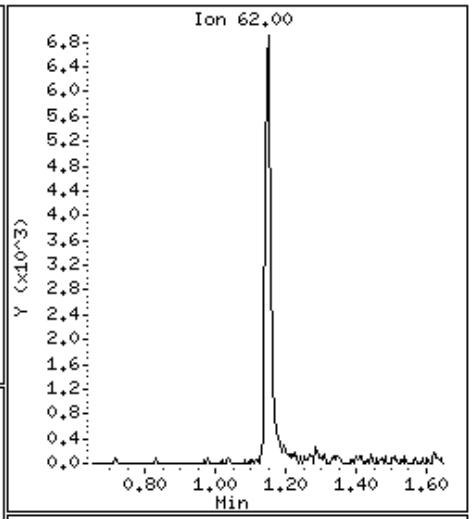
Column phase: DB624

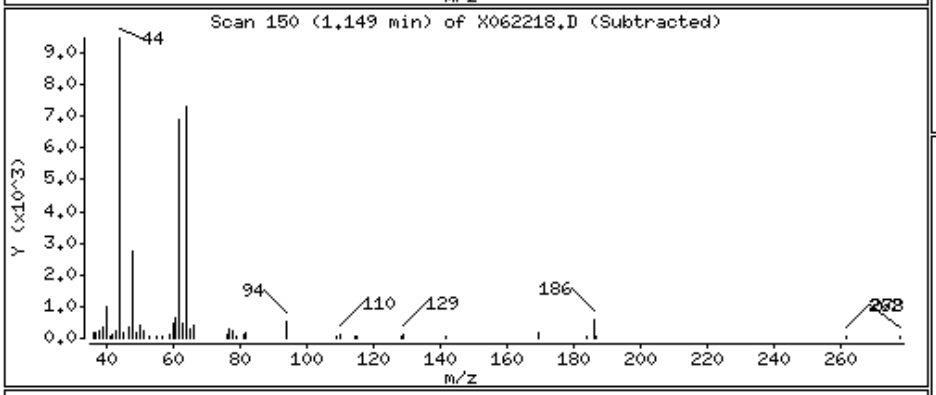
Column diameter: 0.18

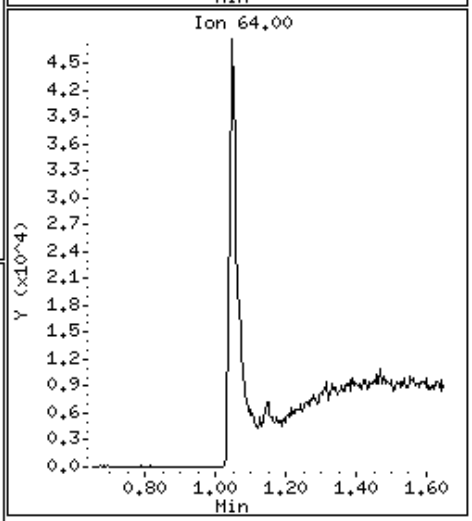
5 Vinyl Chloride

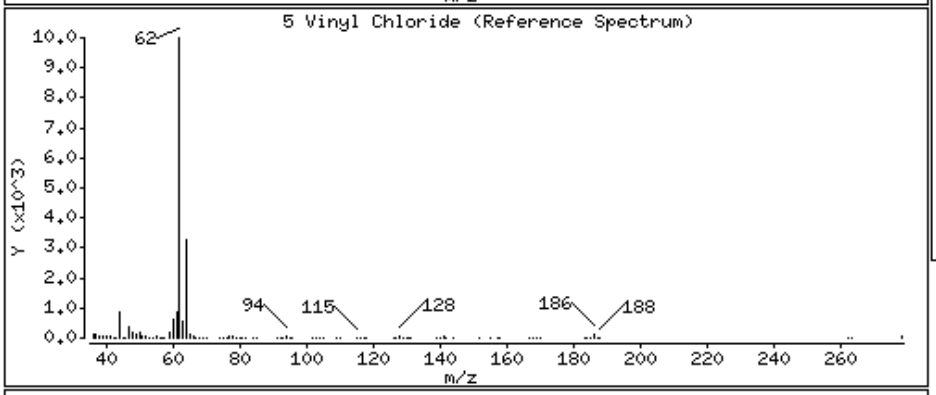
Concentration: 5.60 ug/l

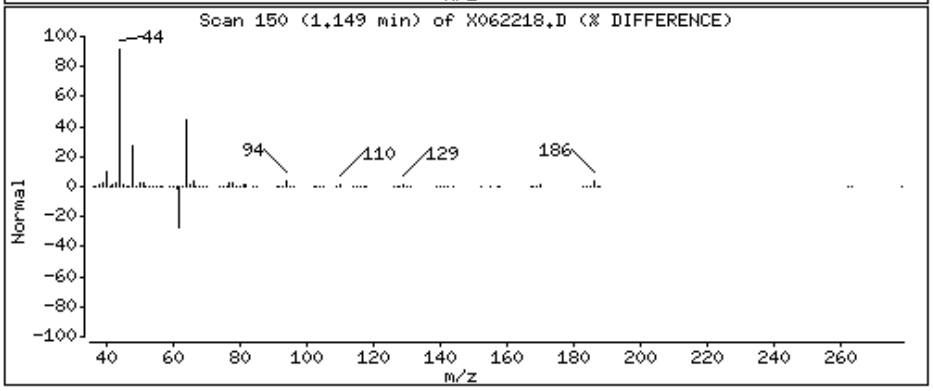












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062218.D
Inj Date : 22-JUN-2022 17:13
InstruID : voa6.i
LabSampID : HS22061145-01

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062219.D Page 1
Report Date: 15-Jul-2022 12:19

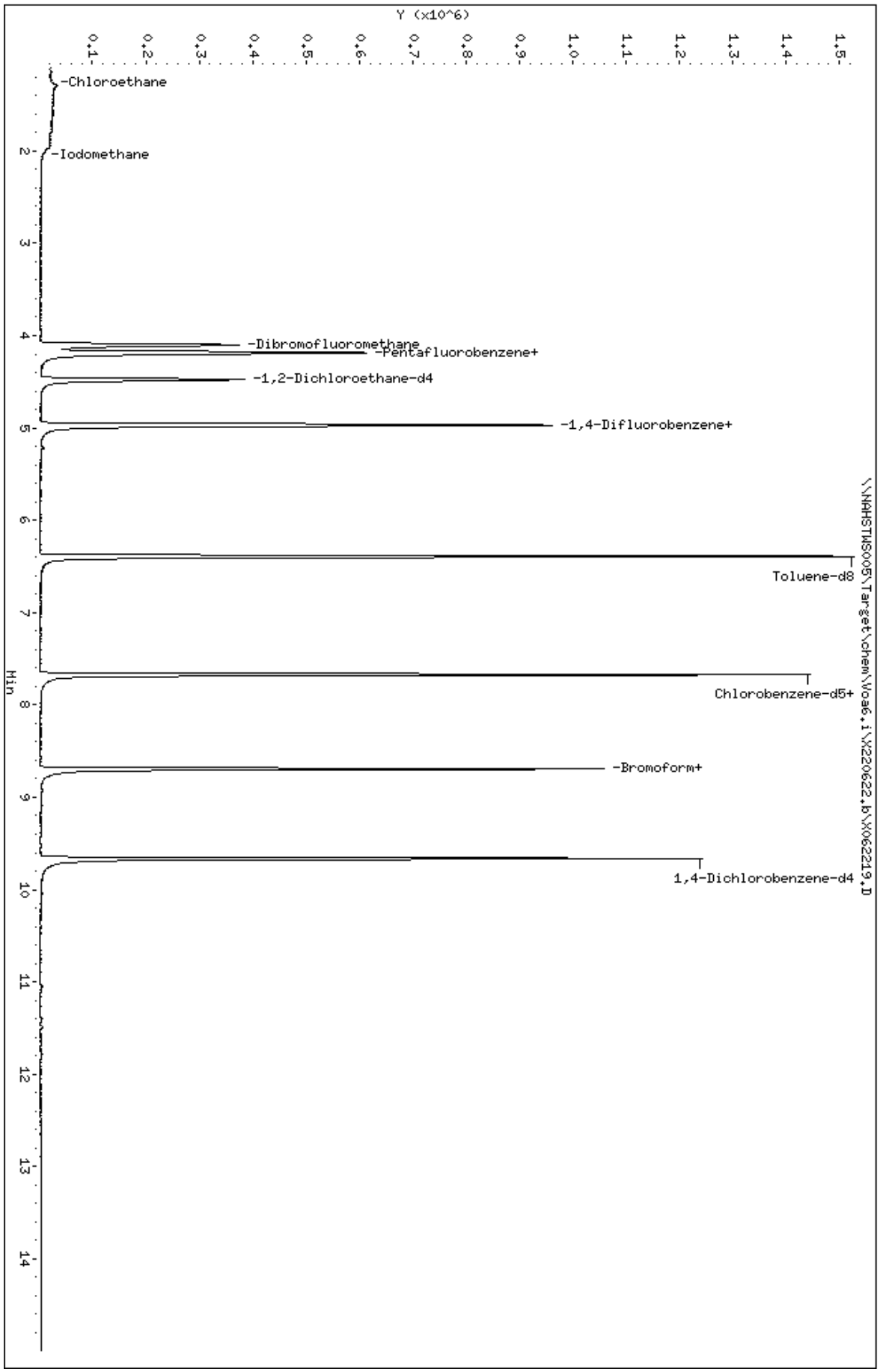
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062219.D
Lab Smp Id: HS22061145-05 Client Smp ID: HS22061145-05
Inj Date : 22-JUN-2022 17:34
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-05;HS22061145-05;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	531540	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	818201	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	735151	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	320566	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	296804	45.2943	45.29
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	315464	45.5033	45.50
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	262293	46.9402	46.94
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	962521	49.5780	49.57



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062219.D
Date : 22-JUN-2022 17:34
Client ID: HS22061145-05
Sample Info: HS22061145-05;HS22061145-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062219.D
Inj Date : 22-JUN-2022 17:34
InstruID : voa6.i
LabSampID : HS22061145-05

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062220.D Page 1
Report Date: 15-Jul-2022 12:19

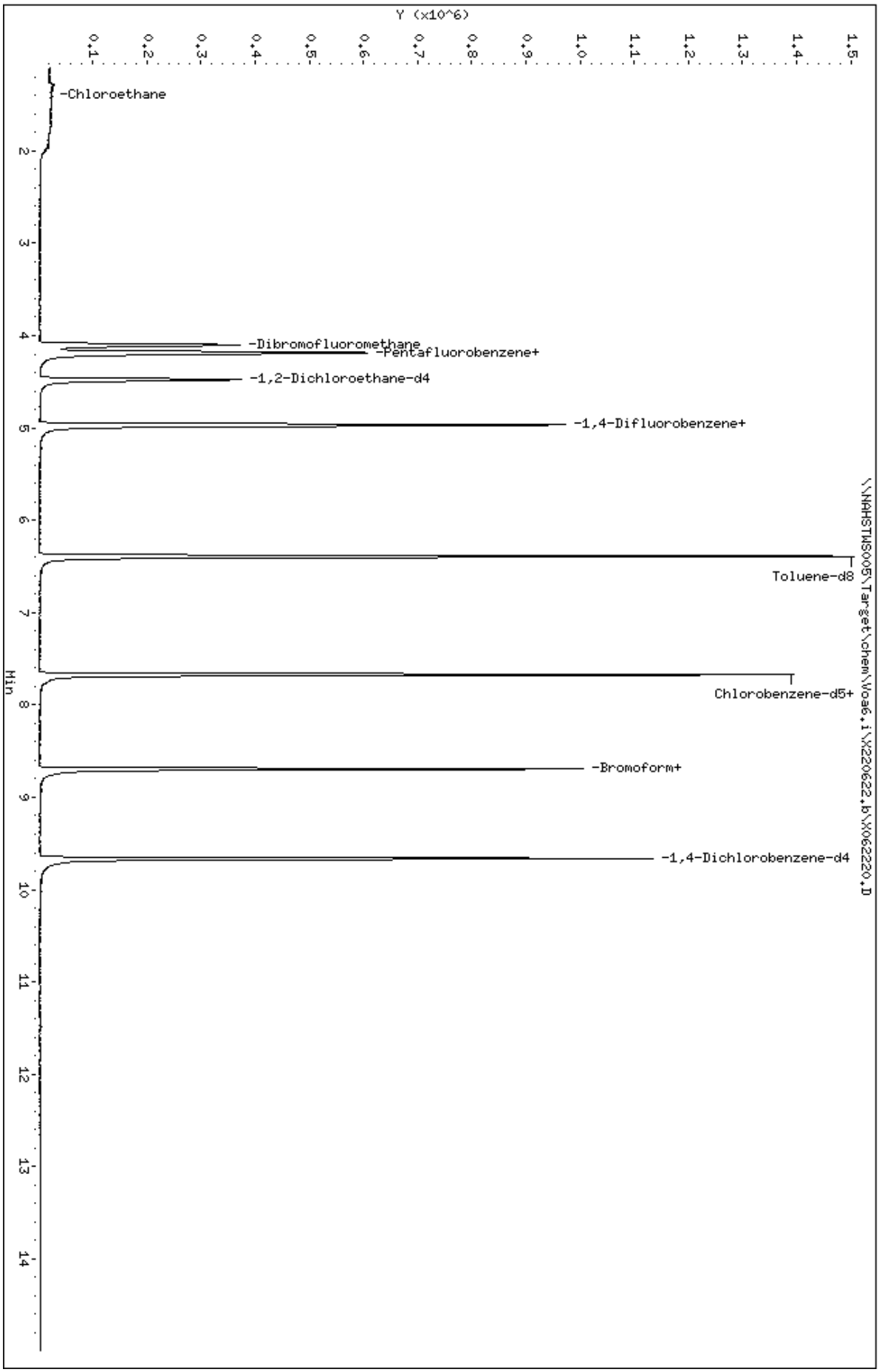
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062220.D
Lab Smp Id: HS22061145-06 Client Smp ID: HS22061145-06
Inj Date : 22-JUN-2022 17:55
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-06;HS22061145-06;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	526370	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.969	(1.000)	815202	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	716042	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.662	(1.000)	292578	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.473	4.478	(1.069)	289962	44.6803	44.68
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	310662	46.0163	46.01
$ 30 Dibromofluoromethane	113	4.102	4.099	(0.980)	258380	46.6940	46.69
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	949299	50.2019	50.20



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062220.D
Date : 22-JUN-2022 17:55
Client ID: HS22061145-06
Sample Info: HS22061145-06;HS22061145-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062220.D
Inj Date : 22-JUN-2022 17:55
InstruID : voa6.i
LabSampID : HS22061145-06

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062221.D Page 1
Report Date: 15-Jul-2022 12:19

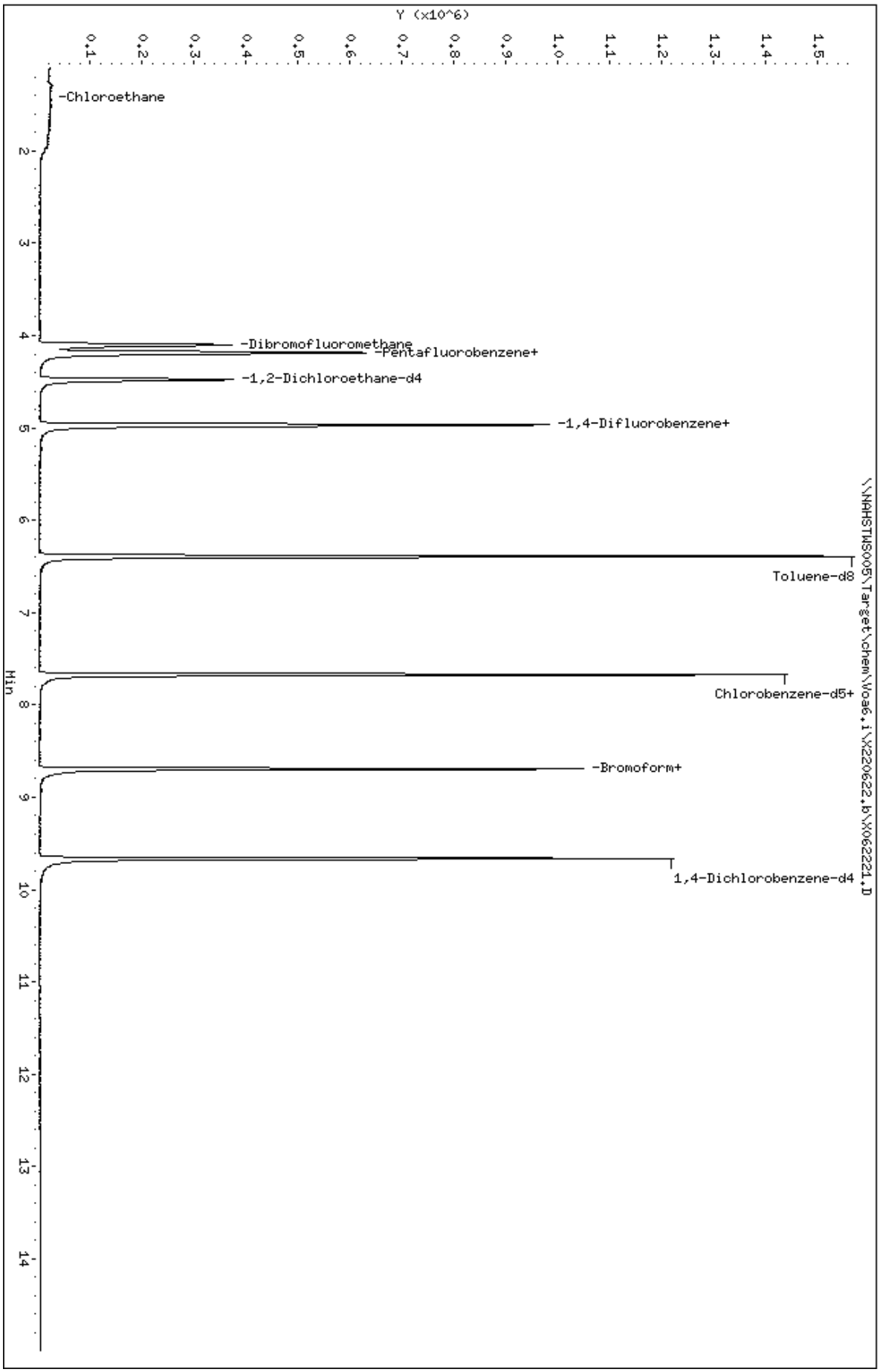
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062221.D
Lab Smp Id: HS22061145-07 Client Smp ID: HS22061145-07
Inj Date : 22-JUN-2022 18:17
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-07;HS22061145-07;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	534622	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.969	(1.000)	825266	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	742771	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.662	(1.000)	323065	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	294452	44.6718	44.67
$ 69 4-Bromofluorobenzene	95	8.695	8.691	(1.133)	323693	46.2250	46.22
$ 30 Dibromofluoromethane	113	4.102	4.099	(0.980)	257402	45.7988	45.79
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	961696	49.0273	49.02



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062221.D
Date : 22-JUN-2022 18:17
Client ID: HS22061145-07
Sample Info: HS22061145-07;HS22061145-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062221.D
Inj Date : 22-JUN-2022 18:17
InstruID : voa6.i
LabSampID : HS22061145-07

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062222.D Page 1
Report Date: 15-Jul-2022 12:19

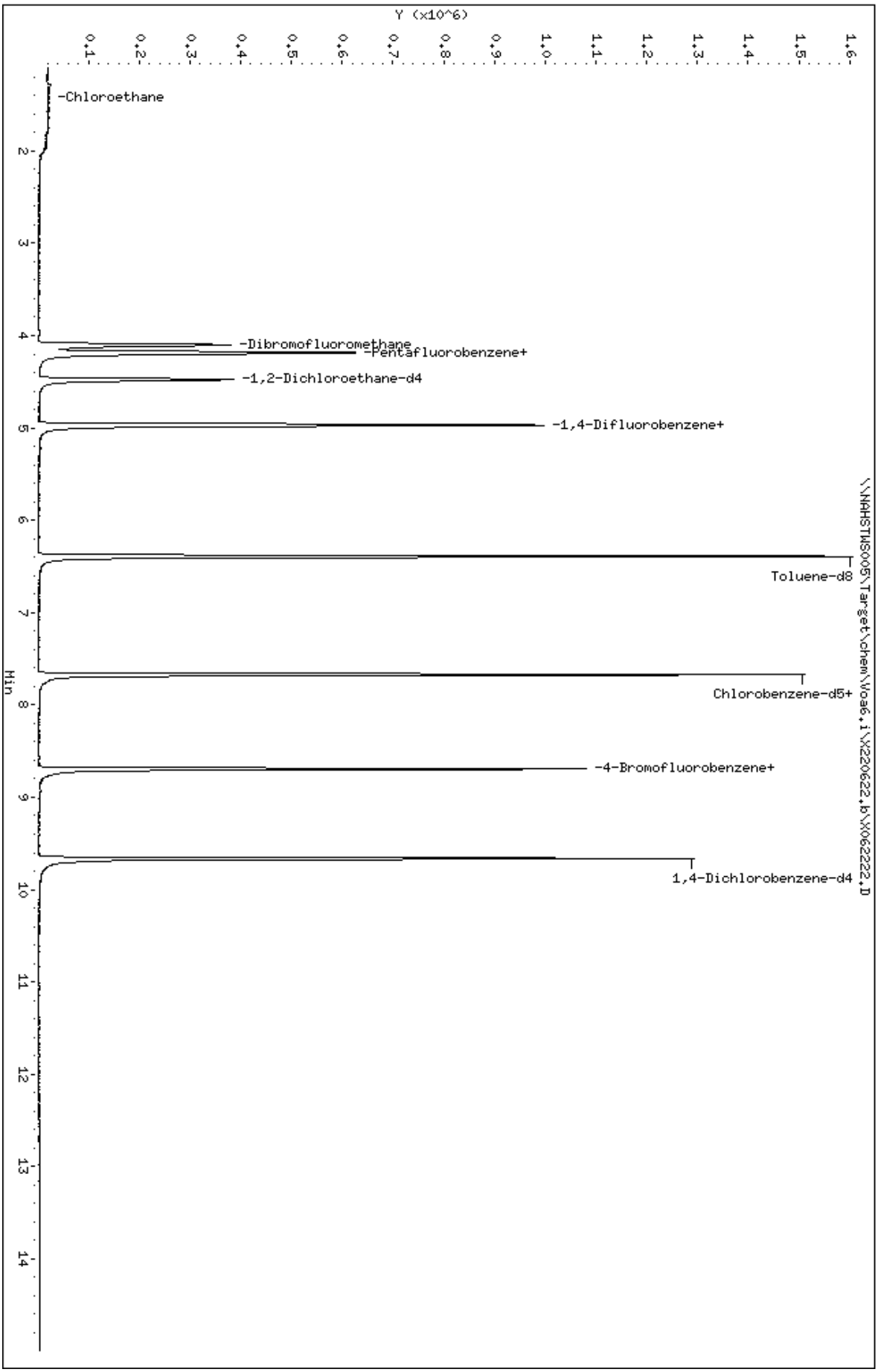
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062222.D
Lab Smp Id: HS22061145-08 Client Smp ID: HS22061145-08
Inj Date : 22-JUN-2022 18:38
Operator : PC Inst ID: voa6.i
Smp Info : HS22061145-08;HS22061145-08;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	545416	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	837867	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	761709	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.662	(1.000)	328817	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.478	(1.069)	297964	44.3073	44.30
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	329829	45.9246	45.92
$ 30 Dibromofluoromethane	113	4.103	4.099	(0.980)	266390	46.4603	46.46
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	987512	49.0918	49.09



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220622.b\X062222.D
Date : 22-JUN-2022 18:38
Client ID: HS22061145-08
Sample Info: HS22061145-08;HS22061145-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062222.D
Inj Date : 22-JUN-2022 18:38
InstruID : voa6.i
LabSampID : HS22061145-08

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062223.D Page 1
Report Date: 15-Jul-2022 12:19

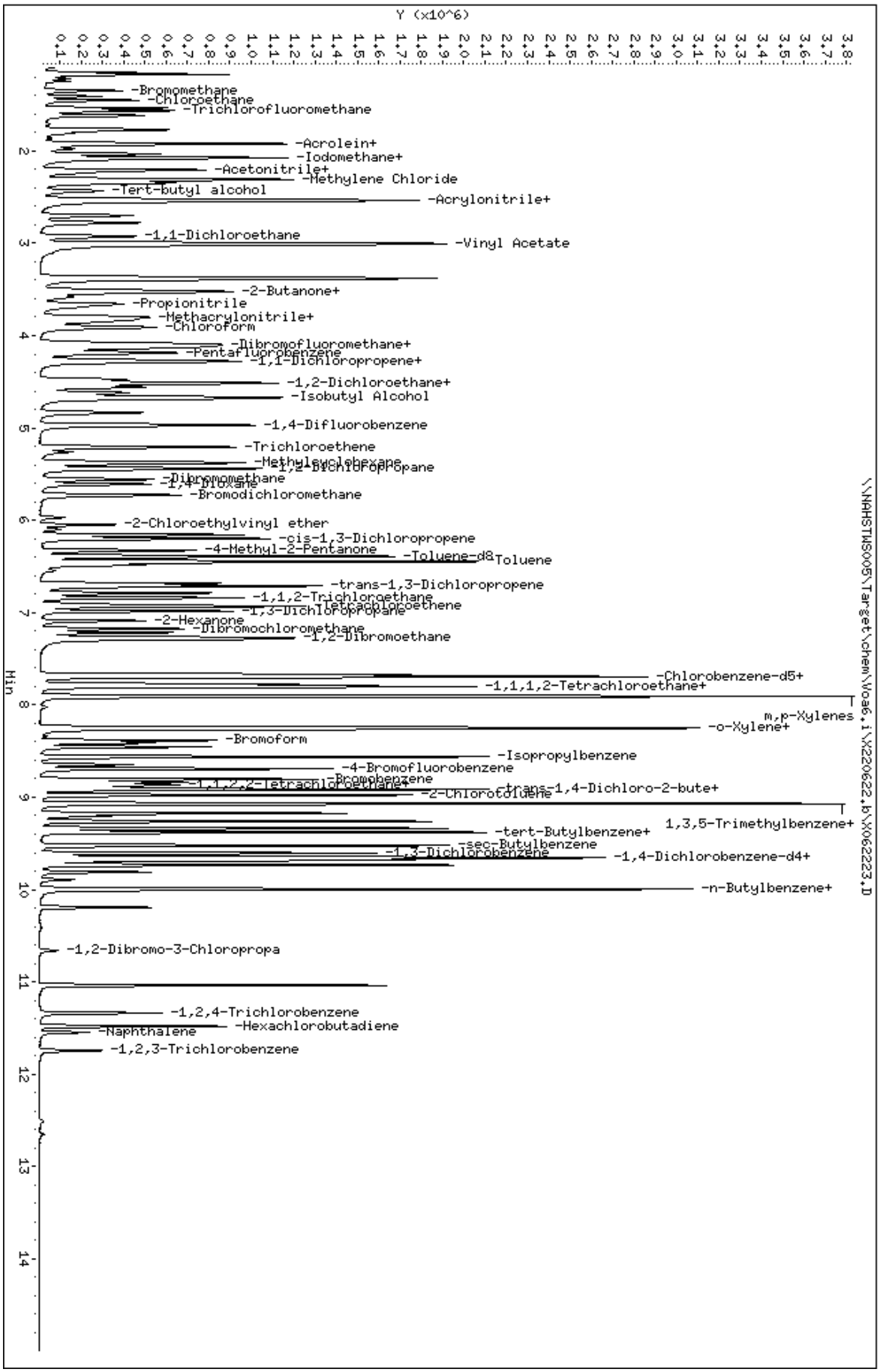
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062223.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 22-JUN-2022 18:59
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\8260W.m
Meth Date : 15-Jul-2022 12:19 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 22 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.185	4.185	(1.000)	537666	50.0000	
*	36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	846604	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	787339	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	376326	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	303489	50.0000	45.79
$	69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	364808	50.0000	49.20
$	30 Dibromofluoromethane	113	4.099	4.099	(0.979)	273082	50.0000	48.31
$	48 Toluene-d8	98	6.389	6.389	(0.833)	989877	50.0000	47.60
	53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	215393	50.0000	44.24
	11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	225333	50.0000	40.18
	33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	374578	50.0000	44.32
	27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	300978	50.0000	46.41
	17 Methylene Chloride	84	2.307	2.307	(0.551)	286407	50.0000	42.18
	38 Trichloroethene	130	5.208	5.208	(1.048)	307392	50.0000	48.32
	5 Vinyl Chloride	62	1.149	1.149	(0.275)	291110	50.0000	38.40



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062223.D
Date : 22-JUN-2022 18:59
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220622.b\X062223.D
Inj Date : 22-JUN-2022 18:59
InstruID : voa6.i
LabSampID : CCV-END

NO MANUAL INTEGRATIONS

HS22061145 - Sub Perch IV Report (E2200587)

ALS WO# HS22061145

July 25, 2022 Service Request No:E2200587

Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS22061145

Dear Dane,

Enclosed are the results of the sample(s) submitted to our laboratory June 22, 2022
For your reference, these analyses have been assigned our service request number **E2200587.**

Revision I - This report was revised to correct the sample IDs, corrected underscores to dashes (-)).

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS-Houston	**Service Request No.:**	E2200587
Project:	HS22061145	**Date Received:**	06/22/22
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 06/22/22.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2200257: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS-DLCS recoveries met acceptance criteria.

DoD Certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2200587
Project: HS22061145

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2200587-001	16WW37-220620	6/20/2022	0720
E2200587-002	16WW38-220620	6/20/2022	0805
E2200587-003	16WW34-220620	6/20/2022	1035
E2200587-004	16WW34-220620-FD	6/20/2022	1035
E2200587-005	16WW33-220620	6/20/2022	1120
E2200587-006	16WW31-220620	6/20/2022	1250
E2200587-007	16WW32-220620	6/20/2022	1205
E2200587-008	16WW46-220620	6/20/2022	1335

Service Request Summary

Folder #: **E2200587**
Client Name: ALS Environmental - US
Project Name: HS22061145
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/22/22
Internal Due Date: 7/7/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061145
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2200587-001	16WW37-220620	Ground Water	06/20/22 0720	**IV**
E2200587-002	16WW38-220620	Ground Water	06/20/22 0805	**IV**
E2200587-003	16WW34-220620	Ground Water	06/20/22 1035	**IV**
E2200587-004	16WW34-220620-FD	Ground Water	06/20/22 1035	**IV**
E2200587-005	16WW33-220620	Ground Water	06/20/22 1120	**IV**
E2200587-006	16WW31-220620	Ground Water	06/20/22 1250	**IV**
E2200587-007	16WW32-220620	Ground Water	06/20/22 1205	**IV**
E2200587-008	16WW46-220620	Ground Water	06/20/22 1335	**IV**

Service Request Summary

Folder #: **E2200587**
Client Name: ALS Environmental - US
Project Name: HS22061145
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/22/22
Internal Due Date: 7/7/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061145
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	(Auto) The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.

Data Qualifiers

Lab Standard

N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2023
California Department of Health Services	2919-2023	4/30/2023
Department of Defense	L22-90	3/31/2024
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-34	6/30/2022
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Hawaii Department of Health	2022	4/30/2023
Illinois Environmental Protection Agency	2000322022-9	5/9/2023
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2021	6/30/2022
Louisiana Department of Environmental Quality	03087-2022	6/30/2023
Louisiana Department of Health and Hospitals	LA028	12/31/2022
Maine Department of Health and Human Services	2022017	6/5/2024
Maryland Department of the Environment	343	6/30/2023
Michigan Depratment of Environmental Quality	9971-2022	4/30/2023
Minnesota Department of Health	2228443	12/31/2022
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2023
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209422	4/24/2023
New Jersey Department of Environmental Protection	TX008	6/30/2022
New York Department of Health	11707	3/31/2023
Oklahoma Department of Environmental Quality	2021-080	8/31/2022
Oregon Environmental Laboratory Accreditation Program	TX200002	5/15/2023
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Perry Johnson Laboratory Accreditation	L22-91	3/31/2024
Tennessee Department of Environment and Concervation	04016-2022	4/30/2023
Texas Commision on Environmental Quality	T104704231-22-29	4/30/2023
United States Department of Agriculture	P330-19-00299	10/10/2022
Utah Department of Health Environmental Laboratory Certification	TX026932021-12	7/31/2022
Washington Department of Health	C819-2022	11/14/2022

Chain of Custody

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F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19005**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Dane J. Wacasey
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Dane.Wacasey@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:	HS22061145
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS22061145-01**	**16WW37_220620**	**Groundwater**	**20 Jun 2022 07:20**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
2.	**HS22061145-02**	**16WW38_220620**	**Groundwater**	**20 Jun 2022 08:05**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
3.	**HS22061145-03**	**16WW34_220620**	**Groundwater**	**20 Jun 2022 10:35**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
4.	**HS22061145-04**	**16WW34_220620_FD**	**Groundwater**	**20 Jun 2022 10:35**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
5.	**HS22061145-05**	**16WW33_220620**	**Groundwater**	**20 Jun 2022 11:20**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
6.	**HS22061145-06**	**16WW31_220620**	**Groundwater**	**20 Jun 2022 12:50**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
7.	**HS22061145-07**	**16WW32_220620**	**Groundwater**	**20 Jun 2022 12:05**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			07 Jul 2022
8.	**HS22061145-08**	**16WW46_220620**	**Groundwater**	**20 Jun 2022 13:35**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19005**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.		07 Jul 2022

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: Paula Mann Date/Time: 6-22-22 12:00

Received By: COREY G Date/Time: 6/22/22 12:00

Cooler ID(s): Temperature(s):

Cooler Receipt Form

ALS Environmental

Project Chemist CG

Client/Project ALS-HI

Thermometer ID IR31

Date/Time Received: 6-22-22 Initials: CG

Date/Time Logged in: 6-22-22 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (ALS) ○ Client

2. Samples received in: ☒ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ☒ No

If yes, how many and where?

Were they intact? ○ Yes ○ No ☒ N/A

Were they signed and dated? ○ Yes ○ No ☒ N/A

4. Packing Material: ○ Inserts ☒ Baggies ○ Bubble Wrap ○ Gel Packs ☒ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		6-22-22	1200	CG	1.2°C	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☒ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ☒ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ☒ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ☒ Yes ○ No

10. Did sample labels and tags agree with custody documents? ☒ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

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Houston, TX 77099
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www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 401767 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 6/23/22 09:36

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2200587-001	16WW37-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2200587-002	16WW38-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2200587-003	16WW34-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2200587-004	16WW34-220620-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2200587-005	16WW33-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2200587-006	16WW31-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2200587-007	16WW32-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2200587-008	16WW46-220620	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2200588-001	LH18/24-SP650_062122_AIX	.01	6850/ClO4 DOD			Water	10mL	
10	EQ2200257-01	MB		6850/ClO4 DOD			Liquid	10mL	
11	EQ2200257-02	LCS		6850/ClO4 DOD			Liquid	10mL	
12	EQ2200257-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 222798 Logbook Ref: Perchlorate (1st Source) Expires On: 10/29/2022

EQ2200257-02 1.00µL EQ2200257-03 1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 223118 Logbook Ref: Perchlorate Internal Standard Expires On: 10/31/2022

E2200587-001	100.00µL	E2200587-002	100.00µL	E2200587-003	100.00µL	E2200587-004	100.00µL	E2200587-005	100.00µL	E2200587-006	100.00µL
E2200587-007	100.00µL	E2200587-008	100.00µL	E2200588-001	100.00µL	EQ2200257-01	100.00µL	EQ2200257-02	100.00µL	EQ2200257-03	100.00µL

Preparation Materials

Water HPLC Grade	02/16/2022 Water (221769)	6850 Amber Glass screw vial	2mL Screw Top Vial (221894)	537M Glass Culture Tubes	537M Glass Tubes (218064)
6850 0.45um syringe filters	6850 Syringe Filters (222410)	6850 Luer-Lok Syringes	Luer-Lok Syringes (221305)	6850 Pipette Tips 50-1000 uL	6850 Pipette Tips (221929)

Preparation Steps

Step: Preparation
Started: 6/23/22 09:36
Finished: 6/23/22 10:15
By: GRIVERA
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 401767
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/22 09:36

Reviewed By: GR Date: 6/23/22

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 0720
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW37-220620	**Units:**	µg/L
Lab Code:	E2200587-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**25.1**		0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:52	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 0805
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW38-220620	**Units:**	µg/L
Lab Code:	E2200587-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0381**	J	0.100	0.0500	0.0250	1	6/23/22	6/24/22 17:43	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1035
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW34-220620	**Units:**	µg/L
Lab Code:	E2200587-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0429**	J	0.100	0.0500	0.0250	1	6/23/22	6/24/22 17:50	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1035
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW34-220620-FD	**Units:**	µg/L
Lab Code:	E2200587-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 16:16	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1120
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW33-220620	**Units:**	µg/L
Lab Code:	E2200587-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 17:58	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1250
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW31-220620	**Units:**	µg/L
Lab Code:	E2200587-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 16:32	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1205
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW32-220620	**Units:**	µg/L
Lab Code:	E2200587-007	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/28/22 12:22	401767	769030	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	6/20/22 1335
Sample Matrix:	Ground Water	**Date Received:**	6/22/22
Sample Name:	16WW46-220620	**Units:**	µg/L
Lab Code:	E2200587-008	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 16:55	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2200257-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:21	401767	768766	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145
Sample Matrix: Ground Water

Service Request: E2200587
Date Analyzed: 6/24/22

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 401767

	Lab Control Sample EQ2200257-02			Duplicate Lab Control Sample EQ2200257-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.118	0.100	118	0.103	0.100	103	84 - 119	13	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200257-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.118**		0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:29	401767	768766	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200257-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.103**		0.100	0.0500	0.0250	1	6/23/22	6/24/22 15:44	401767	768766	

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
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20220601

1st Review: GRivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 6/1/2022
Cal. Std. xp: 9/4/2022
ICAL ID: **EC2200008**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100819-09 **B:** MeOH 217304

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE2		20220601_016	Perchlorate6850c.lcm	1x	☒	222804	6/1/2022 14:02
2	PERCHLORATE3		20220601_017	Perchlorate6850c.lcm	1x	☒	222806	6/1/2022 14:09
3	PERCHLORATE4		20220601_018	Perchlorate6850c.lcm	1x	☒	222807	6/1/2022 14:17
4	PERCHLORATE5		20220601_019	Perchlorate6850c.lcm	1x	☒	222808	6/1/2022 14:25
5	PERCHLORATE6		20220601_020	Perchlorate6850c.lcm	1x	☒	222809	6/1/2022 14:33
6	PERCHLORATE7		20220601_021	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 14:41
7	PERCHLORATE8		20220601_022	Perchlorate6850c.lcm	1x	☒	222811	6/1/2022 14:49
8	PERCHLORATE9		20220601_023	Perchlorate6850c.lcm	1x	☒	222812	6/1/2022 14:57
9	PERCHLORATE10		20220601_024	Perchlorate6850c.lcm	1x	☒	222813	6/1/2022 15:05
10	PERCHLORATE1		20220601_026	Perchlorate6850c.lcm	1x	☒	222805	6/1/2022 15:39
11	PERCHLORATEICV		20220601_028	Perchlorate6850c.lcm	1x	☒	222814	6/1/2022 15:55
12	IB		20220601_029	Perchlorate6850c.lcm	1x	☒		6/1/2022 16:03
13	ICS		20220601_030	Perchlorate6850c.lcm	1x	☒		6/1/2022 16:11
14	PERCHLORATE7		20220601_031	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 16:58
15	LODV		20220601_032	Perchlorate6850c.lcm	1x	☒	222817	6/1/2022 17:22
16	E2200484-001X5		20220601_033	Perchlorate6850c.lcm	5x	☒	DNU-analyze 1x	6/1/2022 17:30
17	E2200454-002X500		20220601_034	Perchlorate6850c.lcm	500x	☒		6/1/2022 17:38
18	E2200484-001		20220601_035	Perchlorate6850c.lcm	1x	☒	DNU-bad injection	6/1/2022 17:46
19	E2200454-003		20220601_036	Perchlorate6850c.lcm	1x	☒		6/1/2022 17:54
20	E2200454-004		20220601_037	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:01
21	E2200454-005		20220601_038	Perchlorate6850c.lcm	1x	☒	Reanalyze- IR	6/1/2022 18:09
22	E2200454-006		20220601_039	Perchlorate6850c.lcm	1x	☒	Reanalyze- IR	6/1/2022 18:17
23	E2200454-007		20220601_040	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:25
24	E2200454-008		20220601_041	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:33
25	PERCHLORATE7		20220601_042	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 18:41
26	E2200470-001		20220601_043	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:49
27	R2204439-003		20220601_044	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:57
28	R2204439-007		20220601_045	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:04
29	R2204439-009		20220601_046	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:12
30	R2204582-011		20220601_047	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:20
31	R2204582-030		20220601_048	Perchlorate6850c.lcm	1x	☒	Reanalyze- IR	6/1/2022 19:28
32	R2204582-035		20220601_049	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:36
33	R2204616-004		20220601_050	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:44
34	R2204616-011		20220601_051	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:52
35	PERCHLORATE7		20220601_052	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 20:00
36	IB		20220601_053	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:08
37	IB		20220601_054	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:15
38	null		20220601_055	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:20
39	null		20220601_056	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:25

Initial Calibration - Detailed Report

Calibration ID: EC2200008 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2200008-01	PERCHLORATE2	20220601_016	06/01/2022 14:02
02	EC2200008-02	PERCHLORATE3	20220601_017	06/01/2022 14:09
03	EC2200008-03	PERCHLORATE4	20220601_018	06/01/2022 14:17
04	EC2200008-04	PERCHLORATE5	20220601_019	06/01/2022 14:25
05	EC2200008-05	PERCHLORATE6	20220601_020	06/01/2022 14:33
06	EC2200008-06	PERCHLORATE7	20220601_021	06/01/2022 14:41
07	EC2200008-07	PERCHLORATE8	20220601_022	06/01/2022 14:49
08	EC2200008-08	PERCHLORATE9	20220601_023	06/01/2022 14:57
09	EC2200008-09	PERCHLORATE10	20220601_024	06/01/2022 15:05
10	EC2200008-10	PERCHLORATE1	20220601_026	06/01/2022 15:39

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 10.81** **Average RF = 0.1511**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5000	0.1553	02	0.7000	0.1519	03	1.0000	0.1465	04	2.0000	0.1514
05	5.0000	0.1444	06	10.0000	0.1425	07	20.0000	0.1496	08	30.0000	0.1358
09	50.0000	0.1396	10	0.1000	0.1944						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.5000	0.514	2.7	02	0.7000	0.703	0.5	03	1.0000	0.969	-3.1
04	2.0000	2.00	0.2	05	5.0000	4.78	-4.4	06	10.0000	9.43	-5.7
07	20.0000	19.8	-1.0	08	30.0000	27.0	-10.2	09	50.0000	46.2	-7.7
10	0.1000	0.129	28.6								

Initial Calibration Verification Summary Report

Calibration ID:	EC2200008	**Instrument ID:**	E-LCMS-01
Datafile ID:	20220601_028	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2200008-11	T	Average RF	10	9.710	ng/mL	-2.9	<= 15

Insight Report

Printed at 6/2/2022 10:42:59 AM

Method File: I:\LCMS01\DATA\20220601\20220601.lcm
Project File: I:\LCMS01\DATA\20220601\20220601.damlp

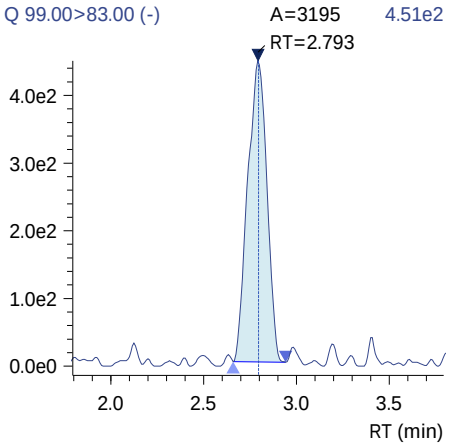
PERCHLORATE2

Sample ID: PERCHLORATE2
Date Acquired: 6/1/2022 2:02:03 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_016.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.793	3195	41158	0.5136	ng/mL	27.57	18.52-34.39
Perchlorate 2	Auto	2.781	881	41158	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.777	41158	41158	1.0000	ng/mL	----	

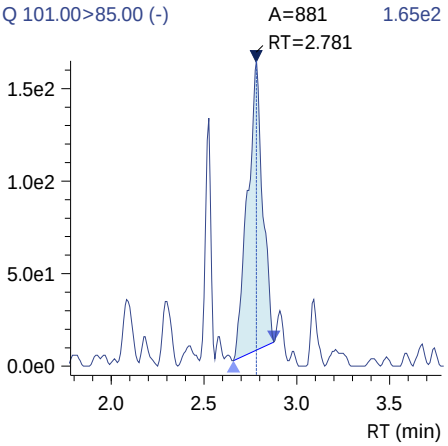
Perchlorate

Conc 0.5136



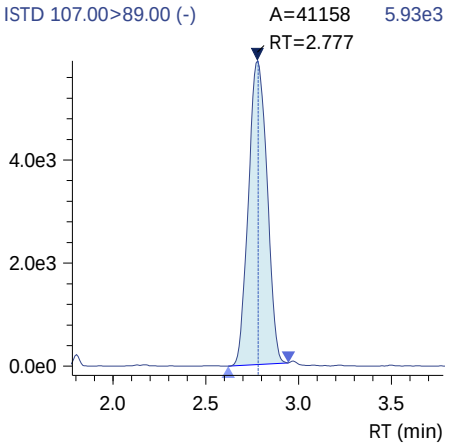
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

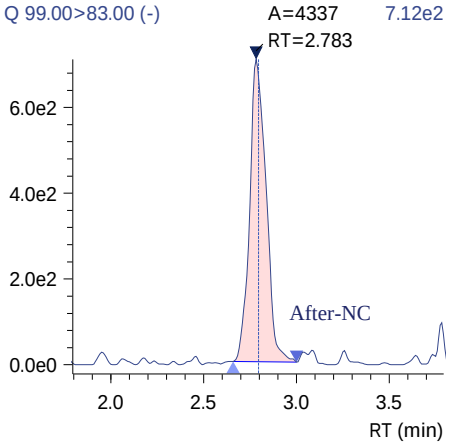
PERCHLORATE3

Sample ID: PERCHLORATE3
Date Acquired: 6/1/2022 2:09:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_017.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI	2.783	4337	40792	0.7035	ng/mL	24.99	18.52-34.39
Perchlorate 2	M	2.843	1084	40792	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.787	40792	40792	1.0000	ng/mL	----	

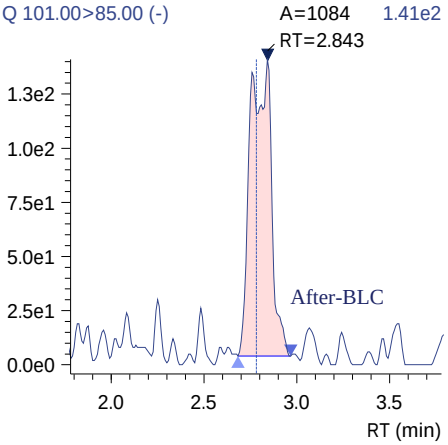
Perchlorate

Conc 0.7035



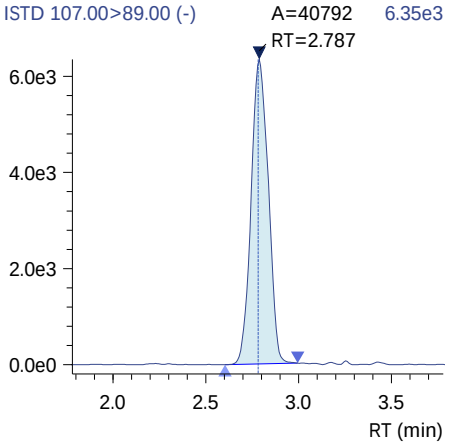
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 9:46:32 AM

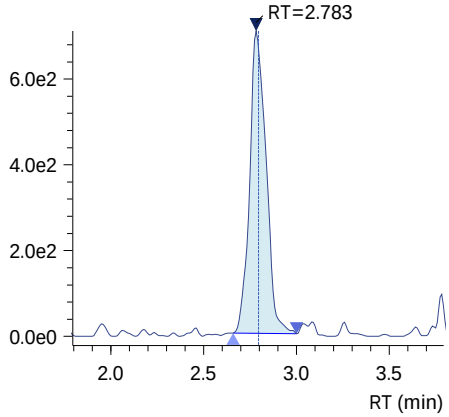
PERCHLORATE3

Sample ID: PERCHLORATE3
Date Acquired: 6/1/2022 2:09:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_017.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Perchlorate

Conc 0.7205

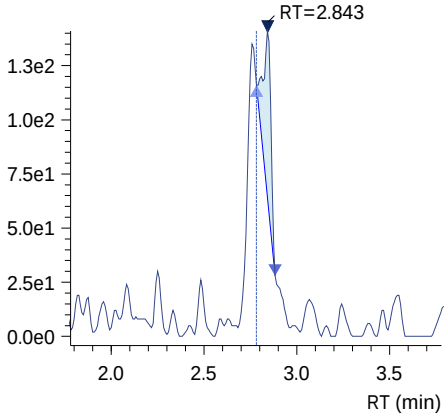
Q 99.00>83.00 (-) A=4337 7.12e2



Perchlorate 2

Conc 0.0000

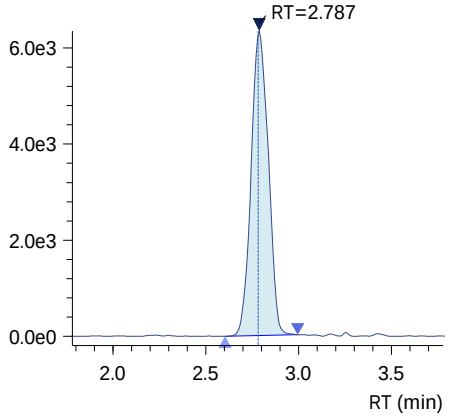
Q 101.00>85.00 (-) A=213 1.41e2



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=40792 6.35e3



Insight Report

Printed at 6/2/2022 10:42:59 AM

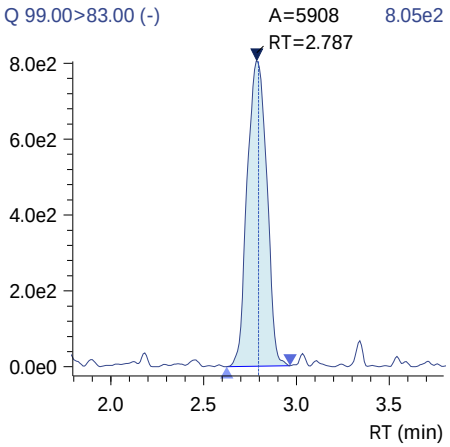
PERCHLORATE4

Sample ID: PERCHLORATE4
Date Acquired: 6/1/2022 2:17:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_018.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.787	5908	40337	0.9691	ng/mL	25.81	18.52-34.39
Perchlorate 2	Auto	2.776	1525	40337	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.787	40337	40337	1.0000	ng/mL	----	

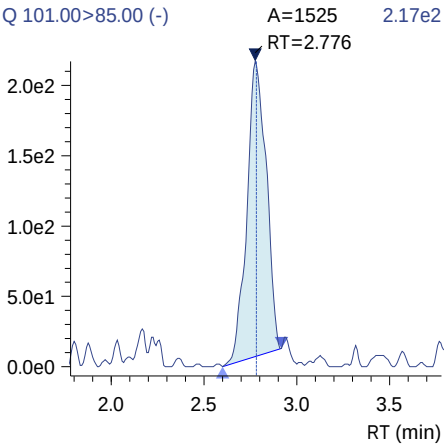
Perchlorate

Conc 0.9691



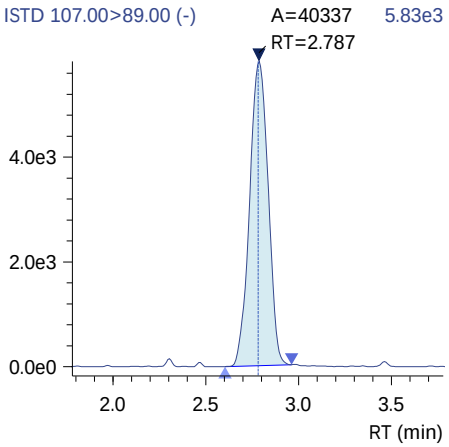
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

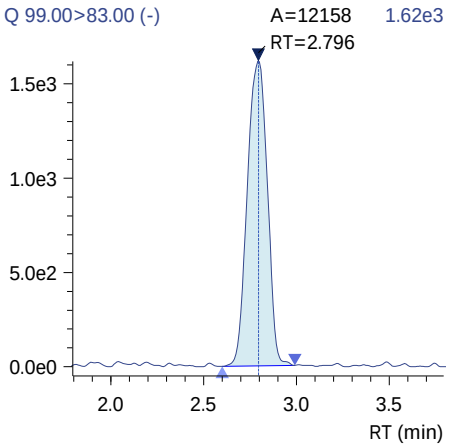
PERCHLORATE5

Sample ID: PERCHLORATE5
Date Acquired: 6/1/2022 2:25:47 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_019.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.796	12158	40141	2.0041	ng/mL	27.57	18.52-34.39
Perchlorate 2	Auto	2.785	3352	40141	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.784	40141	40141	1.0000	ng/mL	----	

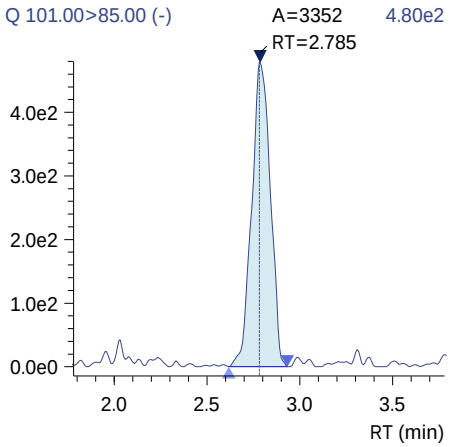
Perchlorate

Conc 2.0041



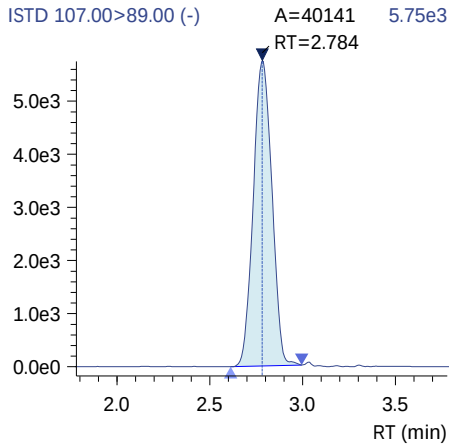
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

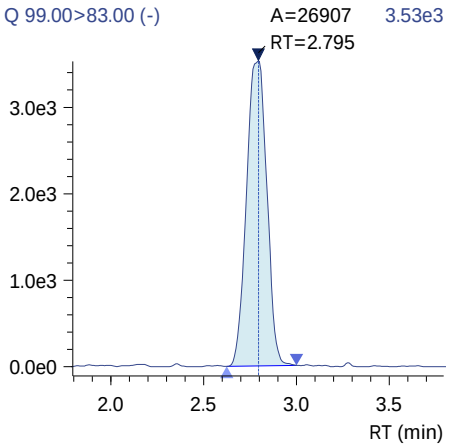
PERCHLORATE6

Sample ID: PERCHLORATE6
Date Acquired: 6/1/2022 2:33:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_020.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.795	26907	37256	4.7788	ng/mL	24.81	18.52-34.39
Perchlorate 2	Auto	2.781	6676	37256	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.781	37256	37256	1.0000	ng/mL	----	

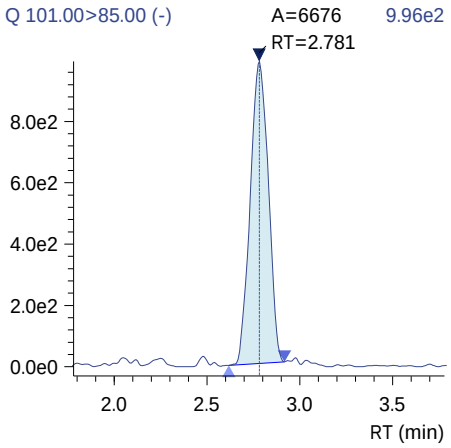
Perchlorate

Conc 4.7788



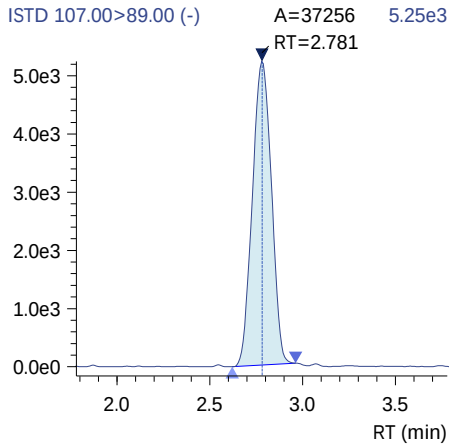
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

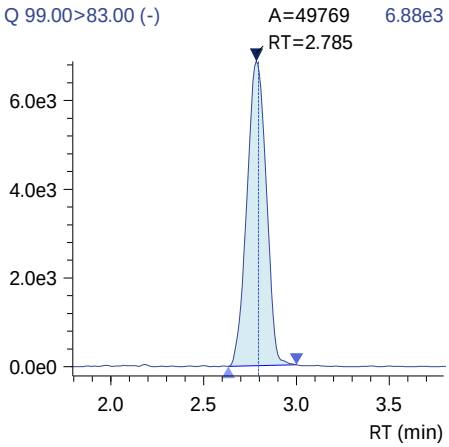
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/1/2022 2:41:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_021.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.785	49769	34931	9.4274	ng/mL	26.27	18.52-34.39
Perchlorate 2	Auto	2.789	13072	34931	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.782	34931	34931	1.0000	ng/mL	----	

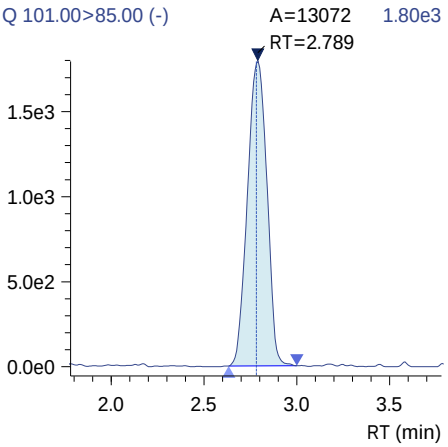
Perchlorate

Conc 9.4274



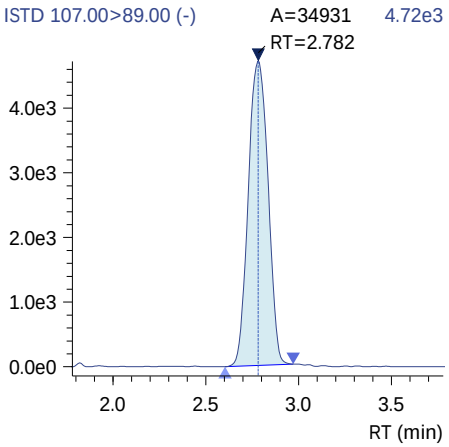
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

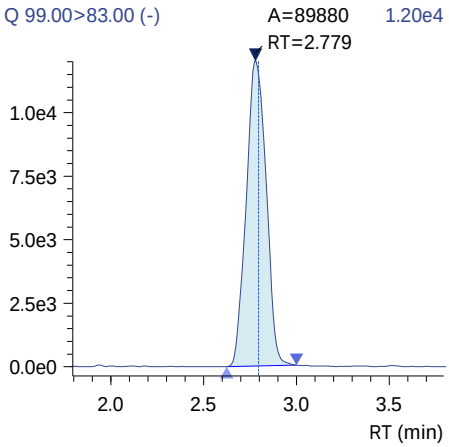
PERCHLORATE8

Sample ID: PERCHLORATE8
Date Acquired: 6/1/2022 2:49:32 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_022.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.779	89880	30033	19.8021	ng/mL	26.40	18.52-34.39
Perchlorate 2	Auto	2.789	23731	30033	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.774	30033	30033	1.0000	ng/mL	----	

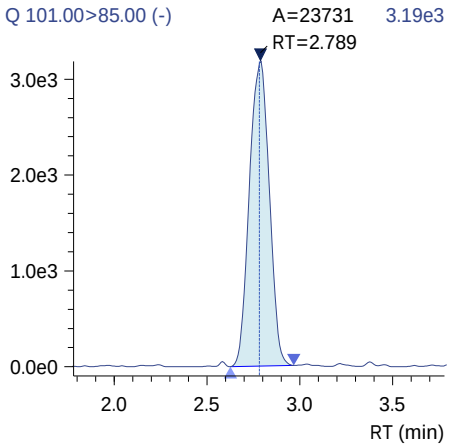
Perchlorate

Conc 19.8021



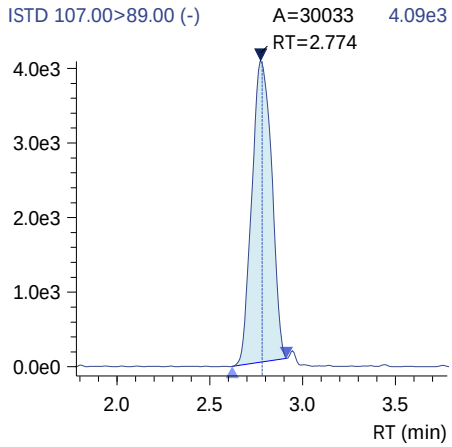
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

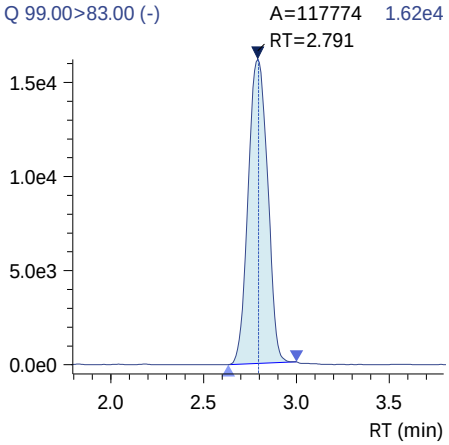
PERCHLORATE9

Sample ID: PERCHLORATE9
Date Acquired: 6/1/2022 2:57:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_023.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.791	117774	28915	26.9509	ng/mL	26.79	18.52-34.39
Perchlorate 2	Auto	2.786	31550	28915	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.793	28915	28915	1.0000	ng/mL	----	

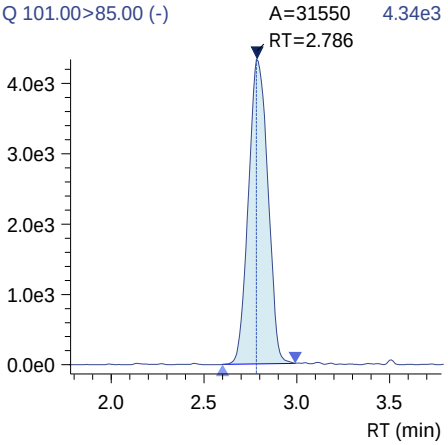
Perchlorate

Conc 26.9509



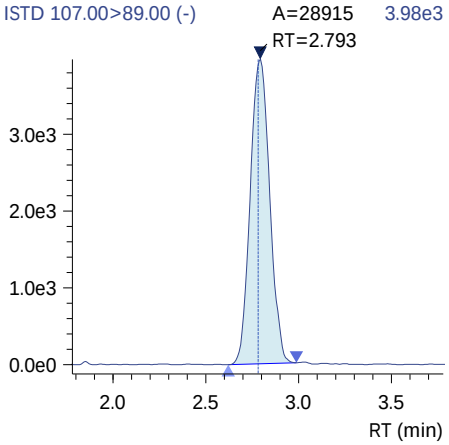
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

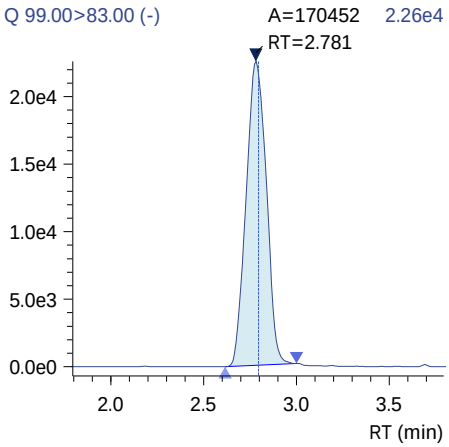
PERCHLORATE10

Sample ID: PERCHLORATE10
Date Acquired: 6/1/2022 3:05:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_024.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.781	170452	24428	46.1701	ng/mL	25.87	18.52-34.39
Perchlorate 2	Auto	2.774	44101	24428	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.780	24428	24428	1.0000	ng/mL	----	

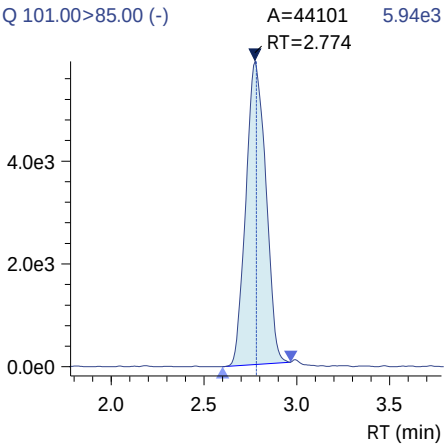
Perchlorate

Conc 46.1701



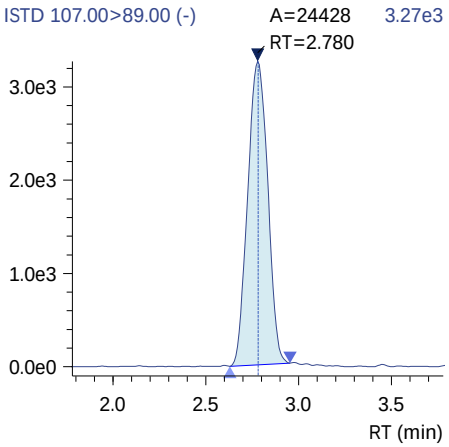
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

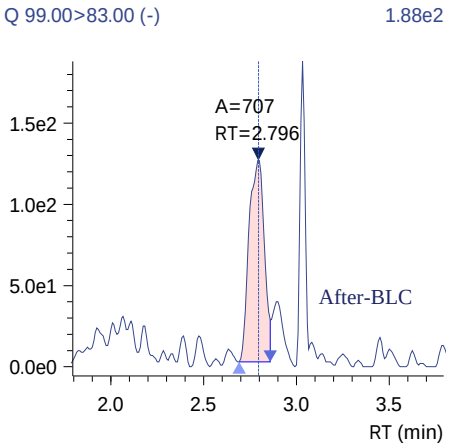
PERCHLORATE1

Sample ID: PERCHLORATE1
Date Acquired: 6/1/2022 3:39:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_026.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.796	707	36372	0.1286	ng/mL	28.15	18.52-34.39
Perchlorate 2	M	2.750	199	36372	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.772	36372	36372	1.0000	ng/mL	----	

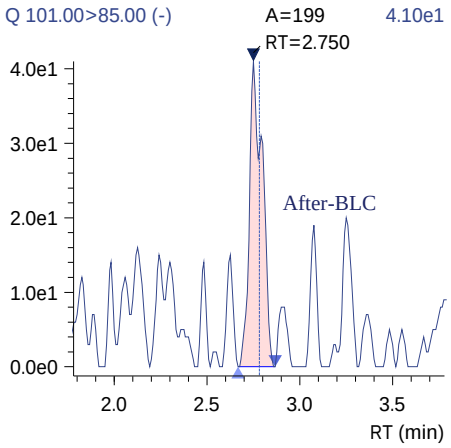
Perchlorate

Conc 0.1286



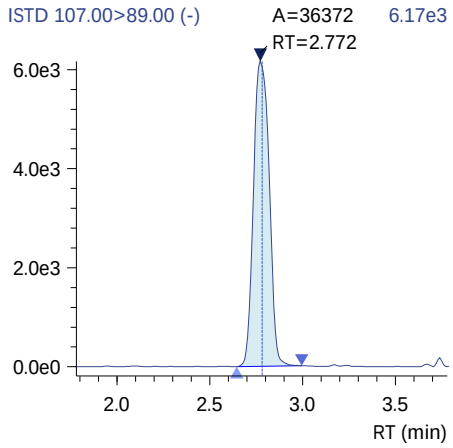
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 9:46:32 AM

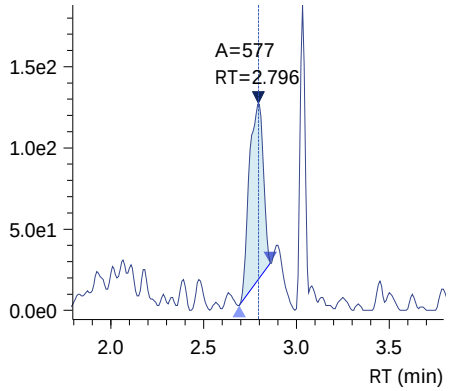
PERCHLORATE1

Sample ID: PERCHLORATE1
Date Acquired: 6/1/2022 3:39:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_026.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Perchlorate

Conc 0.1075

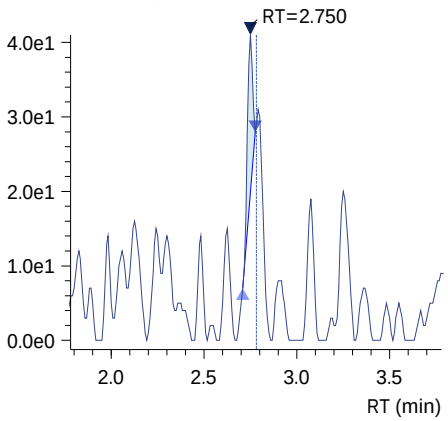
Q 99.00>83.00 (-) 1.88e2



Perchlorate 2

Conc 0.0000

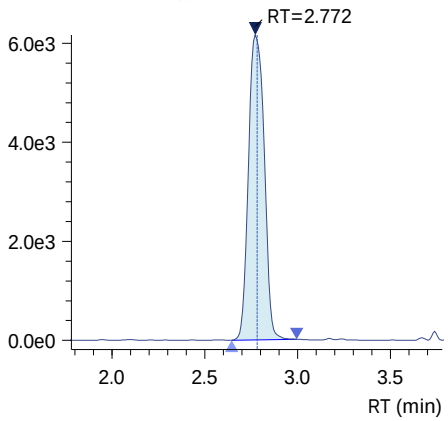
Q 101.00>85.00 (-) A=39 4.10e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=36372 6.17e3



Insight Report

Printed at 6/2/2022 10:42:59 AM

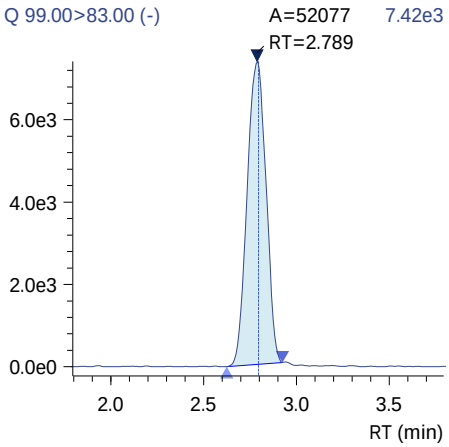
PERCHLORATEICV

Sample ID: PERCHLORATEICV
Date Acquired: 6/1/2022 3:55:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_028.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.789	52077	35488	9.7098	ng/mL	26.93	18.52-34.39
Perchlorate 2	Auto	2.782	14023	35488	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.780	35488	35488	1.0000	ng/mL	----	

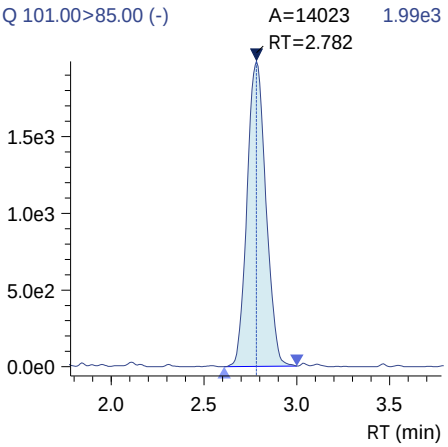
Perchlorate

Conc 9.7098



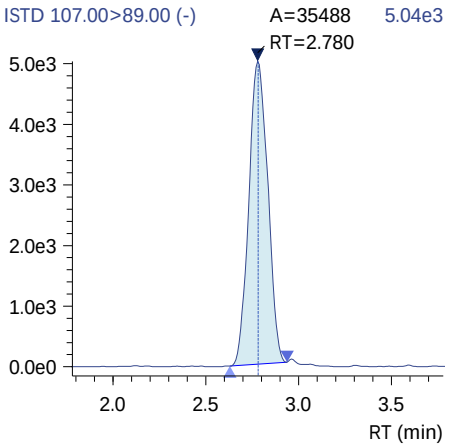
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20220624

1st Review: GRivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 6/1/2022
Cal. Std. xp: 9/4/2022
ICAL ID: **EC2200008**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100819-09 **B:** MeOH 217304

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20220624_001	Perchlorate6850c.lcm	1x	☒		6/24/2022 9:23
2	null		20220624_002	Perchlorate6850c.lcm	1x	☒		6/24/2022 9:28
3	IB		20220624_003	Perchlorate6850c.lcm	1x	☒		6/24/2022 9:34
4	IB		20220624_004	Perchlorate6850c.lcm	1x	☒		6/24/2022 9:41
5	IB		20220624_005	Perchlorate6850c.lcm	1x	☒		6/24/2022 9:49
6	IB		20220624_006	Perchlorate6850c.lcm	1x	☒		6/24/2022 9:57
7	ICS		20220624_007	Perchlorate6850c.lcm	1x	☒		6/24/2022 10:53
8	LODV		20220624_008	Perchlorate6850c.lcm	1x	☒	222817	6/24/2022 11:01
9	PERCHLORATE7		20220624_009	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 11:22
10	E2200578-005		20220624_010	Perchlorate6850c.lcm	1x	☒	DNU-IR	6/24/2022 11:30
11	E2200578-006		20220624_011	Perchlorate6850c.lcm	1x	☒		6/24/2022 11:37
12	E2200578-007		20220624_012	Perchlorate6850c.lcm	1x	☒		6/24/2022 11:45
13	E2200578-008X10		20220624_013	Perchlorate6850c.lcm	10x	☒		6/24/2022 11:53
14	E2200578-005		20220624_014	Perchlorate6850c.lcm	1x	☒		6/24/2022 12:11
15	PERCHLORATE7		20220624_015	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 12:19
16	EQ2200256-01		20220624_016	Perchlorate6850c.lcm	1x	☒		6/24/2022 12:51
17	EQ2200256-02		20220624_017	Perchlorate6850c.lcm	1x	☒		6/24/2022 12:59
18	EQ2200256-03		20220624_018	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 13:07
19	E2200586-001		20220624_019	Perchlorate6850c.lcm	1x	☒		6/24/2022 13:15
20	E2200586-002		20220624_020	Perchlorate6850c.lcm	1x	☒		6/24/2022 13:23
21	E2200586-003		20220624_021	Perchlorate6850c.lcm	1x	☒	DNU-over ICAL range	6/24/2022 13:30
22	E2200594-001		20220624_022	Perchlorate6850c.lcm	1x	☒	Reanalyze carryover	6/24/2022 13:38
23	E2200586-005		20220624_023	Perchlorate6850c.lcm	1x	☒		6/24/2022 13:46
24	E2200586-006		20220624_024	Perchlorate6850c.lcm	1x	☒	DNU-over ICAL range	6/24/2022 13:54
25	E2200586-007		20220624_025	Perchlorate6850c.lcm	1x	☒		6/24/2022 14:02
26	PERCHLORATE7		20220624_026	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 14:10
27	E2200586-008		20220624_027	Perchlorate6850c.lcm	1x	☒	DNU-IR	6/24/2022 14:18
28	E2200589-001		20220624_028	Perchlorate6850c.lcm	1x	☒		6/24/2022 14:26
29	E2200589-002		20220624_029	Perchlorate6850c.lcm	1x	☒		6/24/2022 14:34
30	E2200590-001		20220624_030	Perchlorate6850c.lcm	1x	☒		6/24/2022 14:41
31	E2200590-002		20220624_031	Perchlorate6850c.lcm	1x	☒	DNU-IR	6/24/2022 14:49
32	E2200591-001		20220624_032	Perchlorate6850c.lcm	1x	☒		6/24/2022 14:57
33	E2200592-001		20220624_033	Perchlorate6850c.lcm	1x	☒		6/24/2022 15:05
34	PERCHLORATE7		20220624_034	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 15:13
35	EQ2200257-01		20220624_035	Perchlorate6850c.lcm	1x	☒		6/24/2022 15:21
36	EQ2200257-02		20220624_036	Perchlorate6850c.lcm	1x	☒		6/24/2022 15:29
37	EQ2200257-03		20220624_037	Perchlorate6850c.lcm	1x	☒		6/24/2022 15:44
38	E2200587-001		20220624_038	Perchlorate6850c.lcm	1x	☒		6/24/2022 15:52
39	E2200587-002		20220624_039	Perchlorate6850c.lcm	1x	☒	DNU-IR	6/24/2022 16:00
40	E2200587-003		20220624_040	Perchlorate6850c.lcm	1x	☒		6/24/2022 16:08
41	E2200587-004		20220624_041	Perchlorate6850c.lcm	1x	☒		6/24/2022 16:16
42	E2200587-005		20220624_042	Perchlorate6850c.lcm	1x	☒	DNU-IR	6/24/2022 16:24
43	E2200587-006		20220624_043	Perchlorate6850c.lcm	1x	☒		6/24/2022 16:32
44	PERCHLORATE7		20220624_044	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 16:40
45	E2200587-007		20220624_045	Perchlorate6850c.lcm	1x	☒	DNU-IR	6/24/2022 16:47
46	E2200587-008		20220624_046	Perchlorate6850c.lcm	1x	☒		6/24/2022 16:55
47	E2200588-001		20220624_047	Perchlorate6850c.lcm	1x	☒		6/24/2022 17:03
48	PERCHLORATE7		20220624_048	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 17:11
49	E2200594-001		20220624_049	Perchlorate6850c.lcm	1x	☒		6/24/2022 17:19
50	E2200586-005		20220624_050	Perchlorate6850c.lcm	1x	☒	confirms-report original	6/24/2022 17:27
51	E2200586-008		20220624_051	Perchlorate6850c.lcm	1x	☒		6/24/2022 17:35
52	E2200587-002		20220624_052	Perchlorate6850c.lcm	1x	☒		6/24/2022 17:43
53	E2200587-003		20220624_053	Perchlorate6850c.lcm	1x	☒	confirms-report	6/24/2022 17:50
54	E2200587-005		20220624_054	Perchlorate6850c.lcm	1x	☒		6/24/2022 17:58
55	PERCHLORATE7		20220624_055	Perchlorate6850c.lcm	1x	☒	222810	6/24/2022 18:06
56	IB		20220624_056	Perchlorate6850c.lcm	1x	☒		6/24/2022 18:14
57	IB		20220624_057	Perchlorate6850c.lcm	1x	☒		6/24/2022 18:22
58	null		20220624_058	Perchlorate6850c.lcm	1x	☒		6/24/2022 18:27
59	null		20220624_059	Perchlorate6850c.lcm	1x	☒		6/24/2022 18:32

20220628

1st Review: GRivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 6/1/2022
Cal. Std. xp: 9/4/2022
ICAL ID: **EC2200008**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100819-09 **B:** MeOH 217304

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20220628_001	Perchlorate6850c.lcm	1x	☒		6/28/2022 10:52
2	null		20220628_002	Perchlorate6850c.lcm	1x	☒		6/28/2022 10:57
3	IB		20220628_003	Perchlorate6850c.lcm	1x	☒		6/28/2022 11:02
4	IB		20220628_004	Perchlorate6850c.lcm	1x	☒		6/28/2022 11:10
5	IB		20220628_005	Perchlorate6850c.lcm	1x	☒		6/28/2022 11:18
6	IB		20220628_006	Perchlorate6850c.lcm	1x	☒		6/28/2022 11:26
7	ICS		20220628_007	Perchlorate6850c.lcm	1x	☒		6/28/2022 11:34
8	LODV		20220628_008	Perchlorate6850c.lcm	1x	☒	222817	6/28/2022 11:49
9	PERCHLORATE7		20220628_009	Perchlorate6850c.lcm	1x	☒	222810	6/28/2022 11:57
10	E2200590-002		20220628_010	Perchlorate6850c.lcm	1x	☒		6/28/2022 12:14
11	E2200587-007		20220628_011	Perchlorate6850c.lcm	1x	☒		6/28/2022 12:22
12	E2200586-003		20220628_012	Perchlorate6850c.lcm	10x	☒		6/28/2022 12:30
13	E2200586-006		20220628_013	Perchlorate6850c.lcm	10x	☒		6/28/2022 12:38
14	E2200587-004		20220628_014	Perchlorate6850c.lcm	1x	☒	DNU- Confirmation Only	6/28/2022 13:11
15	E2200586-008		20220628_015	Perchlorate6850c.lcm	1x	☒	DNU- Confirmation Only	6/28/2022 13:29
16	E2200587-003		20220628_016	Perchlorate6850c.lcm	1x	☒	DNU- Confirmation Only	6/28/2022 13:37
17	PERCHLORATE7		20220628_017	Perchlorate6850c.lcm	1x	☒	222810	6/28/2022 13:46
18	EQ2200265-01		20220628_018	Perchlorate6850c.lcm	1x	☒		6/28/2022 13:54
19	EQ2200265-02		20220628_019	Perchlorate6850c.lcm	1x	☒		6/28/2022 14:02
20	EQ2200265-03		20220628_020	Perchlorate6850c.lcm	1x	☒		6/28/2022 14:10
21	EQ2200265-04		20220628_021	Perchlorate6850c.lcm	1x	☒		6/28/2022 14:18
22	EQ2200265-05		20220628_022	Perchlorate6850c.lcm	1x	☒		6/28/2022 14:25
23	IB		20220628_023	Perchlorate6850c.lcm	1x	☒		6/28/2022 14:43
24	IB		20220628_024	Perchlorate6850c.lcm	1x	☒		6/28/2022 14:51
25	E2200598-001		20220628_025	Perchlorate6850c.lcm	1000x	☒		6/28/2022 14:59
26	E2200598-002		20220628_026	Perchlorate6850c.lcm	1x	☒	DNU-over ICAL range	6/28/2022 15:07
27	IB		20220628_027	Perchlorate6850c.lcm	1x	☒		6/28/2022 15:15
28	PERCHLORATE7		20220628_028	Perchlorate6850c.lcm	1x	☒	222810	6/28/2022 15:31

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/24/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220624\20220624_009

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 768766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.83	0.1511	0.1486	-1.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/24/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220624\20220624_015

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 768766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	0.1511	0.1538	1.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/24/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220624\20220624_034

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 768766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.3	0.1511	0.1559	3.2	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/24/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220624\20220624_044

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 768766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	0.1511	0.1548	2.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/24/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220624\20220624_048

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 768766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	0.1511	0.1512	0.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/24/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220624\20220624_055

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 768766
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.89	0.1511	0.1495	-1.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/28/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220628\20220628_009

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769030
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	0.1511	0.1511	0.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/28/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220628\20220628_017

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769030
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	0.1511	0.1518	0.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061145

Service Request: E2200587
Date Analyzed: 6/28/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220628\20220628_028

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769030
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.4	0.1511	0.1571	4.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/24/22 11:22

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220624\20220624_009	**Lab Code:**	EQ2200261-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	768766
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200261-01	28,124	2.89

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/24/22 12:19

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220624\20220624_015	**Lab Code:**	EQ2200261-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	768766
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200261-02	30,163	2.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/24/22 15:13

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220624\20220624_034	**Lab Code:**	EQ2200261-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	768766
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200261-04	33,964	2.90
Method Blank	EQ2200257-01	39,375	2.90
Lab Control Sample	EQ2200257-02	40,426	2.90
Duplicate Lab Control Sample	EQ2200257-03	39,277	2.89
16WW37-220620	E2200587-001	19,597	2.87
16WW34-220620-FD	E2200587-004	20,487	2.88
16WW31-220620	E2200587-006	21,088	2.89

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/24/22 16:40

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220624\20220624_044	**Lab Code:**	EQ2200261-05
Instrument ID:	E-LCMS-01	**Analysis Lot:**	768766
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200261-05	31,518	2.89
16WW46-220620	E2200587-008	19,703	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/24/22 17:11

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220624\20220624_048	**Lab Code:**	EQ2200261-06
Instrument ID:	E-LCMS-01	**Analysis Lot:**	768766
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200261-06	30,287	2.90
16WW38-220620	E2200587-002	20,311	2.89
16WW34-220620	E2200587-003	19,908	2.87
16WW33-220620	E2200587-005	20,990	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/24/22 18:06

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220624\20220624_055	**Lab Code:**	EQ2200261-07
Instrument ID:	E-LCMS-01	**Analysis Lot:**	768766
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200261-07	30,885	2.89

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/28/22 11:57

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220628\20220628_009	**Lab Code:**	EQ2200267-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769030
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200267-01	37,938	2.87
16WW32-220620	E2200587-007	27,094	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/28/22 13:46

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220628\20220628_017	**Lab Code:**	EQ2200267-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769030
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200267-02	35,943	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200587
Project:	HS22061145	**Date Analyzed:**	6/28/22 15:31

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220628\20220628_028	**Lab Code:**	EQ2200267-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769030
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200267-03	39,303	2.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Insight Report

Printed at 6/27/2022 2:39:06 PM

Method File: I:\LCMS01\DATA\20220624\20220601.lcm
Project File: I:\LCMS01\DATA\20220624\20220624.damlp

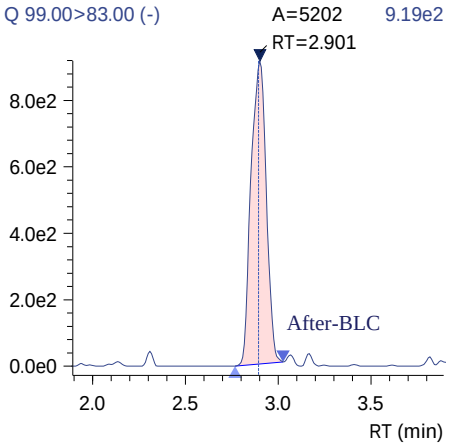
ICS

Sample ID: ICS
Date Acquired: 6/24/2022 10:53:10 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_007.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.901	5202	33774	1.0191	ng/mL	23.28	17.66-32.80
Perchlorate 2	M	2.908	1211	33774	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.891	33774	33774	1.0000	ng/mL	----	

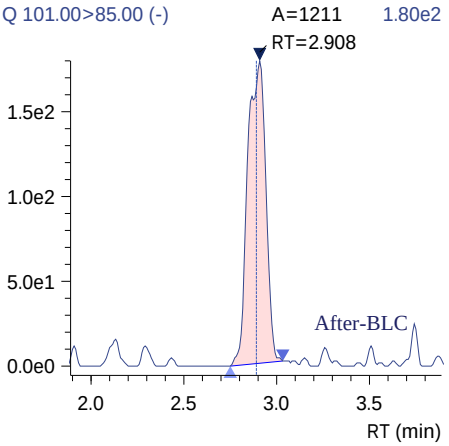
Perchlorate

Conc 1.0191



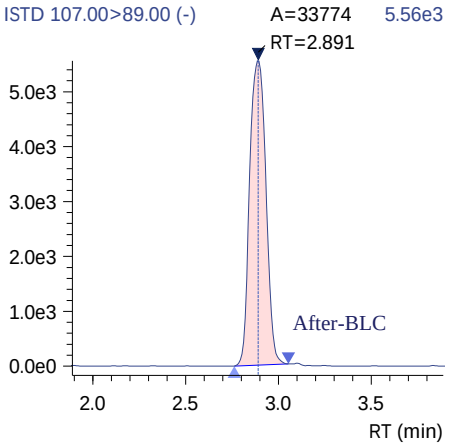
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:41:53 PM

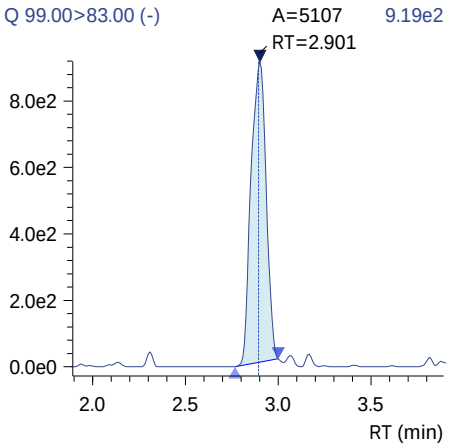
Method File: I:\LCMS01\DATA\20220624\20220601.lcm
Project File: I:\LCMS01\DATA\20220624\20220624.damlp

ICS

Sample ID: ICS
Date Acquired: 6/24/2022 10:53:10 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_007.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

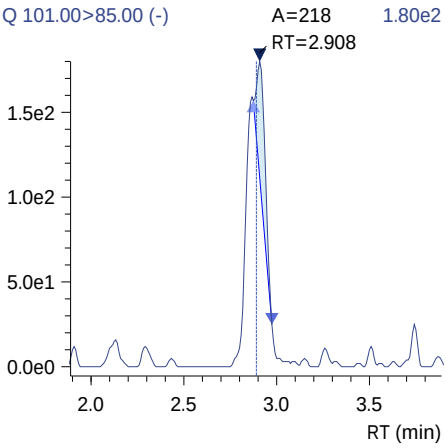
Perchlorate

Conc 1.0585



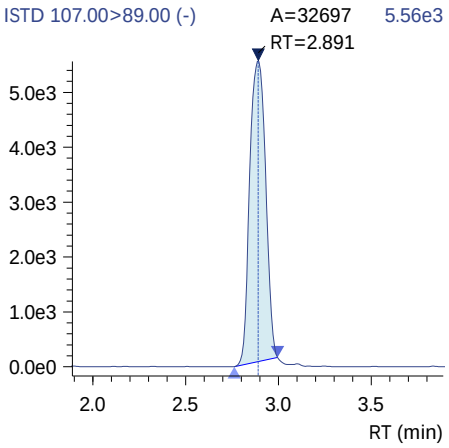
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

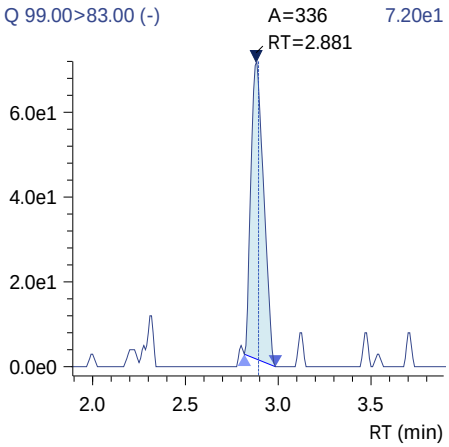
LODV

Sample ID: LODV
Date Acquired: 6/24/2022 11:01:02 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_008.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI R1	2.881	336	36409	0.0611	ng/mL	25.89	17.66-32.80
Perchlorate 2	M	2.890	87	36409	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.889	36409	36409	1.0000	ng/mL	----	

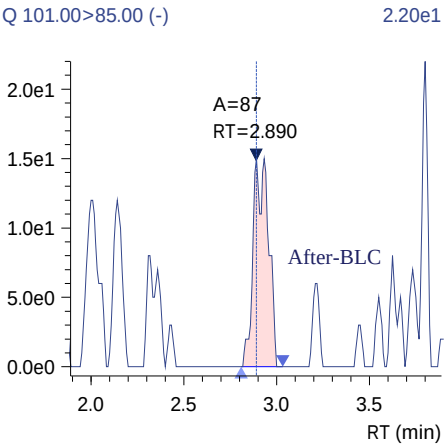
Perchlorate

Conc 0.0611



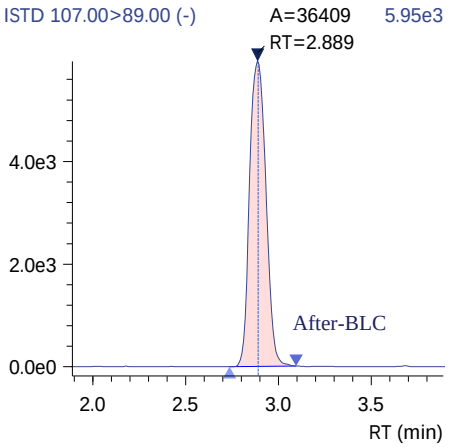
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

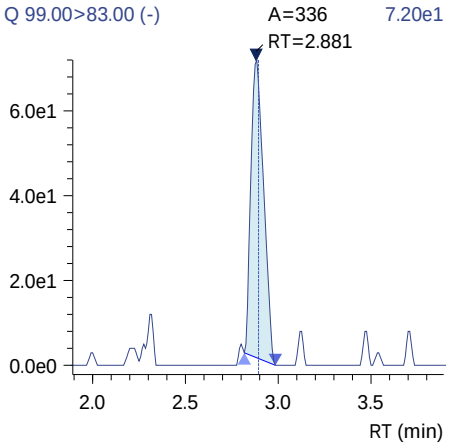
Printed at 6/27/2022 2:41:53 PM

LODV

Sample ID: LODV
Date Acquired: 6/24/2022 11:01:02 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_008.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

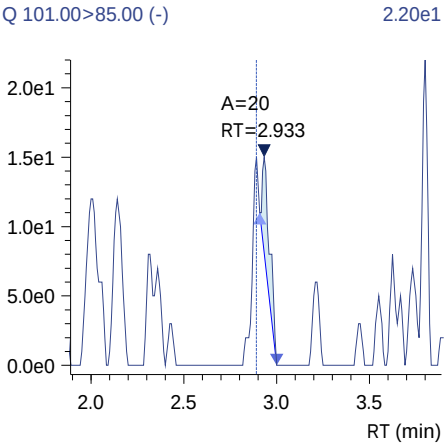
Perchlorate

Conc 0.0656



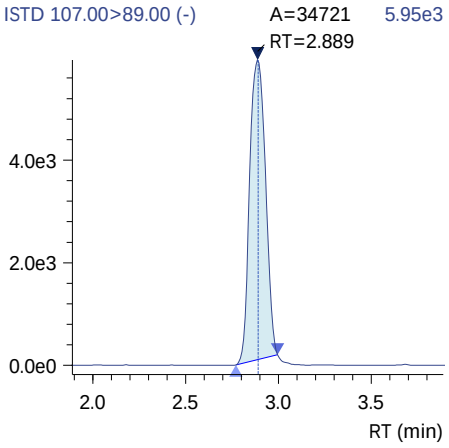
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

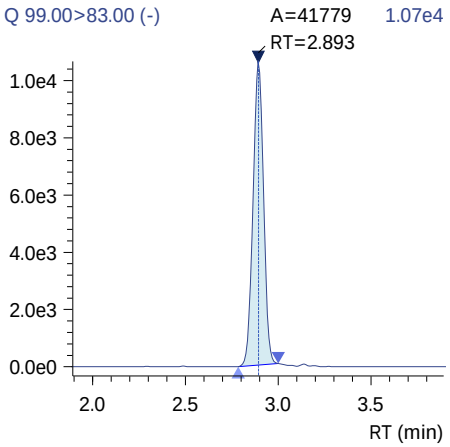
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 11:22:08 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.893	41779	28124	9.8294	ng/mL	25.33	17.66-32.80
Perchlorate 2	Auto	2.890	10581	28124	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.890	28124	28124	1.0000	ng/mL	----	

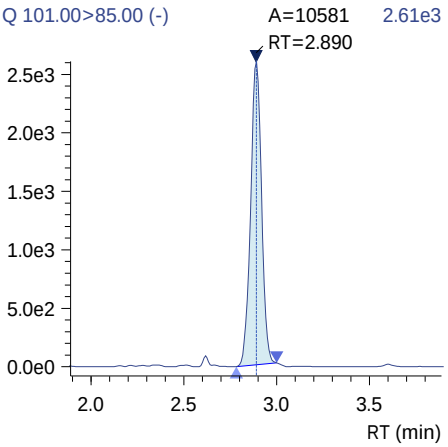
Perchlorate

Conc 9.8294



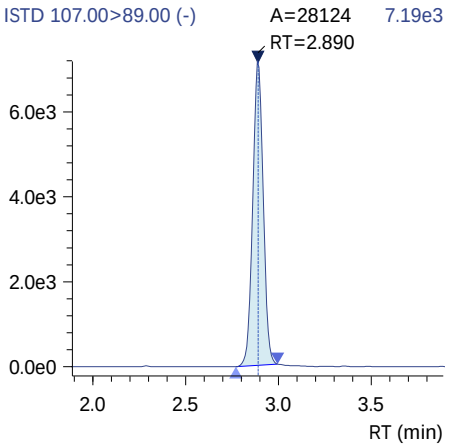
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

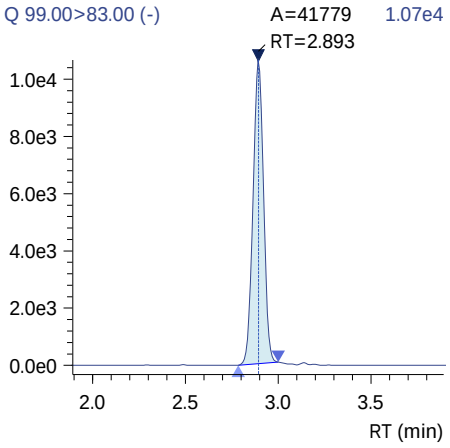
Printed at 6/27/2022 2:41:53 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 11:22:08 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

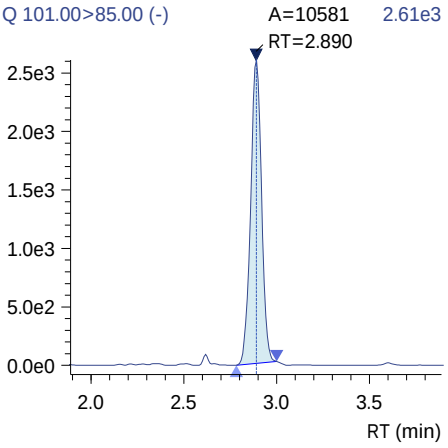
Perchlorate

Conc 10.0675



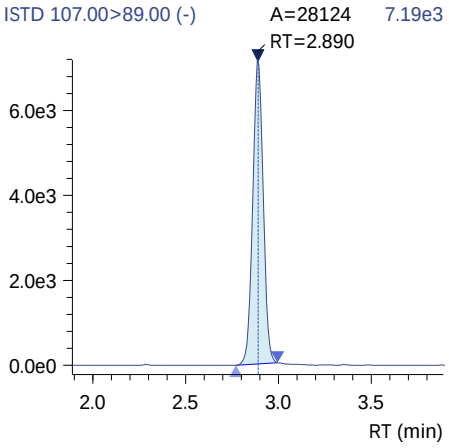
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

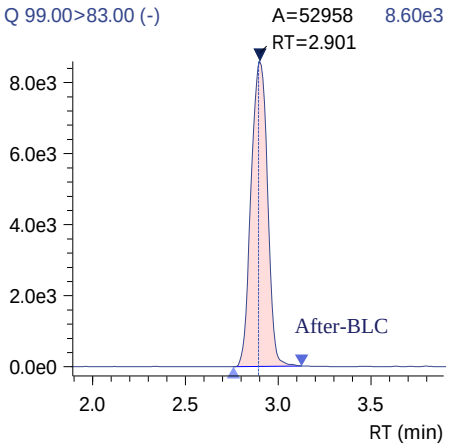
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 3:13:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_034.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.901	52958	33964	10.3171	ng/mL	24.22	17.66-32.80
Perchlorate 2	M	2.887	12828	33964	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.899	33964	33964	1.0000	ng/mL	----	

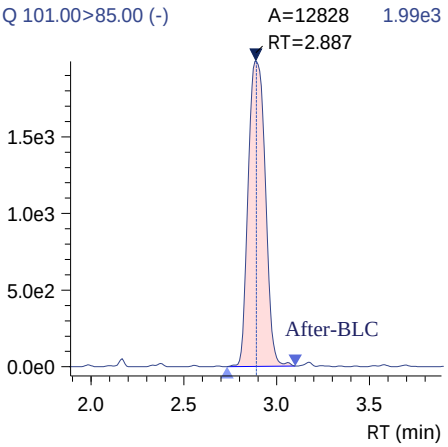
Perchlorate

Conc 10.3171



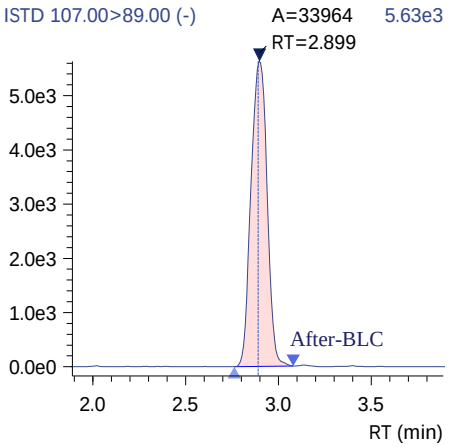
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

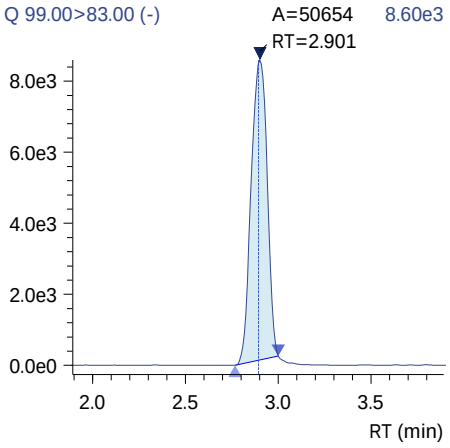
Printed at 6/27/2022 2:41:53 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 3:13:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_034.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

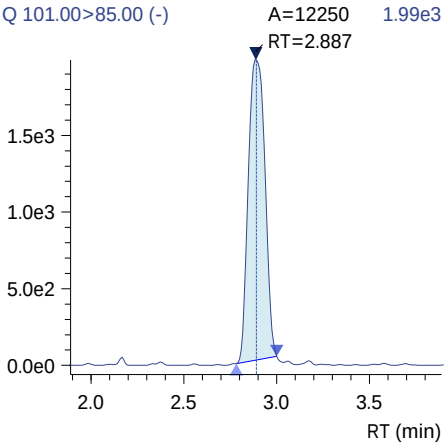
Perchlorate

Conc 10.5988



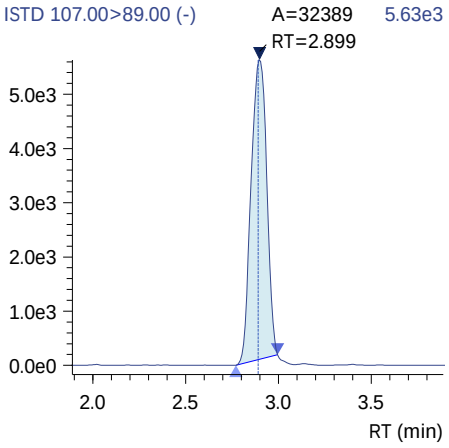
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

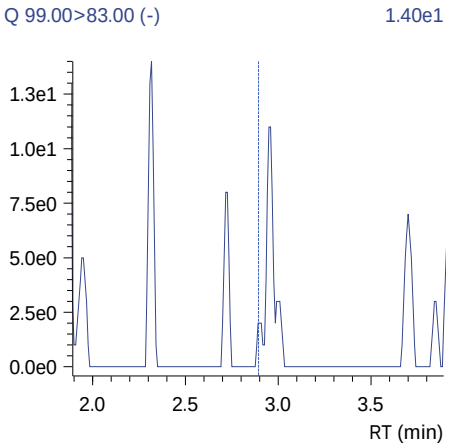
EQ2200257-01

Sample ID: EQ2200257-01
Date Acquired: 6/24/2022 3:21:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_035.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	ND(W/B)	----	----	39375	----	ng/mL	0.00	17.66-32.80
Perchlorate 2	ND(W/B)	----	----	39375	----	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.898	39375	39375	1.0000	ng/mL	----	

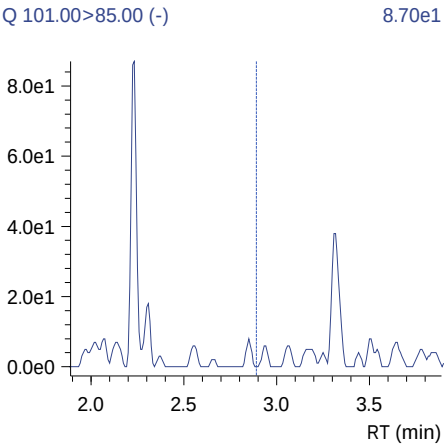
Perchlorate

Conc ----



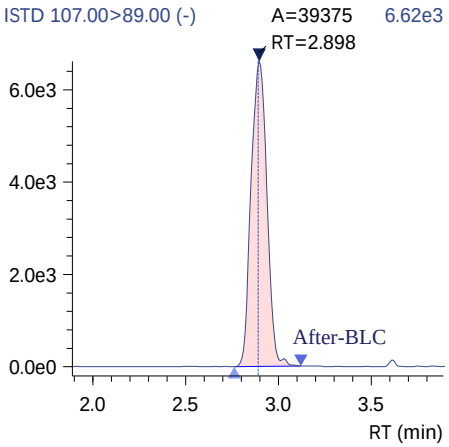
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:41:53 PM

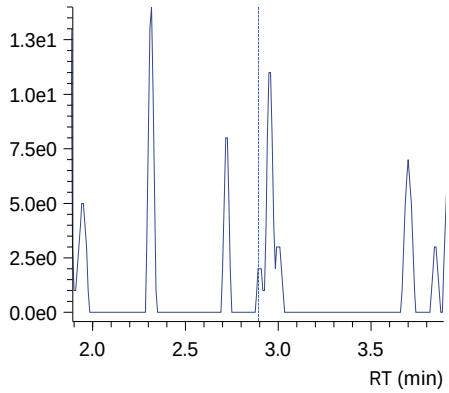
EQ2200257-01

Sample ID: EQ2200257-01
Date Acquired: 6/24/2022 3:21:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_035.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc ----

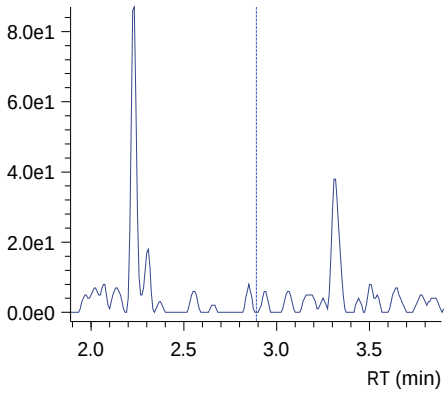
Q 99.00>83.00 (-) 1.40e1



Perchlorate 2

Conc ----

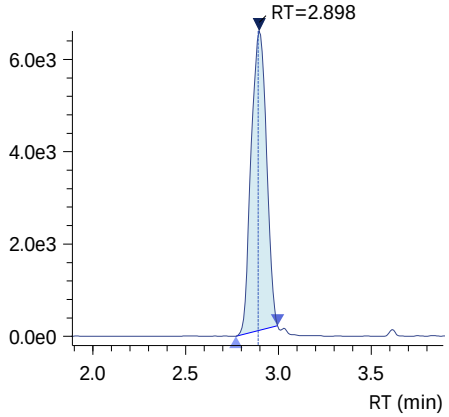
Q 101.00>85.00 (-) 8.70e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=37321 6.62e3



Insight Report

Printed at 6/27/2022 2:39:06 PM

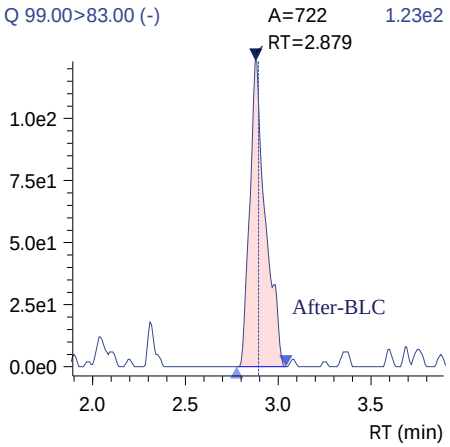
EQ2200257-02

Sample ID: EQ2200257-02
Date Acquired: 6/24/2022 3:29:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_036.lcd
Vial: 19 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.879	722	40426	0.1182	ng/mL	25.76	17.66-32.80
Perchlorate 2	M	2.883	186	40426	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.896	40426	40426	1.0000	ng/mL	----	

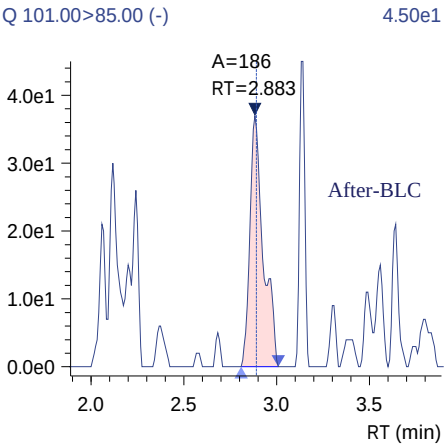
Perchlorate

Conc 0.1182



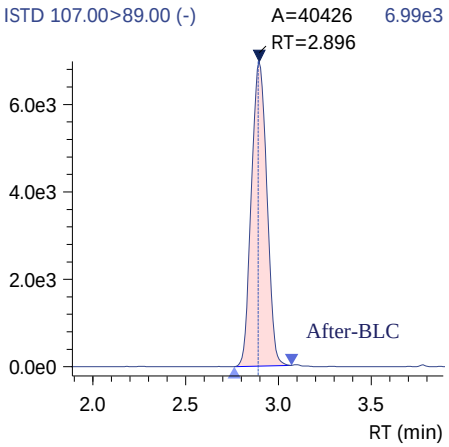
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:41:53 PM

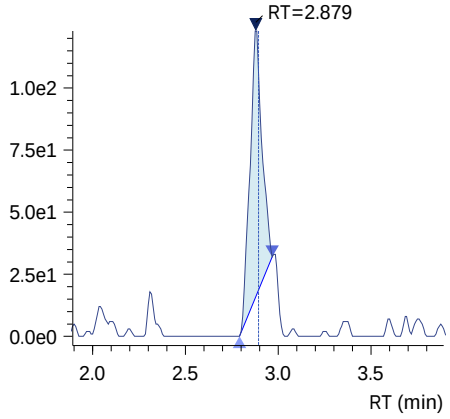
EQ2200257-02

Sample ID: EQ2200257-02
Date Acquired: 6/24/2022 3:29:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_036.lcd
Vial: 19 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc 0.0848

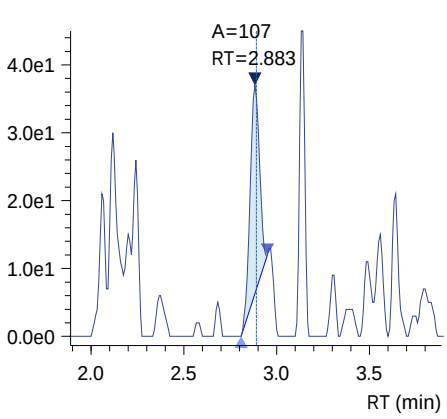
Q 99.00>83.00 (-) A=483 1.23e2



Perchlorate 2

Conc 0.0000

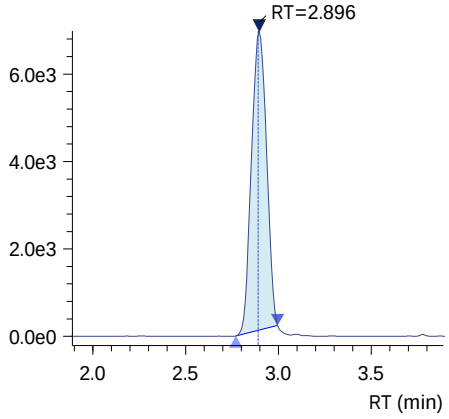
Q 101.00>85.00 (-) 4.50e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=38599 6.99e3



Insight Report

Printed at 6/27/2022 2:39:06 PM

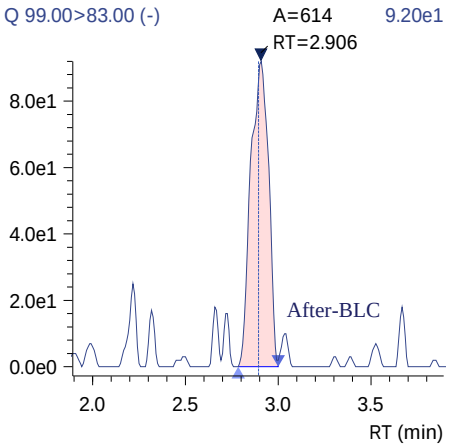
EQ2200257-03

Sample ID: EQ2200257-03
Date Acquired: 6/24/2022 3:44:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_037.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.906	614	39277	0.1034	ng/mL	19.71	17.66-32.80
Perchlorate 2	Auto	2.904	121	39277	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.894	39277	39277	1.0000	ng/mL	----	

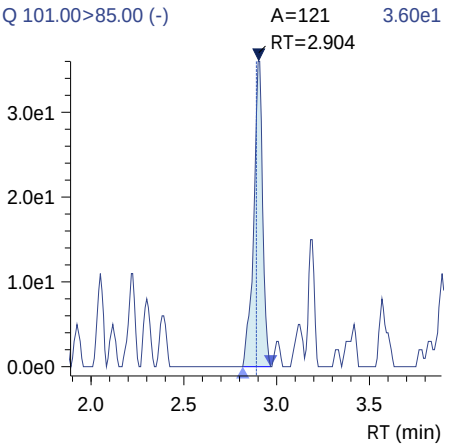
Perchlorate

Conc 0.1034



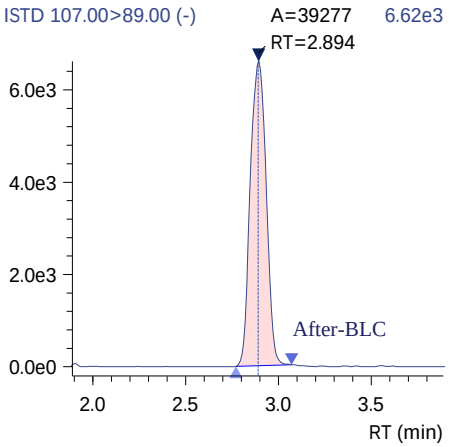
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

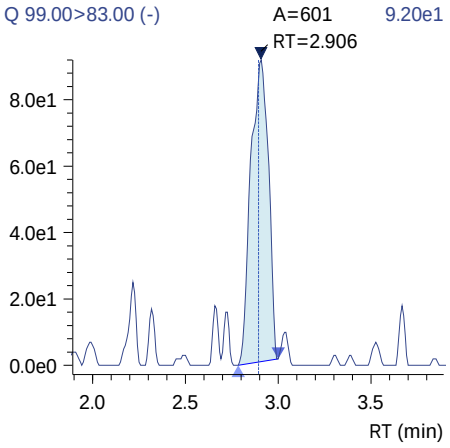
Printed at 6/27/2022 2:41:53 PM

EQ2200257-03

Sample ID: EQ2200257-03
Date Acquired: 6/24/2022 3:44:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_037.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 3

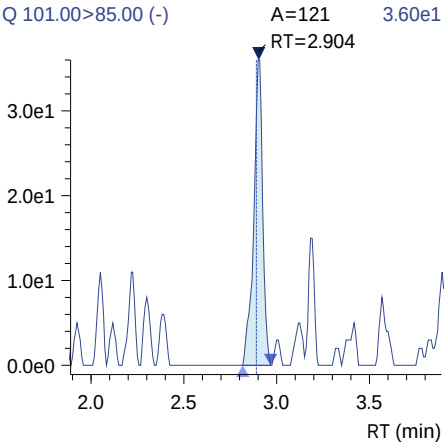
Perchlorate

Conc 0.1071



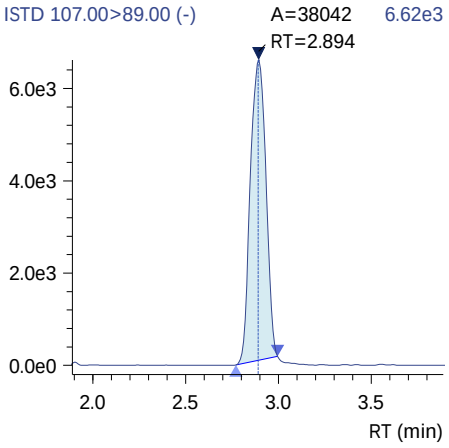
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

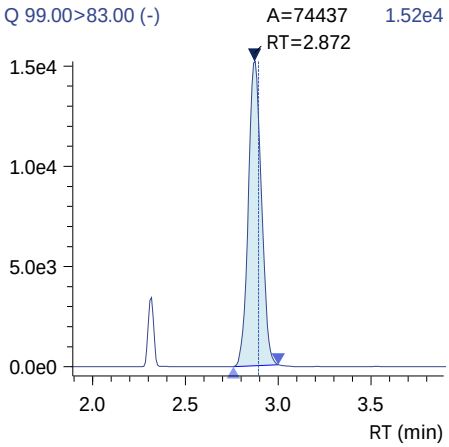
E2200587-001

Sample ID: E2200587-001
Date Acquired: 6/24/2022 3:52:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_038.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.872	74437	19597	25.1331	ng/mL	26.02	17.66-32.80
Perchlorate 2	Auto	2.872	19371	19597	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.868	19597	19597	1.0000	ng/mL	----	

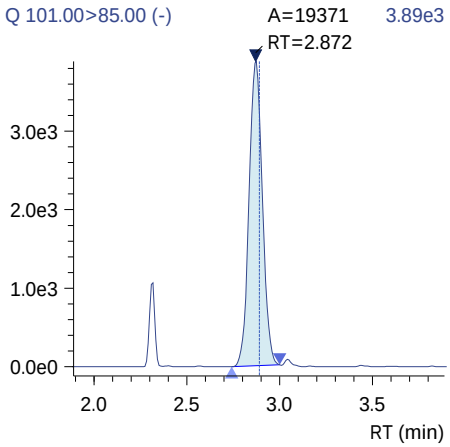
Perchlorate

Conc 25.1331



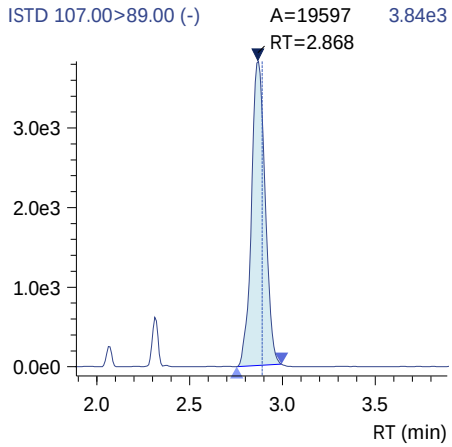
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

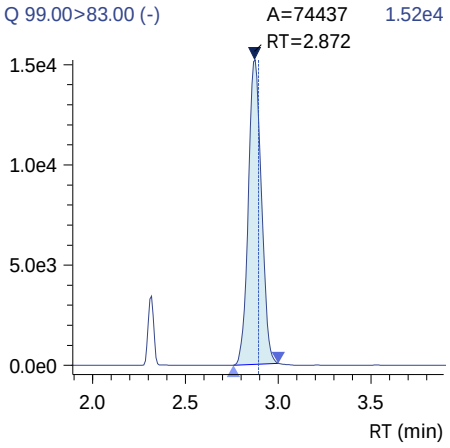
Printed at 6/27/2022 2:41:53 PM

E2200587-001

Sample ID: E2200587-001
Date Acquired: 6/24/2022 3:52:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_038.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 3

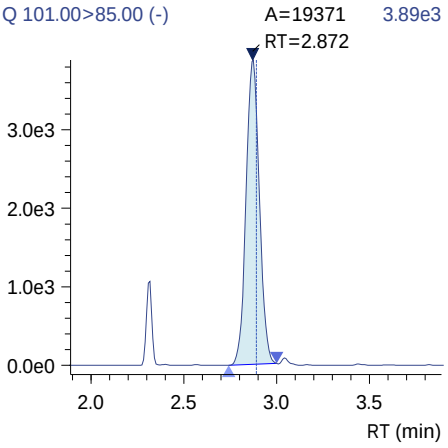
Perchlorate

Conc 25.7419



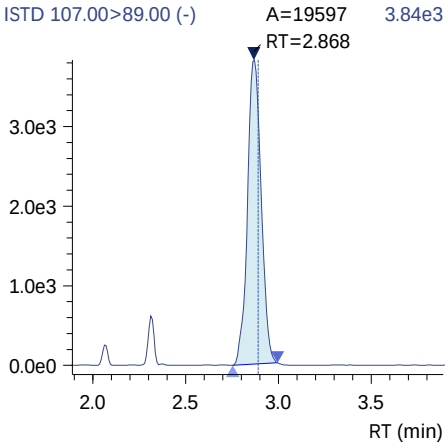
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

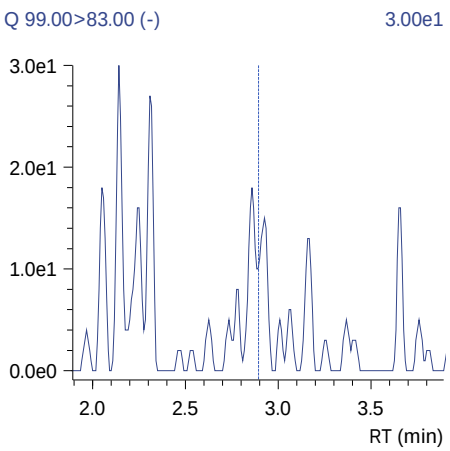
E2200587-004

Sample ID: E2200587-004
Date Acquired: 6/24/2022 4:16:23 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_041.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	ND(W/B)	----	----	20487	----	ng/mL	0.00	17.66-32.80
Perchlorate 2	ND(W/B)	----	----	20487	----	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.880	20487	20487	1.0000	ng/mL	----	

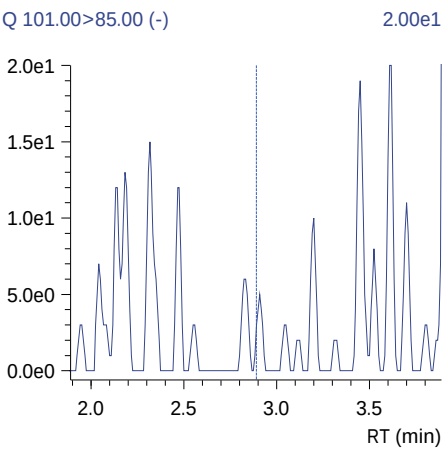
Perchlorate

Conc ----



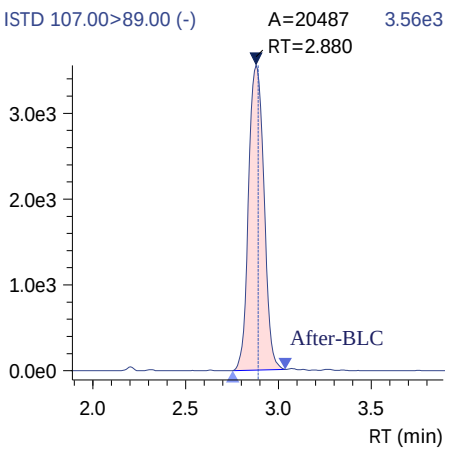
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

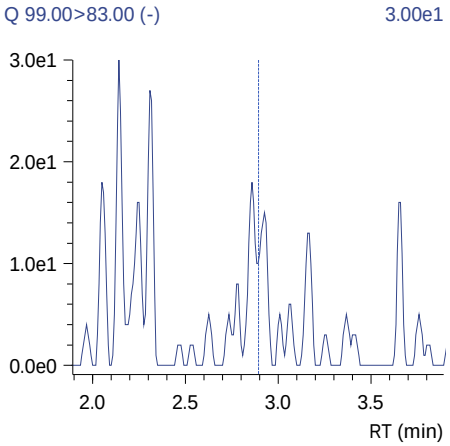
Printed at 6/27/2022 2:41:53 PM

E2200587-004

Sample ID: E2200587-004
Date Acquired: 6/24/2022 4:16:23 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_041.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 3

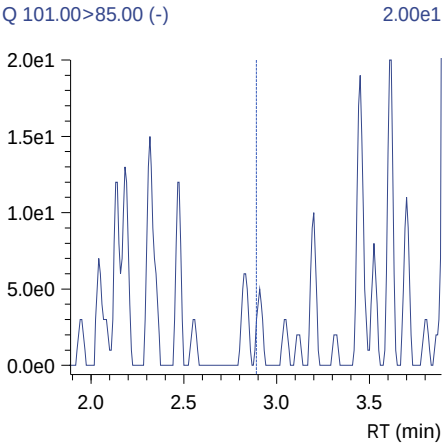
Perchlorate

Conc ----



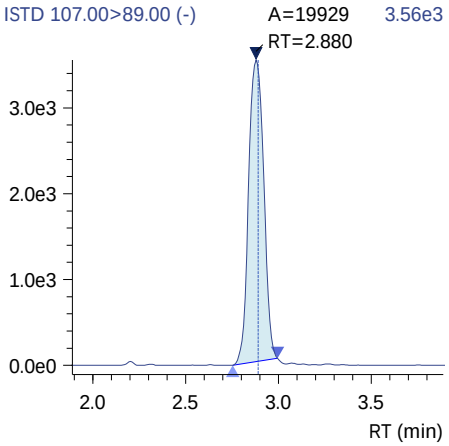
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

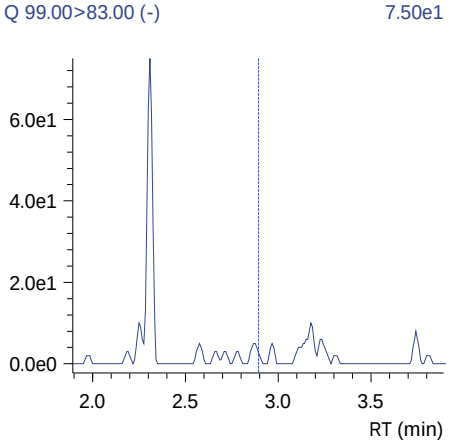
E2200587-006

Sample ID: E2200587-006
Date Acquired: 6/24/2022 4:32:13 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_043.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	ND(W/B)	----	----	21088	----	ng/mL	0.00	17.66-32.80
Perchlorate 2	ND(W/B)	----	----	21088	----	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.894	21088	21088	1.0000	ng/mL	----	

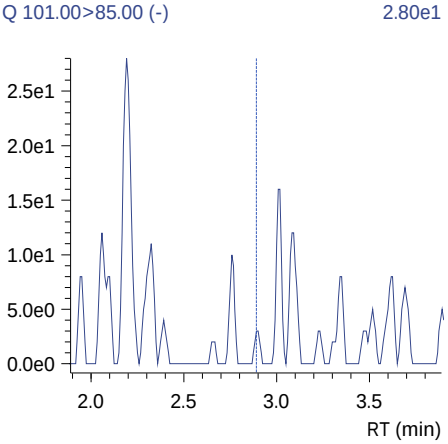
Perchlorate

Conc ----



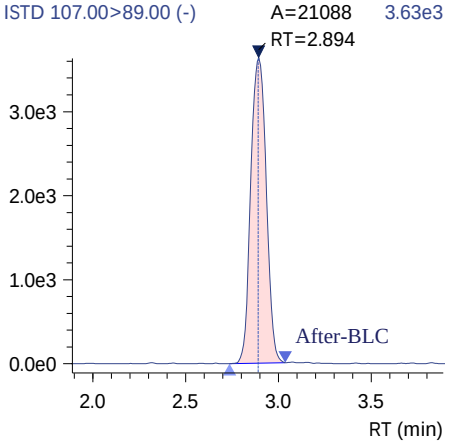
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

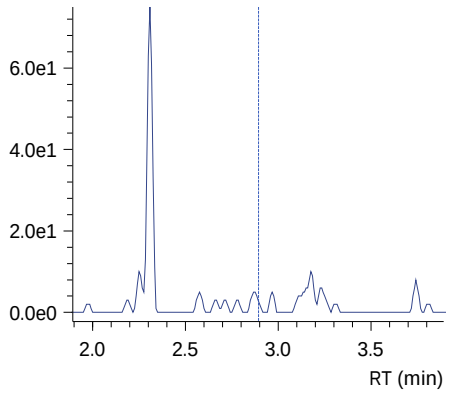
Printed at 6/27/2022 2:41:53 PM

E2200587-006

Sample ID: E2200587-006
Date Acquired: 6/24/2022 4:32:13 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_043.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 3

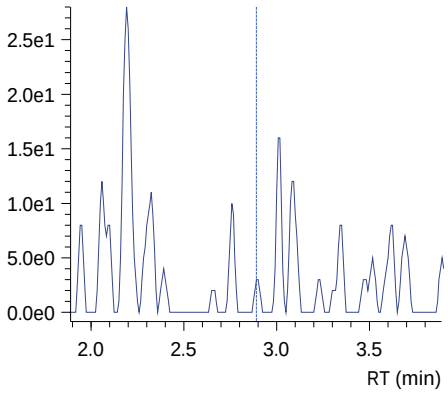
Perchlorate

Conc ----



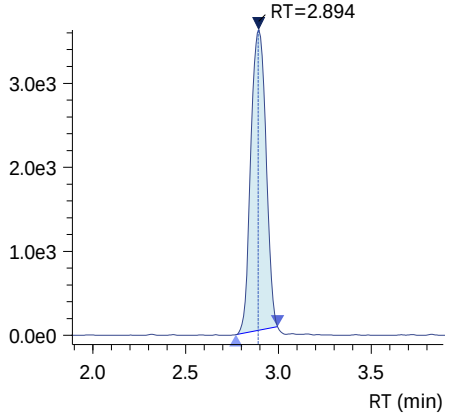
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

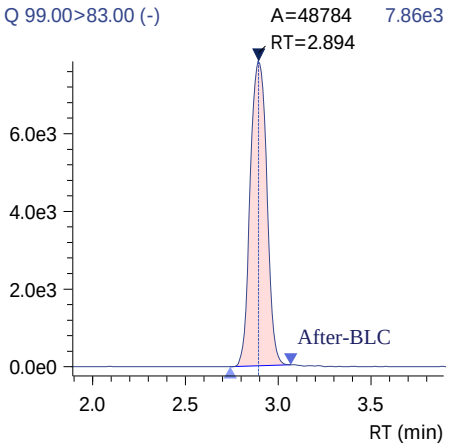
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 4:40:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_044.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.894	48784	31518	10.2415	ng/mL	25.64	17.66-32.80
Perchlorate 2	M	2.888	12506	31518	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.890	31518	31518	1.0000	ng/mL	----	

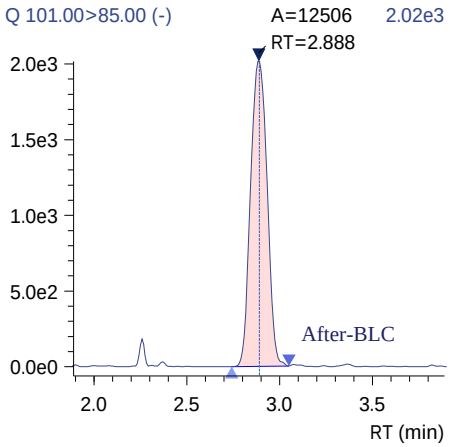
Perchlorate

Conc 10.2415



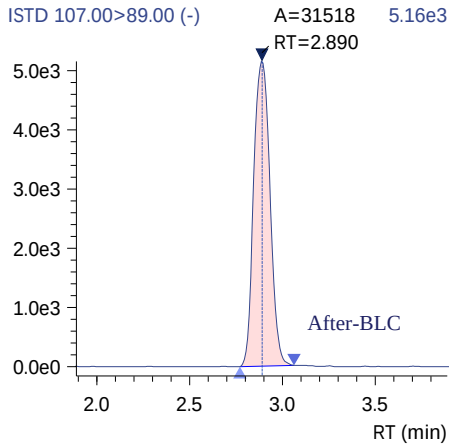
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

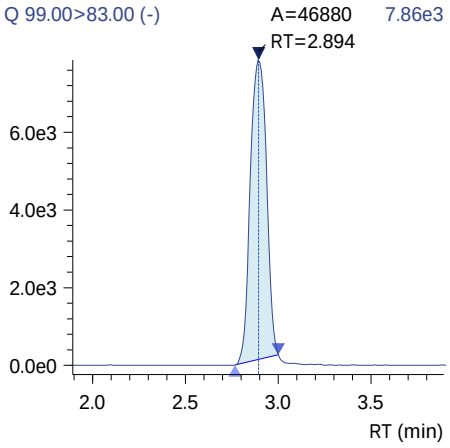
Printed at 6/27/2022 2:41:53 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 4:40:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_044.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

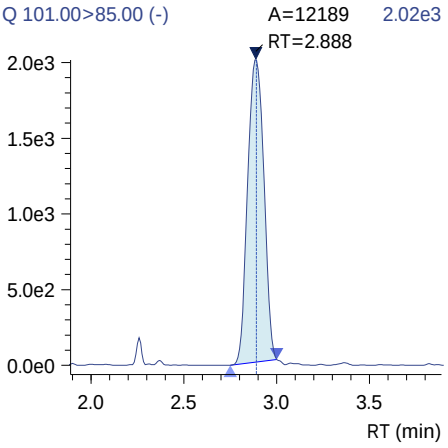
Perchlorate

Conc 10.5818



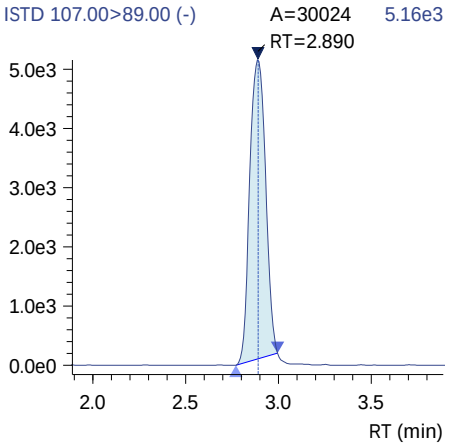
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

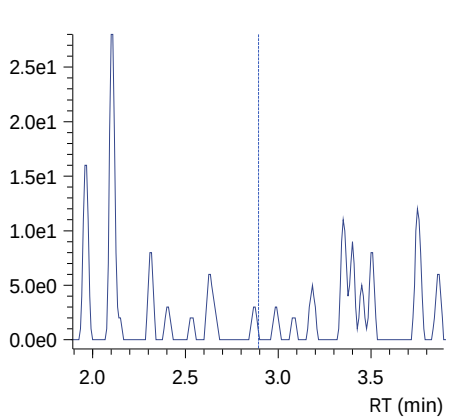
E2200587-008

Sample ID: E2200587-008
Date Acquired: 6/24/2022 4:55:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_046.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	ND(W/B)	----	----	19703	----	ng/mL	0.00	17.66-32.80
Perchlorate 2	ND(W/B)	----	----	19703	----	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.863	19703	19703	1.0000	ng/mL	----	

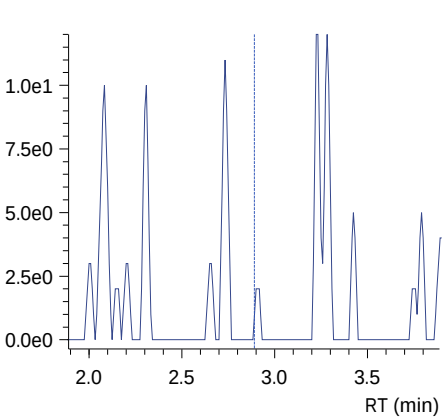
Perchlorate

Conc ----



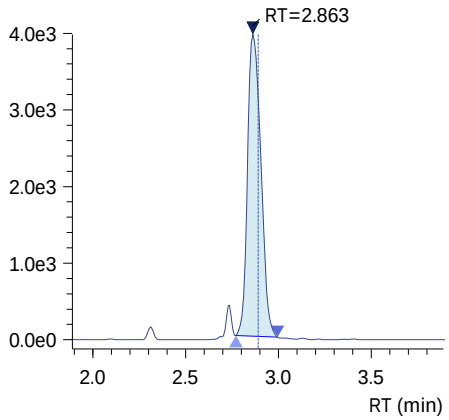
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:41:53 PM

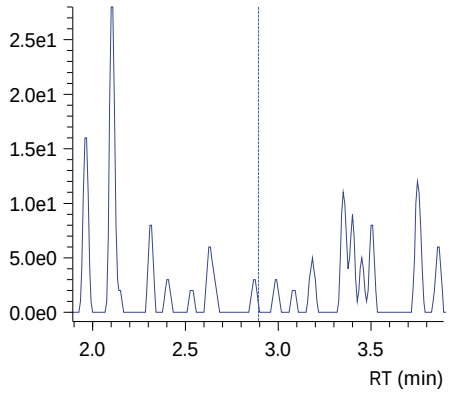
E2200587-008

Sample ID: E2200587-008
Date Acquired: 6/24/2022 4:55:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_046.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc ----

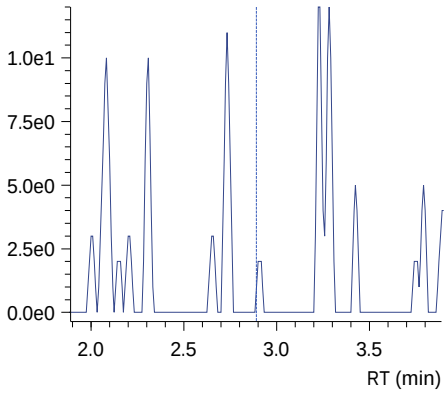
Q 99.00>83.00 (-) 2.80e1



Perchlorate 2

Conc ----

Q 101.00>85.00 (-) 1.20e1

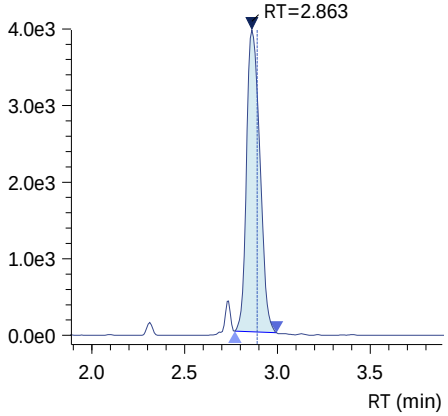


Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=19703 3.99e3

RT=2.863



Insight Report

Printed at 6/27/2022 2:39:06 PM

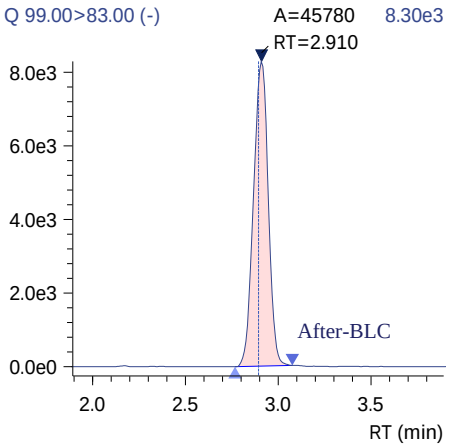
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 5:11:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_048.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.910	45780	30287	10.0015	ng/mL	25.24	17.66-32.80
Perchlorate 2	M	2.902	11554	30287	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.903	30287	30287	1.0000	ng/mL	----	

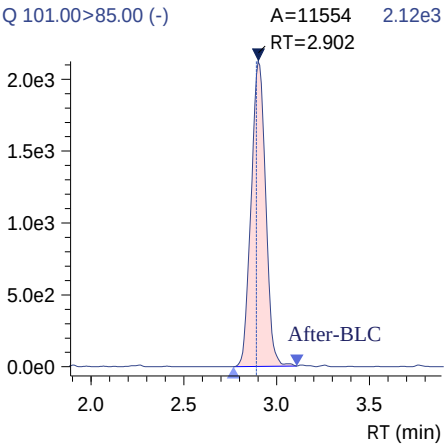
Perchlorate

Conc 10.0015



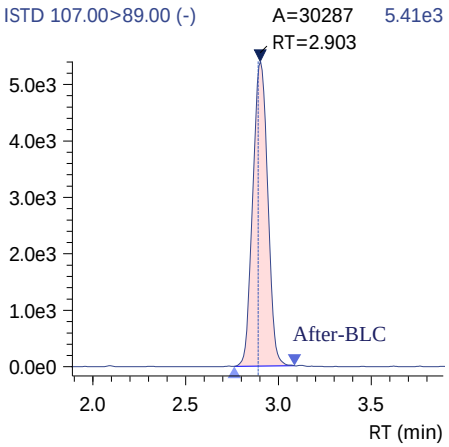
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

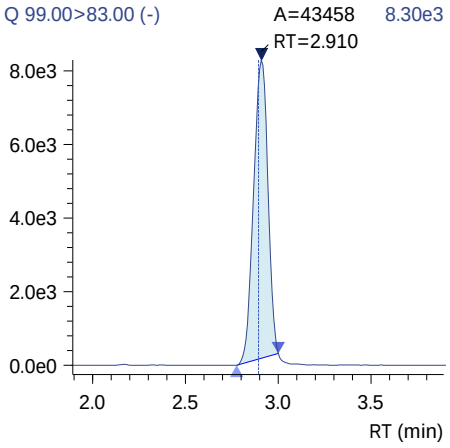
Printed at 6/27/2022 2:41:53 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 5:11:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_048.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

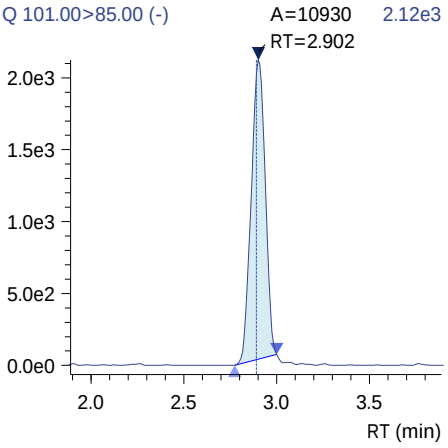
Perchlorate

Conc 10.3336



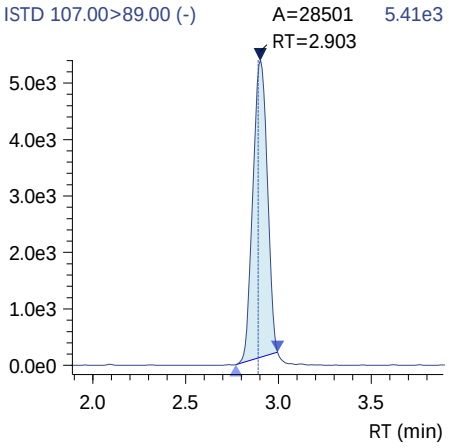
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

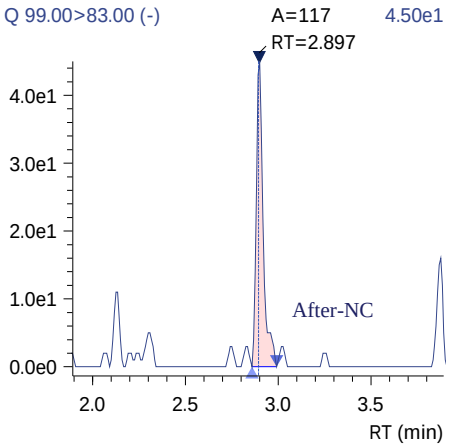
E2200587-002

Sample ID: E2200587-002RA-report
Date Acquired: 6/24/2022 5:43:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_052.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI	2.897	117	20311	0.0381	ng/mL	31.62	17.66-32.80
Perchlorate 2	M	2.899	37	20311	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.889	20311	20311	1.0000	ng/mL	----	

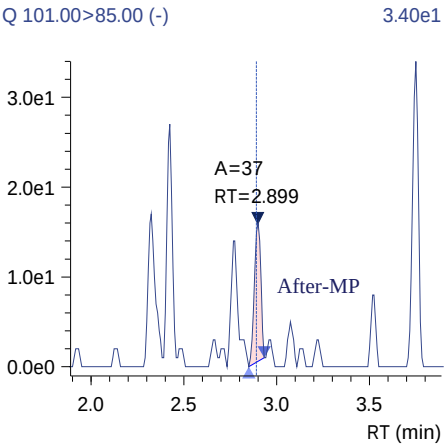
Perchlorate

Conc 0.0381



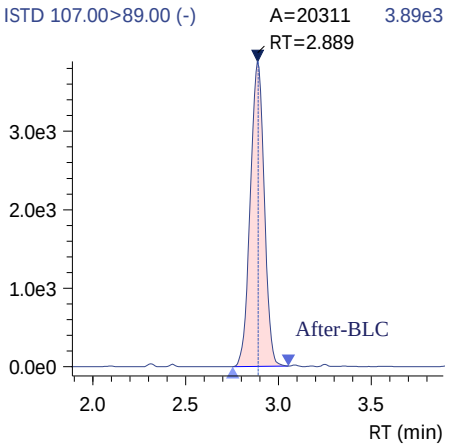
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

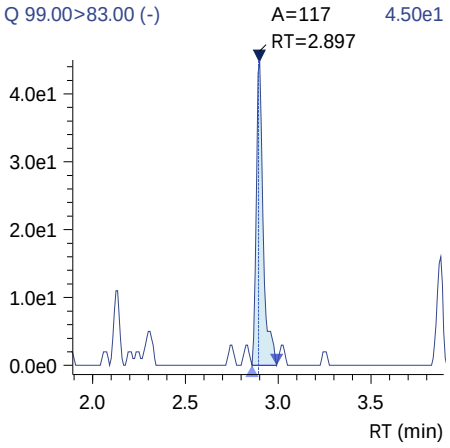
Printed at 6/27/2022 2:41:53 PM

E2200587-002

Sample ID: E2200587-002RA-report
Date Acquired: 6/24/2022 5:43:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_052.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 3

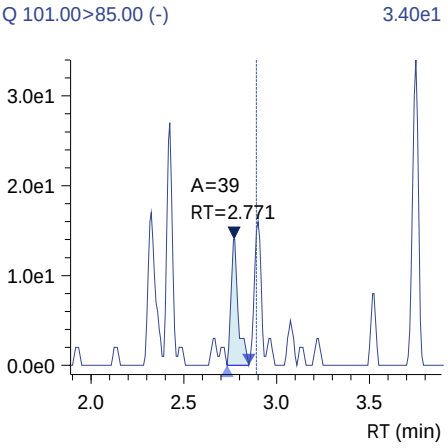
Perchlorate

Conc 0.0397



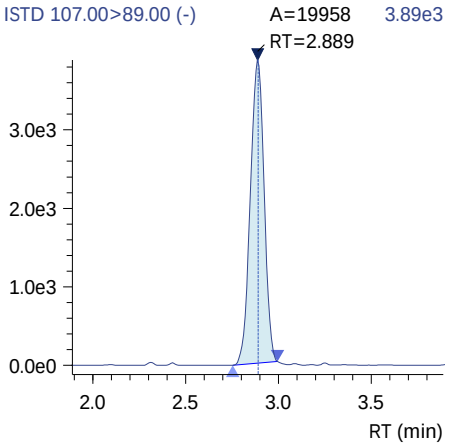
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/20/2022 12:01:55 PM

Method File: I:\LCMS01\DATA\20220624\20220601.lcm
Project File: I:\LCMS01\DATA\20220624\20220624.damlp

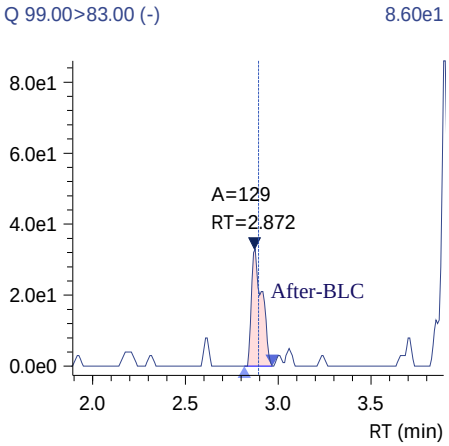
E2200587-003

Sample ID: E2200587-003
Date Acquired: 6/24/2022 5:50:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_053.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.872	129	19908	0.0429	ng/mL	137.21	17.66-32.80
Perchlorate 2	Auto	2.902	169	19908	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.874	19908	19908	1.0000	ng/mL	----	

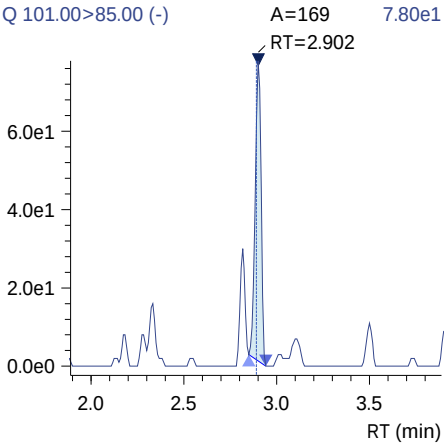
Perchlorate

Conc 0.0429



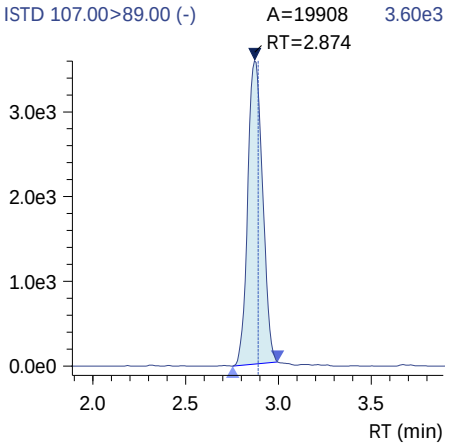
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/20/2022 12:03:34 PM

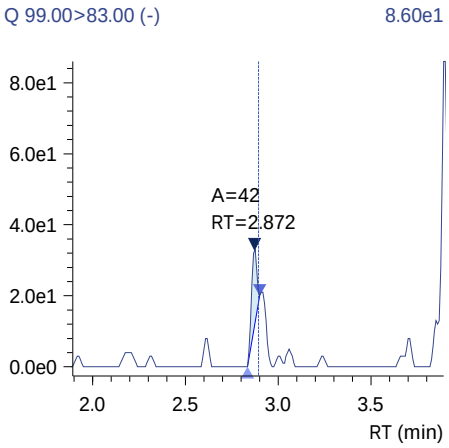
Method File: I:\LCMS01\DATA\20220624\20220601.lcm
Project File: I:\LCMS01\DATA\20220624\20220624.damlp

E2200587-003

Sample ID: E2200587-003
Date Acquired: 6/24/2022 5:50:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_053.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 3

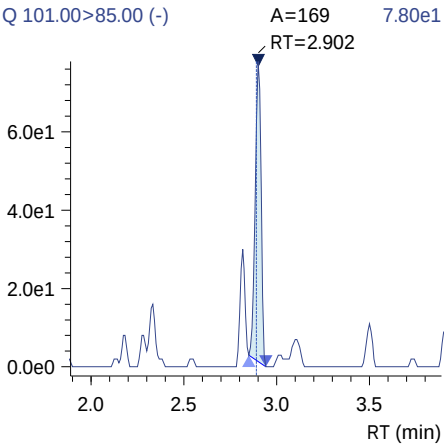
Perchlorate

Conc 0.0140



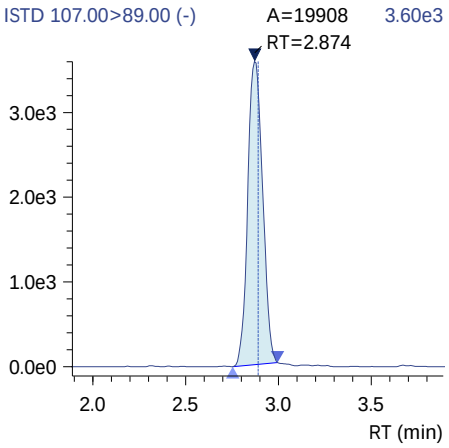
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:39:06 PM

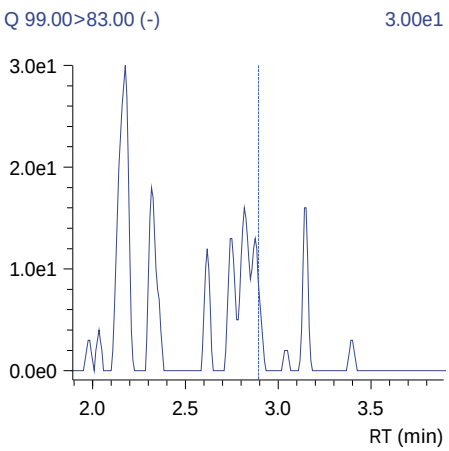
E2200587-005

Sample ID: E2200587-005RA-report
Date Acquired: 6/24/2022 5:58:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_054.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	ND(W/B)	----	----	20990	----	ng/mL	0.00	17.66-32.80
Perchlorate 2	ND(W/B)	----	----	20990	----	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.863	20990	20990	1.0000	ng/mL	----	

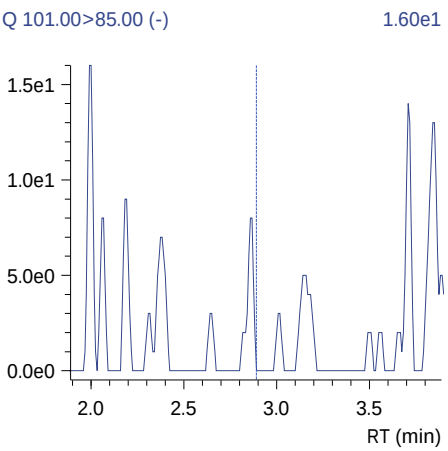
Perchlorate

Conc ----



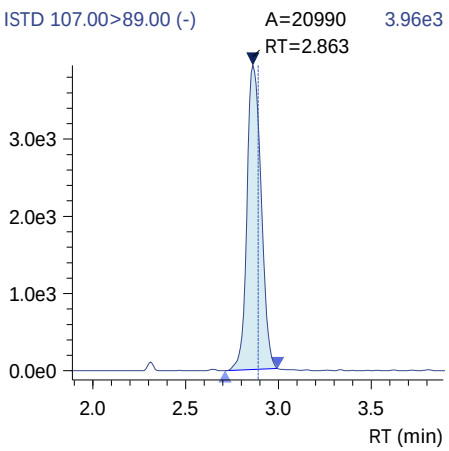
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/27/2022 2:41:53 PM

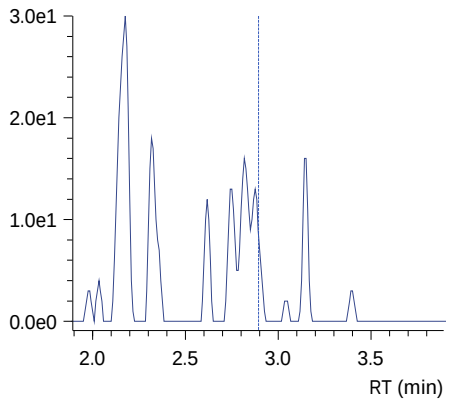
E2200587-005

Sample ID: E2200587-005RA-report
Date Acquired: 6/24/2022 5:58:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_054.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc ----

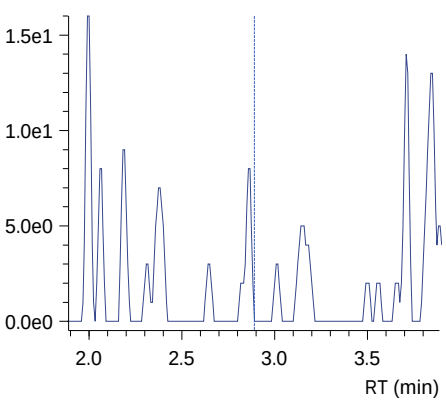
Q 99.00>83.00 (-) 3.00e1



Perchlorate 2

Conc ----

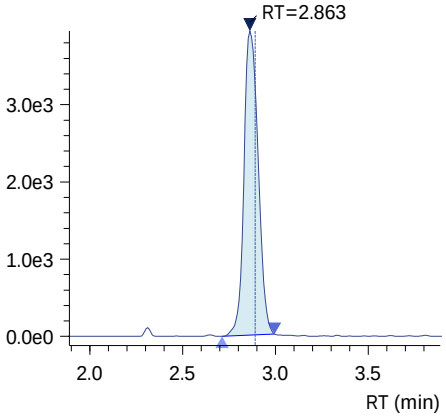
Q 101.00>85.00 (-) 1.60e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=20990 3.96e3



Insight Report

Printed at 6/27/2022 2:39:06 PM

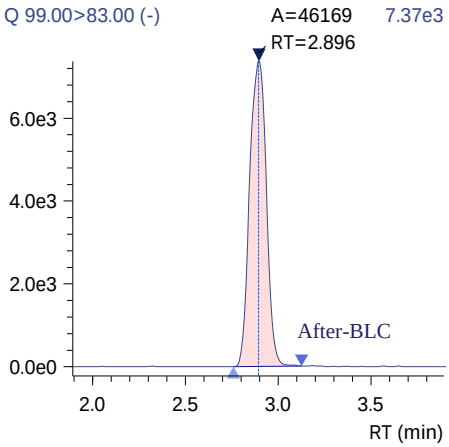
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 6:06:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_055.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.896	46169	30885	9.8912	ng/mL	25.47	17.66-32.80
Perchlorate 2	M	2.884	11757	30885	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.890	30885	30885	1.0000	ng/mL	----	

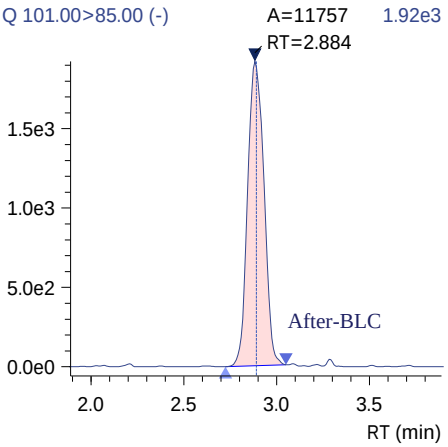
Perchlorate

Conc 9.8912



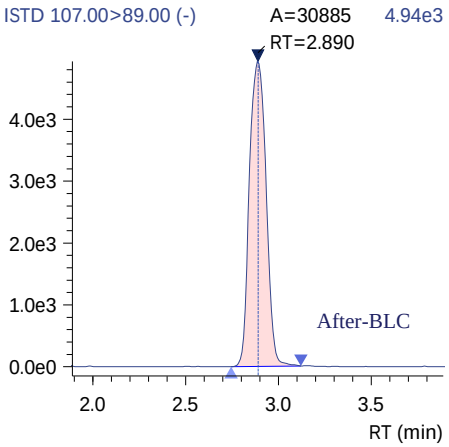
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

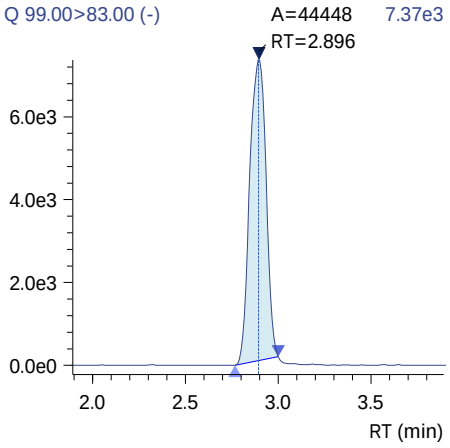
Printed at 6/27/2022 2:41:53 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/24/2022 6:06:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220624\20220624_055.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

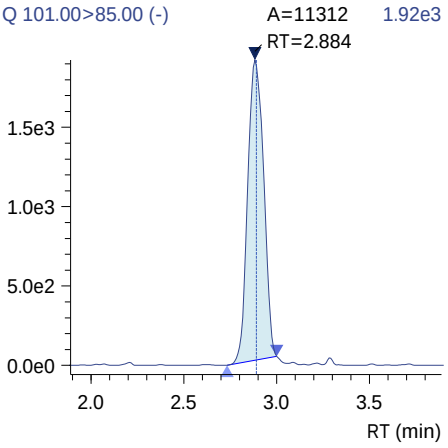
Perchlorate

Conc 10.1869



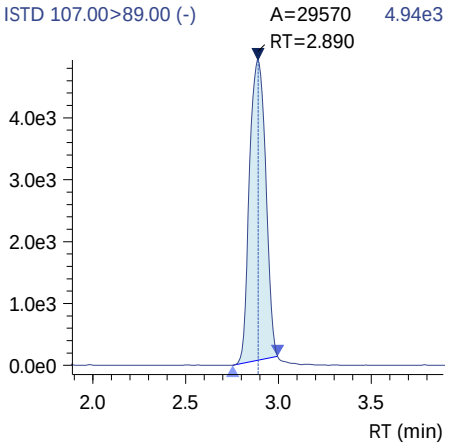
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/29/2022 3:35:57 PM

Method File: I:\LCMS01\DATA\20220628\20220601.lcm
Project File: I:\LCMS01\DATA\20220628\20220628.damlp

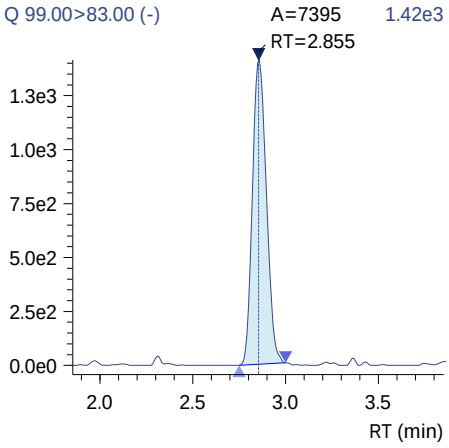
ICS

Sample ID: ICS
Date Acquired: 6/28/2022 11:34:07 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_007.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.855	7395	47302	1.0344	ng/mL	28.44	17.77-33.01
Perchlorate 2	Auto	2.840	2103	47302	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.848	47302	47302	1.0000	ng/mL	----	

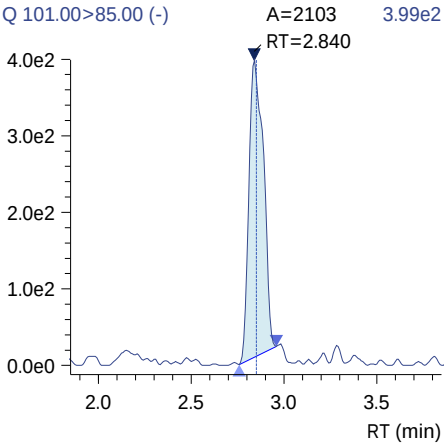
Perchlorate

Conc 1.0344



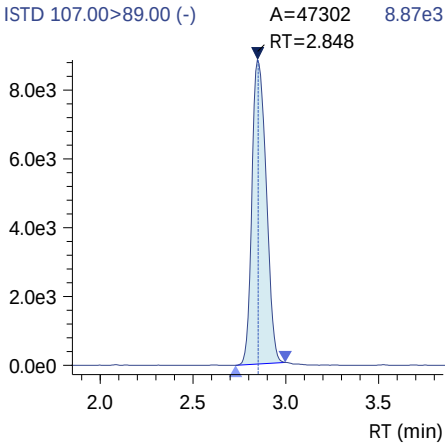
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/29/2022 3:37:42 PM

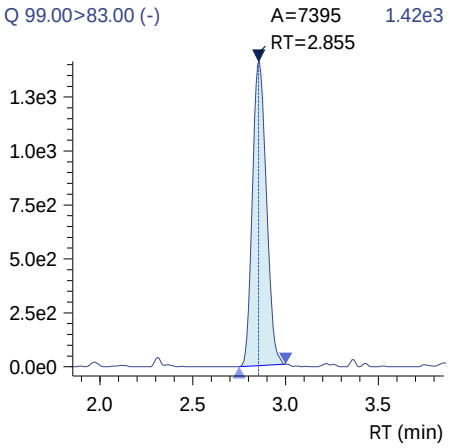
Method File: I:\LCMS01\DATA\20220628\20220601.lcm
Project File: I:\LCMS01\DATA\20220628\20220628.damlp

ICS

Sample ID: ICS
Date Acquired: 6/28/2022 11:34:07 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_007.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

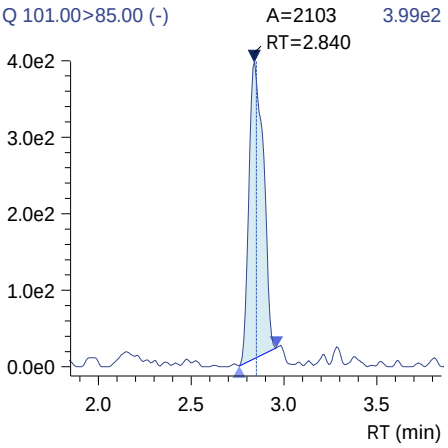
Perchlorate

Conc 1.0595



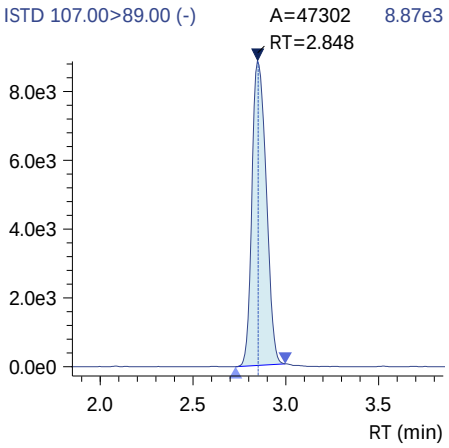
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/29/2022 3:35:57 PM

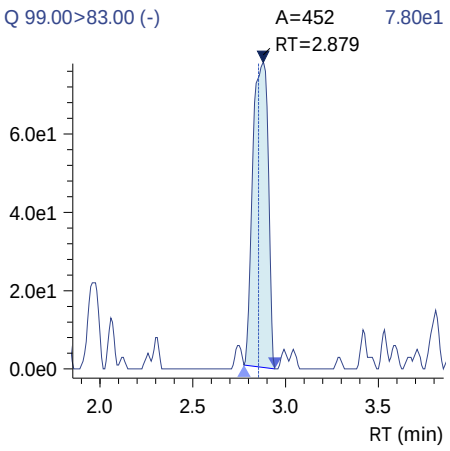
LODV

Sample ID: LODV
Date Acquired: 6/28/2022 11:49:54 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_008.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.879	452	46560	0.0642	ng/mL	29.65	17.77-33.01
Perchlorate 2	Auto	2.858	134	46560	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.863	46560	46560	1.0000	ng/mL	----	

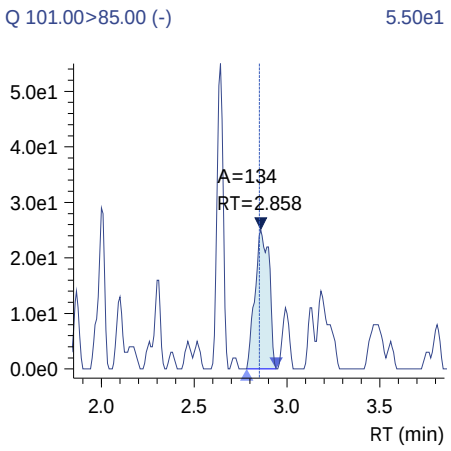
Perchlorate

Conc 0.0642



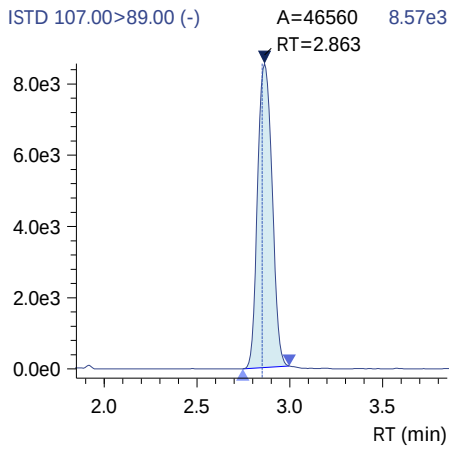
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

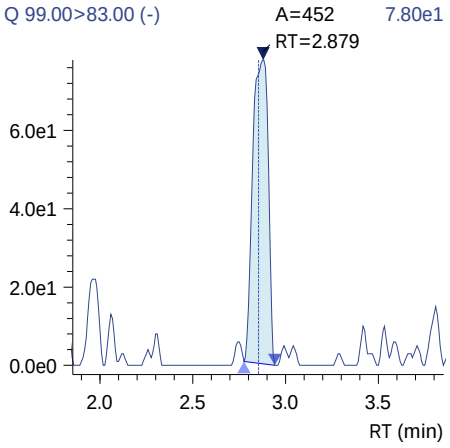
Printed at 6/29/2022 3:37:42 PM

LODV

Sample ID: LODV
Date Acquired: 6/28/2022 11:49:54 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_008.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

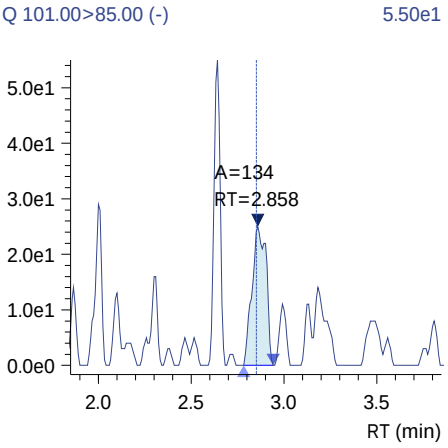
Perchlorate

Conc 0.0658



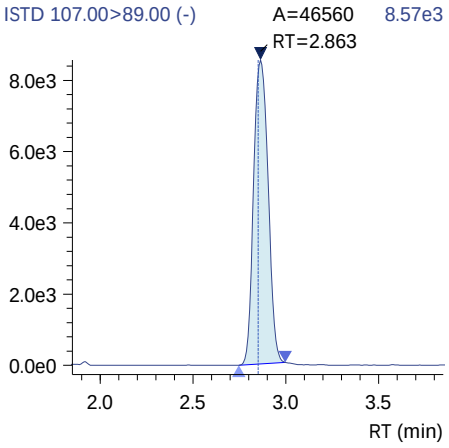
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/29/2022 3:35:57 PM

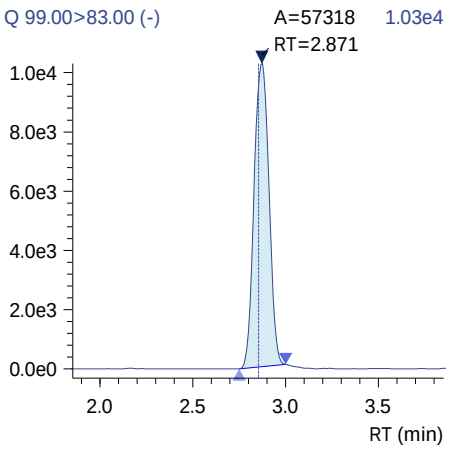
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/28/2022 11:57:47 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.871	57318	37938	9.9968	ng/mL	25.23	17.77-33.01
Perchlorate 2	Auto	2.873	14459	37938	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.867	37938	37938	1.0000	ng/mL	----	

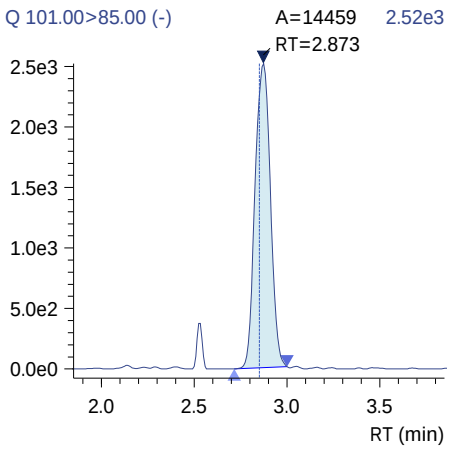
Perchlorate

Conc 9.9968



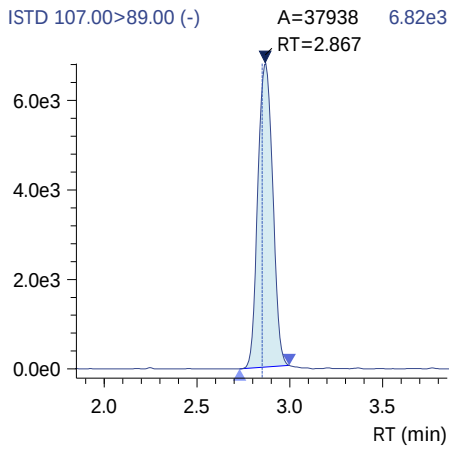
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

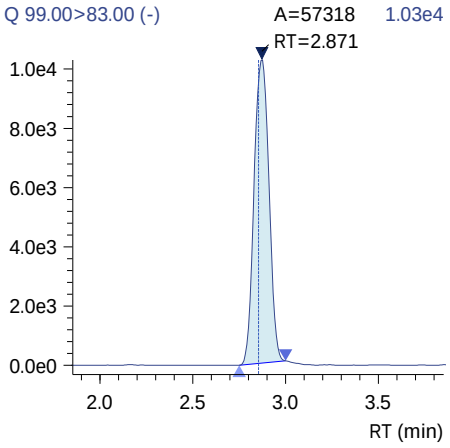
Printed at 6/29/2022 3:37:42 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/28/2022 11:57:47 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

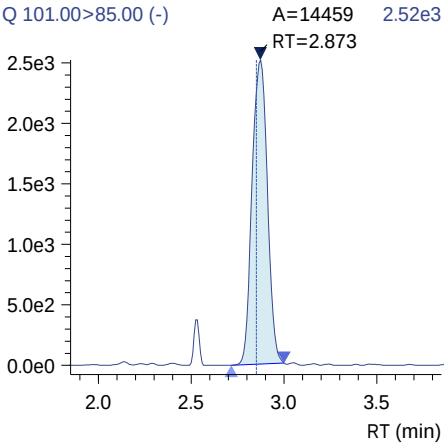
Perchlorate

Conc 10.2390



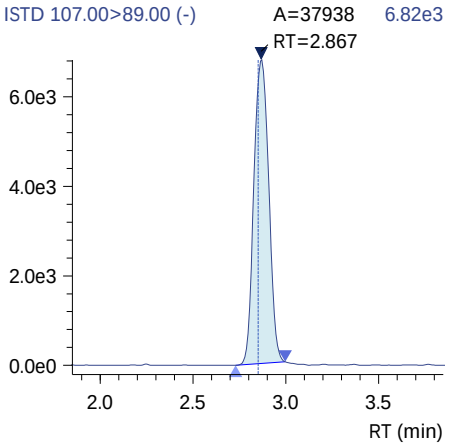
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/29/2022 3:35:57 PM

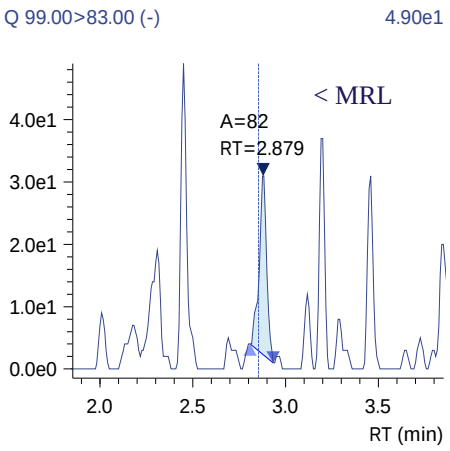
E2200587-007

Sample ID: E2200587-007
Date Acquired: 6/28/2022 12:22:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_011.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.879	82	27094	0.0200	ng/mL	0.00	17.77-33.01
Perchlorate 2	M	2.863	21	27094	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.857	27094	27094	1.0000	ng/mL	----	

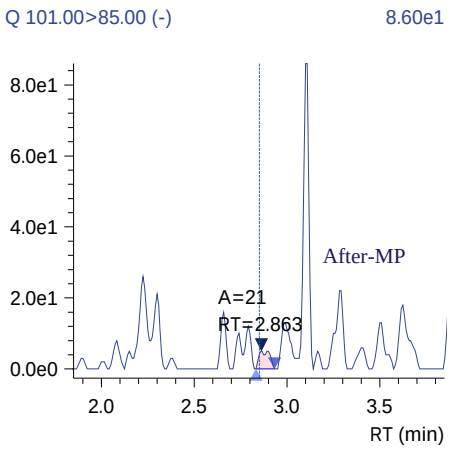
Perchlorate

Conc 0.0200



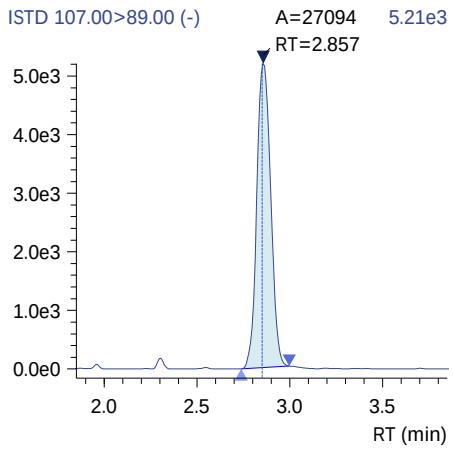
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/29/2022 3:37:42 PM

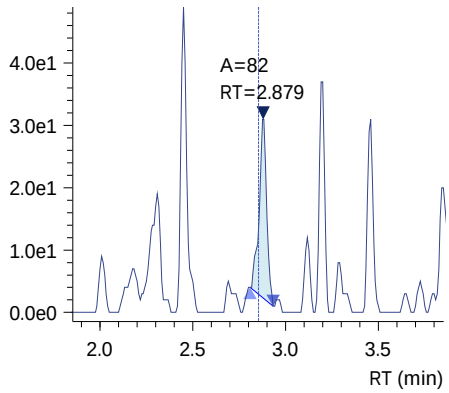
E2200587-007

Sample ID: E2200587-007
Date Acquired: 6/28/2022 12:22:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_011.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc 0.0205

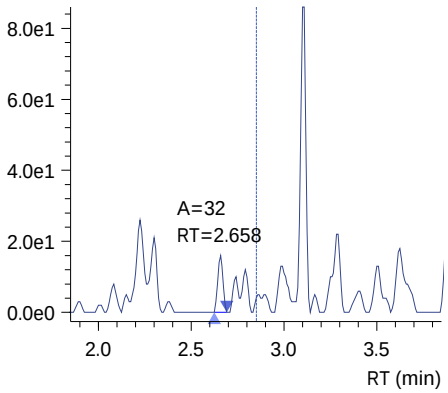
Q 99.00>83.00 (-) 4.90e1



Perchlorate 2

Conc ----

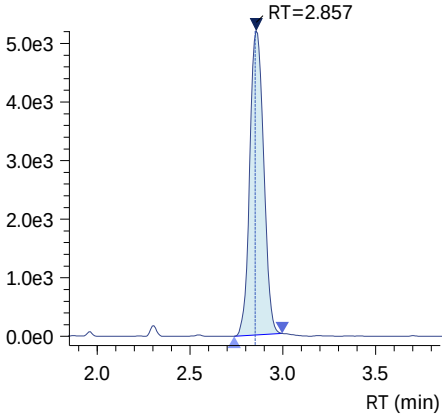
Q 101.00>85.00 (-) 8.60e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=27094 5.21e3



Insight Report

Printed at 6/29/2022 3:35:57 PM

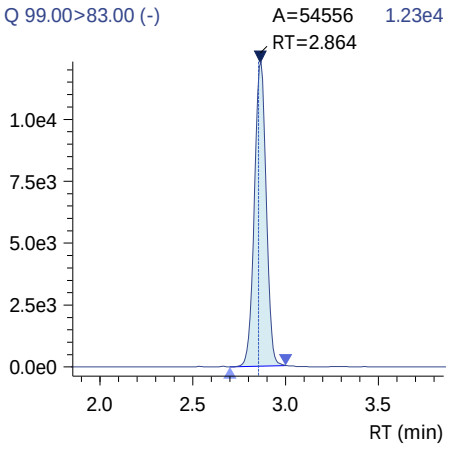
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/28/2022 1:46:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_017.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.864	54556	35943	10.0433	ng/mL	24.13	17.77-33.01
Perchlorate 2	Auto	2.860	13163	35943	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.861	35943	35943	1.0000	ng/mL	----	

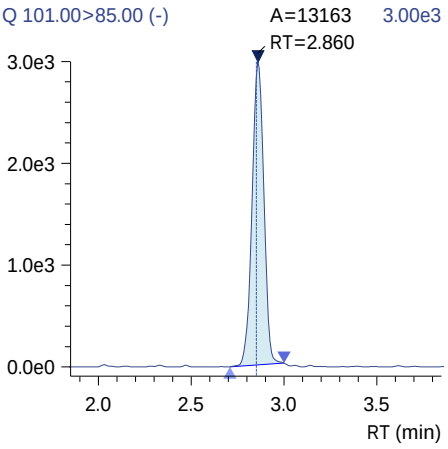
Perchlorate

Conc 10.0433



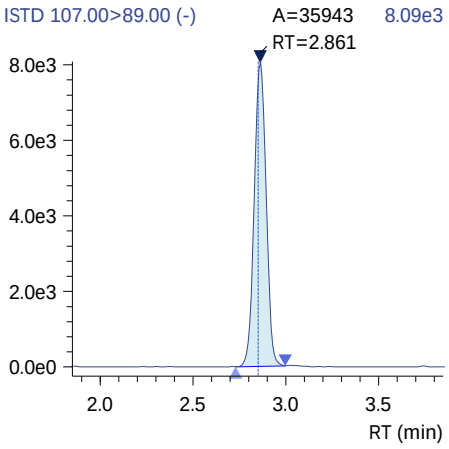
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

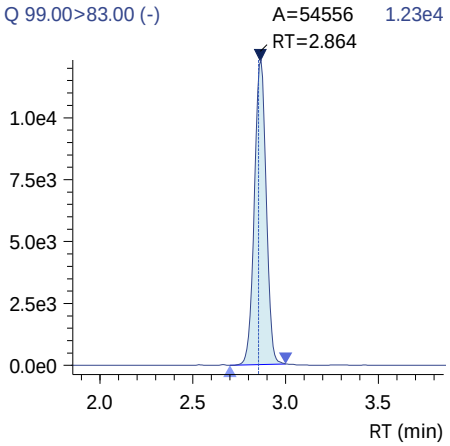
Printed at 6/29/2022 3:37:42 PM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/28/2022 1:46:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220628\20220628_017.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

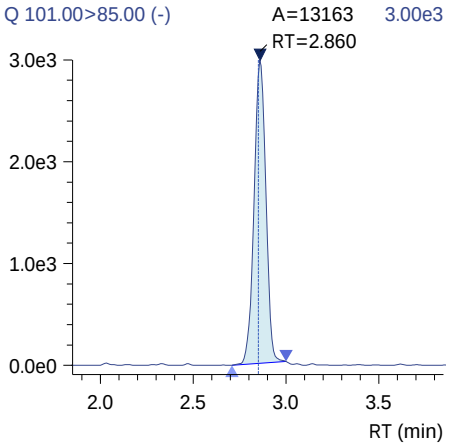
Perchlorate

Conc 10.2865



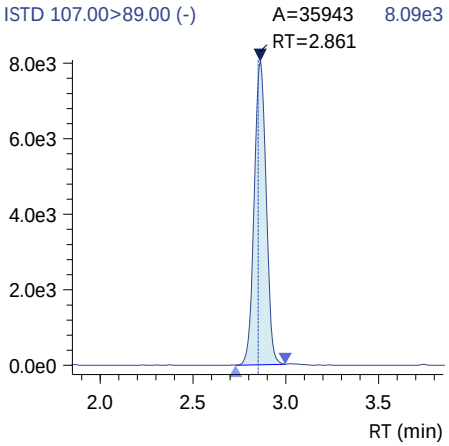
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



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WorkOrder: HS22061146

LHAAP 16 June 2022

Aptim Environmental & Infrastucture, Inc.

Vicki Graves
10333 Richmond Ave Ste 1030
Houston TX 77042

11-Jul-2022

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HS22061146 LHAAP 16 June 2022 Final

ALS WO# HS22061146

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July 08, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS22061146**

Laboratory Results for: **LHAAP 16 June 2022**

Dear Vicki Graves ,

ALS Environmental received 9 sample(s) on Jun 22, 2022 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
Dane J. Wacasey

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Work Order: HS22061146

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22061146-01	16WW37-220620-M	Groundwater		20-Jun-2022 07:20	22-Jun-2022 09:35	☐
HS22061146-02	16WW38-220620-M	Groundwater		20-Jun-2022 08:05	22-Jun-2022 09:35	☐
HS22061146-03	16WW14-220620-M	Groundwater		20-Jun-2022 08:50	22-Jun-2022 09:35	☐
HS22061146-04	16WW20-220620-M	Groundwater		20-Jun-2022 09:50	22-Jun-2022 09:35	☐
HS22061146-05	16WW34-220620-M	Groundwater		20-Jun-2022 10:35	22-Jun-2022 09:35	☐
HS22061146-06	16WW33-220620-M	Groundwater		20-Jun-2022 11:20	22-Jun-2022 09:35	☐
HS22061146-07	16WW32-220620-M	Groundwater		20-Jun-2022 12:05	22-Jun-2022 09:35	☐
HS22061146-08	16WW31-220620-M	Groundwater		20-Jun-2022 12:50	22-Jun-2022 09:35	☐
HS22061146-09	16WW46-220620-M	Groundwater		20-Jun-2022 13:35	22-Jun-2022 09:35	☐

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 16 June 2022
Work Order: HS22061146

Metals by Method SW6020A

Batch ID: 180802

Sample ID: 16WW34-220620-M (HS22061146-05MS)

- Chromium failed for MS/MSD but passed for PDS.
- 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. (Manganese,Nickel)

Sample ID: 16WW34-220620-M (HS22061146-05PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. (Nickel)

Sample ID: HS22060855-03MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW37-220620-M
Collection Date: 20-Jun-2022 07:20

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Manganese	**5.09**		**0.0140**	**0.0500**	**0.100**	**mg/L**	20	08-Jul-2022 17:17
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW38-220620-M
Collection Date: 20-Jun-2022 08:05

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Chromium	**0.177**		**0.000400**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:28
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW14-220620-M
Collection Date: 20-Jun-2022 08:50

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Chromium	**0.285**		**0.000400**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:30
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW20-220620-M
Collection Date: 20-Jun-2022 09:50

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW34-220620-M
Collection Date: 20-Jun-2022 10:35

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Chromium	**0.155**		**0.00200**	**0.00625**	**0.0250**	**mg/L**	5	08-Jul-2022 17:34
Nickel	**1.42**		**0.000600**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:04
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW33-220620-M
Collection Date: 20-Jun-2022 11:20

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Manganese	**0.535**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2022 13:42
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW32-220620-M
Collection Date: 20-Jun-2022 12:05

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW31-220620-M
Collection Date: 20-Jun-2022 12:50

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Chromium	**0.0592**		**0.000400**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:46
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW46-220620-M
Collection Date: 20-Jun-2022 13:35

ANALYTICAL REPORT
WorkOrder:HS22061146
Lab ID:HS22061146-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 05-Jul-2022		Analyst: JHD
Arsenic	**0.00649**		**0.000400**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:48
Chromium	**0.00490**	J	**0.000400**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:48
Manganese	**0.475**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	08-Jul-2022 13:48
Nickel	**0.00389**	J	**0.000600**	**0.00125**	**0.00500**	**mg/L**	1	08-Jul-2022 13:48
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	08-Jul-2022 13:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Batch ID: 180802 **Start Date:** 05 Jul 2022 10:00 **End Date:** 05 Jul 2022 14:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS22061146-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS22061146-09		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 180802 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS22061146-01	16WW37-220620-M	20 Jun 2022 07:20		05 Jul 2022 10:00	08 Jul 2022 17:17	20
HS22061146-01	16WW37-220620-M	20 Jun 2022 07:20		05 Jul 2022 10:00	08 Jul 2022 13:17	1
HS22061146-02	16WW38-220620-M	20 Jun 2022 08:05		05 Jul 2022 10:00	08 Jul 2022 13:28	1
HS22061146-03	16WW14-220620-M	20 Jun 2022 08:50		05 Jul 2022 10:00	08 Jul 2022 13:30	1
HS22061146-04	16WW20-220620-M	20 Jun 2022 09:50		05 Jul 2022 10:00	08 Jul 2022 13:32	1
HS22061146-05	16WW34-220620-M	20 Jun 2022 10:35		05 Jul 2022 10:00	08 Jul 2022 17:34	5
HS22061146-05	16WW34-220620-M	20 Jun 2022 10:35		05 Jul 2022 10:00	08 Jul 2022 13:04	1
HS22061146-06	16WW33-220620-M	20 Jun 2022 11:20		05 Jul 2022 10:00	08 Jul 2022 13:42	1
HS22061146-07	16WW32-220620-M	20 Jun 2022 12:05		05 Jul 2022 10:00	08 Jul 2022 13:44	1
HS22061146-08	16WW31-220620-M	20 Jun 2022 12:50		05 Jul 2022 10:00	08 Jul 2022 13:46	1
HS22061146-09	16WW46-220620-M	20 Jun 2022 13:35		05 Jul 2022 10:00	08 Jul 2022 13:48	1

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

QC BATCH REPORT

Batch ID: 180802 (0) **Instrument: ICPMS07** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-180802** Units: **mg/L** Analysis Date: **08-Jul-2022 16:07**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736599** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00125	0.00500								U
Chromium	0.00125	0.00500								U
Manganese	0.00250	0.00500								U
Nickel	0.00125	0.00500								U
Thallium	0.000500	0.00200								U

LCS Sample ID: **LCS-180802** Units: **mg/L** Analysis Date: **08-Jul-2022 12:31**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736574** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05451	0.00500	0.05	0	109	84 - 116				
Manganese	0.05507	0.00500	0.05	0	110	87 - 115				
Nickel	0.05517	0.00500	0.05	0	110	85 - 117				
Thallium	0.04871	0.00200	0.05	0	97.4	82 - 116				

LCS Sample ID: **LCS-180802** Units: **mg/L** Analysis Date: **08-Jul-2022 16:44**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736789** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	0.05449	0.00500	0.05	0	109	85 - 116				

MS Sample ID: **HS22061146-05MS** Units: **mg/L** Analysis Date: **08-Jul-2022 13:08**
Client ID: **16WW34-220620-M** Run ID: **ICPMS07_412502** SeqNo: **6736584** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05604	0.00500	0.05	0.000242	112	84 - 116				
Chromium	0.2101	0.00500	0.05	0.1488	123	85 - 116				S
Manganese	0.4207	0.00500	0.05	0.2997	242	87 - 115				SO
Nickel	1.547	0.00500	0.05	1.423	248	85 - 117				SO
Thallium	0.05029	0.00200	0.05	0.000004	101	82 - 116				

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

QC BATCH REPORT

Batch ID: 180802 (0) **Instrument: ICPMS07** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS22060855-03MS** Units: **mg/L** Analysis Date: **08-Jul-2022 12:42**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736579** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05542	0.00500	0.05	0.000476	110	84 - 116				
Chromium	0.05431	0.00500	0.05	0.000701	107	85 - 116				
Manganese	0.2779	0.00500	0.05	0.2093	137	87 - 115				SO
Nickel	0.05435	0.00500	0.05	0.000318	108	85 - 117				
Thallium	0.0501	0.00200	0.05	0.00001	100	82 - 116				

MSD Sample ID: **HS22061146-05MSD** Units: **mg/L** Analysis Date: **08-Jul-2022 13:10**
Client ID: **16WW34-220620-M** Run ID: **ICPMS07_412502** SeqNo: **6736585** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05266	0.00500	0.05	0.000242	105	84 - 116	0.05604	6.2	20	
Chromium	0.2075	0.00500	0.05	0.1488	117	85 - 116	0.2101	1.26	20	S
Manganese	0.4217	0.00500	0.05	0.2997	244	87 - 115	0.4207	0.233	20	SO
Nickel	1.54	0.00500	0.05	1.423	235	85 - 117	1.547	0.416	20	SO
Thallium	0.04977	0.00200	0.05	0.000004	99.5	82 - 116	0.05029	1.05	20	

MSD Sample ID: **HS22060855-03MSD** Units: **mg/L** Analysis Date: **08-Jul-2022 16:03**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736598** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05685	0.00500	0.05	0.000476	113	84 - 116	0.05542	2.55	20	
Chromium	0.05553	0.00500	0.05	0.000701	110	85 - 116	0.05431	2.22	20	
Manganese	0.284	0.00500	0.05	0.2093	149	87 - 115	0.2779	2.17	20	SO
Nickel	0.05624	0.00500	0.05	0.000318	112	85 - 117	0.05435	3.42	20	
Thallium	0.05015	0.00200	0.05	0.00001	100	82 - 116	0.0501	0.0938	20	

PDS Sample ID: **HS22061146-05PDS** Units: **mg/L** Analysis Date: **08-Jul-2022 13:13**
Client ID: **16WW34-220620-M** Run ID: **ICPMS07_412502** SeqNo: **6736586** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1087	0.00500	0.1	0.000242	108	80 - 120				
Nickel	1.555	0.00500	0.1	1.423	132	80 - 120				SO
Thallium	0.1022	0.00200	0.1	0.000004	102	80 - 120				

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

QC BATCH REPORT

Batch ID: 180802 (0) **Instrument:** ICPMS07 **Method:** METALS BY ICPMS BY SW6020A

PDS Sample ID: **HS22060855-03PDS** Units: **mg/L** Analysis Date: **08-Jul-2022 12:46**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736581** PrepDate: **05-Jul-2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1079	0.00500	0.1	0.000476	107	80 - 120				
Chromium	0.1059	0.00500	0.1	0.000701	105	80 - 120				
Nickel	0.1054	0.00500	0.1	0.000318	105	80 - 120				
Thallium	0.1043	0.00200	0.1	0.00001	104	80 - 120				

PDS Sample ID: **HS22061146-05PDS** Units: **mg/L** Analysis Date: **08-Jul-2022 17:38**
Client ID: **16WW34-220620-M** Run ID: **ICPMS07_412502** SeqNo: **6736802** PrepDate: **05-Jul-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	0.7395	0.0250	0.5	0.1552	117	80 - 120				
Manganese	0.8678	0.0250	0.5	0.3103	112	80 - 120				

PDS Sample ID: **HS22060855-03PDS** Units: **mg/L** Analysis Date: **08-Jul-2022 17:53**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736822** PrepDate: **05-Jul-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	0.7012	0.0250	0.5	0.2122	97.8	80 - 120				

SD Sample ID: **HS22061146-05SD** Units: **mg/L** Analysis Date: **08-Jul-2022 13:06**
Client ID: **16WW34-220620-M** Run ID: **ICPMS07_412502** SeqNo: **6736583** PrepDate: **05-Jul-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00625	0.0250					0.000242	0	10	U
Nickel	1.324	0.0250					1.423	6.96	10	
Thallium	0.00250	0.0100					0.000004	0	10	U

SD Sample ID: **HS22060855-03SD** Units: **mg/L** Analysis Date: **08-Jul-2022 15:50**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736597** PrepDate: **05-Jul-2022** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00625	0.0250					0.000476	0	10	U
Chromium	0.00625	0.0250					0.000701	0	10	U
Nickel	0.00625	0.0250					0.000318	0	10	U
Thallium	0.00250	0.0100					0.00001	0	10	U

ALS Houston, US Date: 08-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

QC BATCH REPORT

Batch ID: 180802 (0) **Instrument:** ICPMS07 **Method:** METALS BY ICPMS BY SW6020A

SD Sample ID: **HS22061146-05SD** Units: **mg/L** Analysis Date: **08-Jul-2022 17:36**
Client ID: **16WW34-220620-M** Run ID: **ICPMS07_412502** SeqNo: **6736801** PrepDate: **05-Jul-2022** DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Chromium	0.1664	0.125					0.1552	7.25	10	
Manganese	0.3213	0.125					0.3103	3.57	10	

SD Sample ID: **HS22060855-03SD** Units: **mg/L** Analysis Date: **08-Jul-2022 17:21**
Client ID: Run ID: **ICPMS07_412502** SeqNo: **6736794** PrepDate: **05-Jul-2022** DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	0.2172	0.125					0.2122	2.34	10	

The following samples were analyzed in this batch:

HS22061146-01	HS22061146-02	HS22061146-03	HS22061146-04
HS22061146-05	HS22061146-06	HS22061146-07	HS22061146-08
HS22061146-09			

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: **HS22061146**

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-35	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2021-080	31-Aug-2022
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932021-12	30-Jul-2022

ALS Houston, US Date: 08-Jul-22

Sample Receipt Checklist

Work Order ID: HS22061146 **Date/Time Received:** 22-Jun-2022 09:35

Client Name: CBI-Houston **Received by:** Pablo Marinez

Completed By:	/S/ Pablo Marinez	22-Jun-2022 11:55	**Reviewed by:**	/S/ Ragen Giga	07-Jul-2022 17:30
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **WATER** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:CLIENT
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.6°C/2.1°C UC/C	IR 31
Cooler(s)/Kit(s):	48892	
Date/Time sample(s) sent to storage:	6/22/22 11:55	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	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) 575-2190 ATTN: Dane Wacasey

HS22061146

Aptim Environmental & Infrastucture, Inc.
LHAAP 16 June 2022

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 16 June 2022**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: As, Cr, Mn, Tl, Ni by 6020A	As, Mn, Tl by 6020A	Cr, Tl by SW 6020A	Cr, Mn, Tl by SW6020A	Cr, Ni, Tl by SW6020A	Mn, Tl by SW6020A	Ni, Tl by Sw6020A	Tl by Sw6020A			Remarks (Preservatives, etc.)	Lab I.D.#
16WW37-220620-M	WG	6/20/22 0720		1						X						
16WW38-220620-M	WG	6/20/22 0805		1			X									
16WW14-220620-M	WG	6/20/22 0850		1			X									
16WW20-220620-M	WG	6/20/22 0950		1								X				
16WW34-220620-M	WG	6/20/22 1035		1					X							
16WW34-220620-M-MS	WG	6/20/22 1035		1					X							
16WW34-220620-M-MSD	WG	6/20/22 1035		1					X							
16WW33-220620-M	WG	6/20/22 1120		1						X						

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	6/21/22	1400	Pam Mc	6/22/22	9:35						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

48840. (R3, 1.6C 8270-5

(Word) S:\Lt-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 575-2190 ATTN: Dane Wacasey

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: LHAAP 16 June 2022

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. / Time	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: As, Cr, Mn, Tl, Ni by 6020A	As, Mn, Tl by 6020A	Cr , Tl by SW 6020A	Cr, Mn, Tl by SW6020A	Cr, Ni, Tl by SW6020A	Mn, Tl by SW6020A	Ni, Tl by Sw6020A	Tl by Sw6020A			Remarks (Preservatives, etc.)	Lab I.D.#
16ww32-220620-m	WG	6/20/22 1205		1								X				
16 ww31-220620-m	wb	6/20/22 1250		1			X									
16 ww46-220620-m	wb	6/20/22 1335		1	X											

HS22061146
Aptim Environmental & Infrastucture, Inc.
LHAAP 16 June 2022

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	6/21/22	1400		6/22/22	0935						

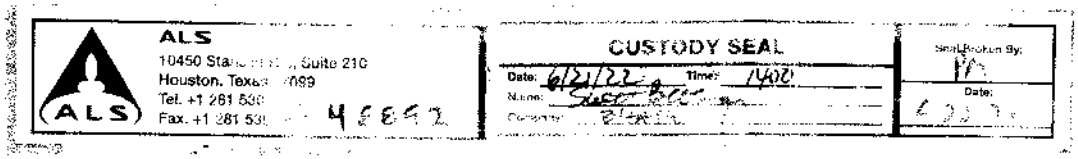
For Lab Use Only

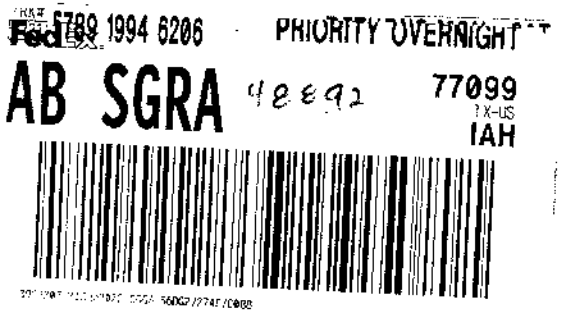
Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

48892 IR3
1.6L

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Sta
Houston, Texa
Tel. +1 281 53
Fax. +1 281 53
48892
CUSTODY SEAL
Date: 6/21/22
Time: 1402
Seal Broken By:
Date:


FedEx 5789 1994 6206
PRIORITY OVERNIGHT
AB SGRA
48892
77099
TX-US
IAH

HS22061146 - ME - ICP_W_DOD

ALS WO# HS22061146

FORM 13 - ANALYSIS RUN LOG

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146
Start Date: 08-Jul-2022 End Date: 08-Jul-2022

Run ID:ICPMS07_412502
Instrument:ICPMS07
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS07_412502_Tune	1	08-Jul-2022 00:00	ICPMS07_412502_Tune_1	
CAL BLK	1	08-Jul-2022 11:41	010CALB.d_6736330	AS CR MN NI TL
2/10/200	1	08-Jul-2022 11:43	011CALS.d_6736331	AS CR MN NI TL
5/25/500	1	08-Jul-2022 11:45	012CALS.d_6736332	AS CR MN NI TL
10/50/100	1	08-Jul-2022 11:48	013CALS.d_6736333	AS CR MN NI TL
100/500/10K	1	08-Jul-2022 11:50	014CALS.d_6736334	AS CR MN NI TL
200/1000/20K	1	08-Jul-2022 11:52	015CALS.d_6736335	AS CR MN NI TL
ICV	1	08-Jul-2022 11:58	017_ICV.d_6736337	AS CR MN NI TL
ICB	1	08-Jul-2022 12:00	018_ICB.d_6736338	AS CR MN NI TL
LLICV2	1	08-Jul-2022 12:02	019LCV2.d_6736339	AS CR MN NI TL
LLICV5	1	08-Jul-2022 12:04	020LCV5.d_6736340	AS CR MN NI TL
ICSA	1	08-Jul-2022 12:13	022ICSA.d_6736342	AS CR MN NI TL
ICSAB	1	08-Jul-2022 12:15	023ICSB.d_6736343	AS CR MN NI TL
CCV 1	1	08-Jul-2022 12:23	026_CCV.d_6736514	AS CR MN NI TL
CCB 1	1	08-Jul-2022 12:25	027_CCB.d_6736515	AS CR MN NI TL
LCS-180802	1	08-Jul-2022 12:31	029SMPL.d_6736574	AS MN NI TL
ZZZZZZMS	1	08-Jul-2022 12:42	034SMPL.d_6736579	AS CR MN NI TL
ZZZZZZPDS	1	08-Jul-2022 12:46	036SMPL.d_6736581	AS CR NI TL
CCV 2	1	08-Jul-2022 12:51	038_CCV.d_6736524	AS CR MN NI TL
CCB 2	1	08-Jul-2022 12:53	039_CCB.d_6736525	AS CR MN NI TL
16WW34-220620-M	1	08-Jul-2022 13:04	042SMPL.d_6736582	NI TL
16WW34-220620-MSD	5	08-Jul-2022 13:06	043SMPL.d_6736583	AS NI TL
16WW34-220620-MMS	1	08-Jul-2022 13:08	044SMPL.d_6736584	AS CR MN NI TL
16WW34-220620-MMSD	1	08-Jul-2022 13:10	045SMPL.d_6736585	AS CR MN NI TL
16WW34-220620-MPDS	1	08-Jul-2022 13:13	046SMPL.d_6736586	AS NI TL
16WW37-220620-M	1	08-Jul-2022 13:17	048SMPL.d_6736588	TL
CCV 3	1	08-Jul-2022 13:21	050_CCV.d_6736534	AS CR MN NI TL
CCB 3	1	08-Jul-2022 13:23	051_CCB.d_6736535	AS CR MN NI TL
16WW38-220620-M	1	08-Jul-2022 13:28	052SMPL.d_6736589	CR TL
16WW14-220620-M	1	08-Jul-2022 13:30	053SMPL.d_6736590	CR TL
16WW20-220620-M	1	08-Jul-2022 13:32	054SMPL.d_6736591	TL
16WW33-220620-M	1	08-Jul-2022 13:42	057SMPL.d_6736592	MN TL
16WW32-220620-M	1	08-Jul-2022 13:44	058SMPL.d_6736593	TL
16WW31-220620-M	1	08-Jul-2022 13:46	059SMPL.d_6736594	CR TL
16WW46-220620-M	1	08-Jul-2022 13:48	060SMPL.d_6736595	AS CR MN NI TL
CCV 4	1	08-Jul-2022 13:52	062_CCV.d_6736544	AS CR MN NI TL
CCB 4	1	08-Jul-2022 13:54	063_CCB.d_6736545	AS CR MN NI TL
CCV 5	1	08-Jul-2022 15:12	098_CCV.d_6736829	AS CR MN NI TL
CCB 5	1	08-Jul-2022 15:15	099_CCB.d_6736830	AS CR MN NI TL
CCV 6	1	08-Jul-2022 15:43	110_CCV.d_6736546	AS CR MN NI TL
CCB 6	1	08-Jul-2022 15:45	111_CCB.d_6736547	AS CR MN NI TL
ZZZZZZSD	5	08-Jul-2022 15:50	113SMPL.d_6736597	AS CR NI TL
ZZZZZZMSD	1	08-Jul-2022 16:03	119SMPL.d_6736598	AS CR MN NI TL
MBLK-180802	1	08-Jul-2022 16:07	121SMPL.d_6736599	AS CR MN NI TL
CCV 7	1	08-Jul-2022 16:09	122_CCV.d_6736600	AS CR MN NI TL
CCB 7	1	08-Jul-2022 16:11	123_CCB.d_6736601	AS CR MN NI TL
CCV 8	1	08-Jul-2022 16:34	134_CCV.d_6736787	AS CR MN NI TL
CCB 8	1	08-Jul-2022 16:36	135_CCB.d_6736788	AS CR MN NI TL
LCS-180802	1	08-Jul-2022 16:44	139SMPL.d_6736789	CR
CCV 9	1	08-Jul-2022 16:59	146_CCV.d_6736790	AS CR MN NI TL

ALS Houston, US

Date: 11-Jul-22

FORM 13 - ANALYSIS RUN LOG

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146
Start Date: 08-Jul-2022 End Date: 08-Jul-2022

Run ID:ICPMS07_412502
Instrument:ICPMS07
Method:

Sample No.	D/F	Time	FileID	Analytes
CCB 9	1	08-Jul-2022 17:01	147_CCB.d_6736791	AS CR MN NI TL
16WW37-220620-M	20	08-Jul-2022 17:17	154SMPL.d_6736792	MN
ZZZZZZSD	25	08-Jul-2022 17:21	156SMPL.d_6736794	MN
CCV 10	1	08-Jul-2022 17:25	158_CCV.d_6736796	AS CR MN NI TL
CCB 10	1	08-Jul-2022 17:27	159_CCB.d_6736797	AS CR MN NI TL
16WW34-220620-M	5	08-Jul-2022 17:34	162SMPL.d_6736800	CR
16WW34-220620-MSD	25	08-Jul-2022 17:36	163SMPL.d_6736801	CR MN
16WW34-220620-MPDS	5	08-Jul-2022 17:38	164SMPL.d_6736802	CR MN
ZZZZZZPDS	5	08-Jul-2022 17:53	166SMPL.d_6736822	MN
CCV 11	1	08-Jul-2022 18:03	168_CCV.d_6736832	AS CR MN NI TL
CCB 11	1	08-Jul-2022 18:05	169_CCB.d_6736833	AS CR MN NI TL

Form 2 - Initial and Continuing Calibration Verification

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Run ID: ICPMS07_412502
Instrument: ICPMS07
Method: SW6020A

ICV	Date: 08-Jul-2022 11:58		Seq: 6736337	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	98.893	99	90-110	
Chromium	100	99.961	100	90-110	
Manganese	100	100.21	100	90-110	
Nickel	100	100.279	100	90-110	
Thallium	100	98.255	98	90-110	

CCV1	Date: 08-Jul-2022 12:23		Seq: 6736514	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.94	102	90-110	
Chromium	100	98.289	98	90-110	
Manganese	100	99.171	99	90-110	
Nickel	100	98.956	99	90-110	
Thallium	100	99.766	100	90-110	

CCV2	Date: 08-Jul-2022 12:51		Seq: 6736524	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.616	102	90-110	
Chromium	100	98.65	99	90-110	
Manganese	100	100.147	100	90-110	
Nickel	100	100.141	100	90-110	
Thallium	100	100.027	100	90-110	

CCV3	Date: 08-Jul-2022 13:21		Seq: 6736534	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.617	102	90-110	
Chromium	100	99.101	99	90-110	
Manganese	100	100.587	101	90-110	
Nickel	100	99.337	99	90-110	
Thallium	100	102.88	103	90-110	

CCV4	Date: 08-Jul-2022 13:52		Seq: 6736544	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.725	104	90-110	
Chromium	100	100.133	100	90-110	
Manganese	100	100.274	100	90-110	
Nickel	100	99.819	100	90-110	
Thallium	100	102.731	103	90-110	

CCV5	Date: 08-Jul-2022 15:12		Seq: 6736829	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	108.582	109	90-110	
Chromium	100	107.04	107	90-110	
Manganese	100	106.144	106	90-110	
Nickel	100	107.028	107	90-110	
Thallium	100	110.967	111	90-110	S

CCV6	Date: 08-Jul-2022 15:43		Seq: 6736546	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	99.459	100	90-110	
Chromium	100	100.002	100	90-110	
Manganese	100	99.917	100	90-110	
Nickel	100	101.797	102	90-110	
Thallium	100	98.771	99	90-110	

ALS Houston, US Date: 11-Jul-22

Form 2 - Initial and Continuing Calibration Verification

Client: Aptim Environmental & Infrastucture, Inc. Run ID: ICPMS07_412502
Project: LHAAP 16 June 2022 Instrument: ICPMS07
WorkOrder: HS22061146 Method: SW6020A

CCV7	Date: 08-Jul-2022 16:09		Seq: 6736600	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	99.566	100	90-110	
Chromium	100	101.088	101	90-110	
Manganese	100	101.262	101	90-110	
Nickel	100	102.278	102	90-110	
Thallium	100	100.838	101	90-110	

CCV8	Date: 08-Jul-2022 16:34		Seq: 6736787	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	104.701	105	90-110	
Chromium	100	102.944	103	90-110	
Manganese	100	101.398	101	90-110	
Nickel	100	102.495	102	90-110	
Thallium	100	106.364	106	90-110	

CCV9	Date: 08-Jul-2022 16:59		Seq: 6736790	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	106.157	106	90-110	
Chromium	100	103.056	103	90-110	
Manganese	100	102.583	103	90-110	
Nickel	100	103.793	104	90-110	
Thallium	100	106.386	106	90-110	

CCV10	Date: 08-Jul-2022 17:25		Seq: 6736796	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	105.725	106	90-110	
Chromium	100	102.628	103	90-110	
Manganese	100	102.079	102	90-110	
Nickel	100	103.889	104	90-110	
Thallium	100	106.569	107	90-110	

CCV11	Date: 08-Jul-2022 18:03		Seq: 6736832	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	104.416	104	90-110	
Chromium	100	102.21	102	90-110	
Manganese	100	101.655	102	90-110	
Nickel	100	103.342	103	90-110	
Thallium	100	105.503	106	90-110	

Form 3 - BLANKS

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Run ID: ICPMS07_412502
Instrument: ICPMS07
Method: SW6020A

ICB	Date: 08-Jul-2022 12:00		Seq: 6736338	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	5	0.4	5	U	
Chromium	5	0.4	5	U	
Manganese	5	0.7	5	U	
Nickel	5	0.6	5	U	
Thallium	2	0.2	2	U	

CCB1	Date: 08-Jul-2022 12:25		Seq: 6736515	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB2	Date: 08-Jul-2022 12:53		Seq: 6736525	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB3	Date: 08-Jul-2022 13:23		Seq: 6736535	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB4	Date: 08-Jul-2022 13:54		Seq: 6736545	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB5	Date: 08-Jul-2022 15:15		Seq: 6736830	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB6	Date: 08-Jul-2022 15:45		Seq: 6736547	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

Form 3 - BLANKS

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Run ID: ICPMS07_412502
Instrument: ICPMS07
Method: SW6020A

MBLK-180802	Date: 08-Jul-2022 16:07		Seq: 6736599	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	5	0.4	5	U	
Chromium	5	0.4	5	U	
Manganese	5	0.7	5	U	
Nickel	5	0.6	5	U	
Thallium	2	0.2	2	U	

CCB7	Date: 08-Jul-2022 16:11		Seq: 6736601	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB8	Date: 08-Jul-2022 16:36		Seq: 6736788	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB9	Date: 08-Jul-2022 17:01		Seq: 6736791	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB10	Date: 08-Jul-2022 17:27		Seq: 6736797	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

CCB11	Date: 08-Jul-2022 18:05		Seq: 6736833	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Chromium	4	0.4	4	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Thallium	2	0.2	2	U	

ALS Houston, US

Date: 11-Jul-22

Form 4 - ICP Interference Check Sample

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Run ID: ICPMS07_412502
Instrument: ICPMS07
Method: SW6020A

ICSA	Date: 08-Jul-2022 12:13	Seq: 6736342	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic		0.246	0	
Chromium		1.445	0	
Manganese		0.35	0	
Nickel		0.768	0	
Thallium		0.012	0	

ICSAB	Date: 08-Jul-2022 12:15	Seq: 6736343	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic	100	105.8	106	
Chromium	100	108.6	109	
Manganese	100	106.8	107	
Nickel	100	104.4	104	
Thallium	100	109.7	110	

ALS Houston, US

Date: 11-Jul-22

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Date Analyzed: 08-Jul-2022 13:10
Date Extracted: 05-Jul-2022 10:00
Units: ug/L

Matrix Spike: HS22061146-05MS
Client Sample ID: 16WW34-220620-M
Analysis Method: SW6020A

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic	5.000	56.04	50.00	112	52.66	50.00	105	84-116	6.20	20
Chromium	148.8	210.1	50.00	123	207.5	50.00	117	85-116	1.26	20
Manganese	299.7	420.7	50.00	242	421.7	50.00	244	87-115	0.233	20
Nickel	1423	1547	50.00	248	1540	50.00	235	85-117	0.416	20
Thallium	2.000	50.30	50.00	101	49.77	50.00	99.5	82-116	1.05	20

Matrix Spike: HS22060855-03MS
Client Sample ID:
Analysis Method: SW6020A

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic	0.4760	55.42	50.00	110	56.85	50.00	113	84-116	2.55	20
Chromium	0.7010	54.31	50.00	107	55.53	50.00	110	85-116	2.22	20
Manganese	209.3	277.9	50.00	137	284.0	50.00	149	87-115	2.17	20
Nickel	5.000	54.35	50.00	108	56.24	50.00	112	85-117	3.42	20
Thallium	2.000	50.10	50.00	100	50.15	50.00	100	82-116	0.0938	20

ALS Houston, US

Date: 11-Jul-22

Form 5B - Post Digest Sample Recovery

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Date Analyzed: 08-Jul-2022 12:46
Date Extracted: 05-Jul-2022 10:00
Units: ug/L

Lab Sample ID: HS22060855-03PDS
Client Sample ID:
Analysis Method: SW6020A

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0.476	107.9	100	107	80-120
Chromium	0.701	105.9	100	105	80-120
Nickel	0	105.4	100	105	80-120
Thallium	0	104.3	100	104	80-120
Manganese	212.2	701.2	500	98	80-120

Lab Sample ID: HS22061146-05PDS
Client Sample ID: 16WW34-220620-M
Analysis Method: SW6020A

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0	108.7	100	108	80-120
Nickel	1423	1555	100	132	80-120
Thallium	0	102.2	100	102	80-120
Chromium	155.2	739.5	500	117	80-120
Manganese	310.3	867.8	500	112	80-120

ALS Houston, US

Date: 11-Jul-22

Form 7 - Laboratory Control Sample

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Date Analyzed: 08-Jul-2022 12:31
Date Extracted: 05-Jul-2022 10:00
Units: ug/L

Lab Sample ID: LCS-180802
Analysis Method: SW6020A

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Arsenic	50	54.51	109	84-116
Manganese	50	55.07	110	87-115
Nickel	50	55.17	110	85-117
Thallium	50	48.71	97	82-116
Chromium	50	54.49	109	85-116

ALS Houston, US Date: 11-Jul-22

Form 8 - ICP Serial Dilutions

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061146

Date Analyzed: 08-Jul-2022 13:06
Date Extracted: 05-Jul-2022 10:00
Units: ug/L

Lab Sample ID: HS22061146-05SD
Client Sample ID:16WW34-220620-M
Analysis Method: SW6020A

Analyte	Sample Result	C	SD Result	C	RPD	Q
Arsenic	0	U	0	U	0	
Nickel	1423		1324		7	
Thallium	0	U	0	U	0	
Chromium	155.2		166.4		7	
Manganese	310.3		321.3		4	

Lab Sample ID: HS22060855-03SD
Client Sample ID:
Analysis Method: SW6020A

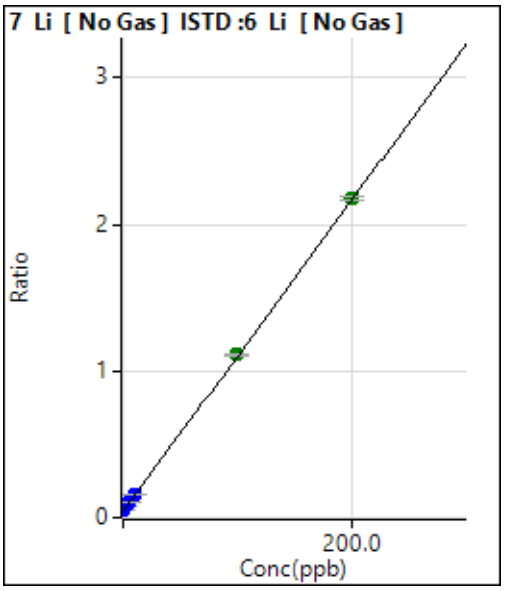
Analyte	Sample Result	C	SD Result	C	RPD	Q
Arsenic	0.476	J	0	U	0	
Chromium	0.701	J	0	U	0	
Nickel	0	U	0	U	0	
Thallium	0	U	0	U	0	
Manganese	212.2		217.2		2	

Calibration for 017_ICV.d

Batch Folder: D:\Agilent\ICPMH\1\DATA\070822A.b\
Analysis File: 070822A.batch.bin
DA Date-Time: 07/08/2022 22:28:10
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	010CALB.d	CAL BLK	07/08/2022 11:41:05
2	011CALS.d	2/10/200	07/08/2022 11:43:26
3	012CALS.d	5/25/500	07/08/2022 11:45:47
4	013CALS.d	10/50/100	07/08/2022 11:48:08
5	014CALS.d	100/500/10K	07/08/2022 11:50:28
6	015CALS.d	200/1000/20K	07/08/2022 11:52:43

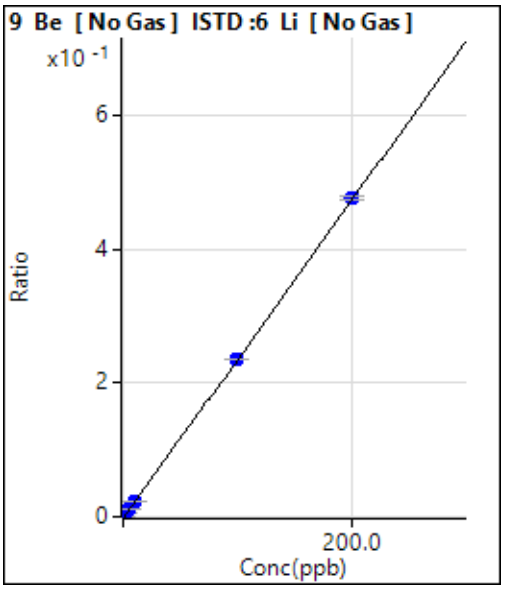
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	55177.69	0.0537	P	0.8	
2	☐	2.000	1.890	75780.61	0.0738	P	1.0	-5.5
3	☐	5.000	4.798	107019.84	0.1046	P	0.7	-4.0
4	☐	10.000	9.438	155383.95	0.1539	P	1.6	-5.6
5	☐	100.000	99.559	1134022.43	1.1100	A	1.0	-0.4
6	☐	200.000	200.255	2121731.84	2.1783	A	1.3	0.1

y = 0.0106 * x + 0.0537
R = 1.0000
DL = 0.1265 ppb
BEC = 5.064 ppb

Weight: <None>
Min Conc: <None>

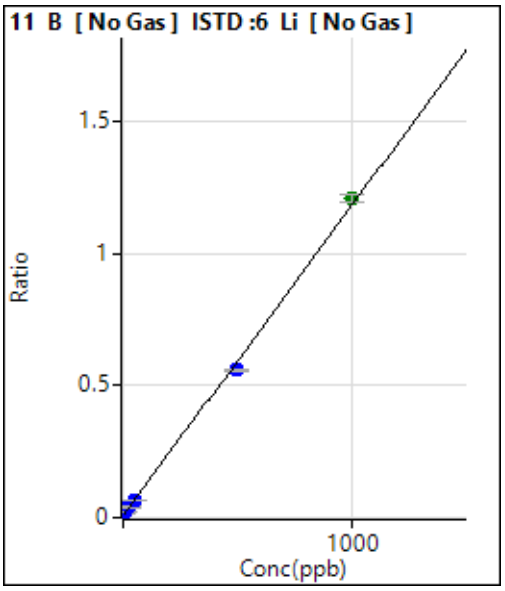


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	40.00	0.0000	P	37.3	
2	☐	2.000	1.943	4792.52	0.0047	P	5.8	-2.9
3	☐	5.000	4.873	11911.77	0.0116	P	1.6	-2.5
4	☐	10.000	9.920	23900.34	0.0237	P	2.2	-0.8
5	☐	100.000	98.983	240886.58	0.2358	P	0.8	-1.0
6	☐	200.000	200.516	465211.61	0.4776	P	1.3	0.3

y = 0.0024 * x + 3.8945E-005
R = 1.0000
DL = 0.01831 ppb
BEC = 0.01635 ppb

Weight: <None>
Min Conc: <None>

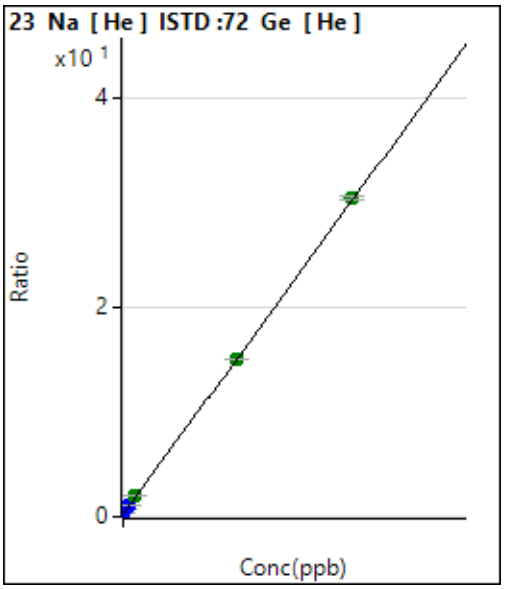
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	14794.51	0.0144	P	1.6	
2	☐	10.000	8.748	25334.53	0.0247	P	2.6	-12.5
3	☐	25.000	21.881	40977.95	0.0401	P	2.8	-12.5
4	☐	50.000	45.929	68970.59	0.0683	P	1.0	-8.1
5	☐	500.000	463.987	570764.90	0.5587	P	1.7	-7.2
6	☐	1000.000	1018.300	1177515.53	1.2090	A	1.8	1.8

y = 0.0012 * x + 0.0144
R = 0.9991
DL = 0.6065 ppb
BEC = 12.28 ppb

Weight: <None>
Min Conc: <None>

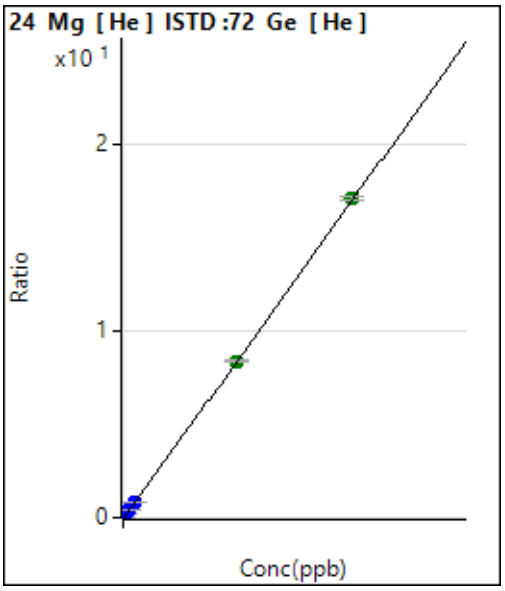


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	193119.09	0.3862	P	1.3	
2	☐	200.000	187.074	334691.49	0.6661	P	0.2	-6.5
3	☐	500.000	480.278	547603.77	1.1050	P	1.0	-3.9
4	☐	1000.000	1051.786	978036.68	1.9603	A	0.3	5.2
5	☐	10000.00	9787.672	7717555.51	15.0347	A	0.9	-2.1
6	☐	20000.00	20104.19	14750603.9	30.4747	A	0.8	0.5

y = 0.0015 * x + 0.3862
R = 0.9999
DL = 10.06 ppb
BEC = 258 ppb

Weight: <None>
Min Conc: <None>

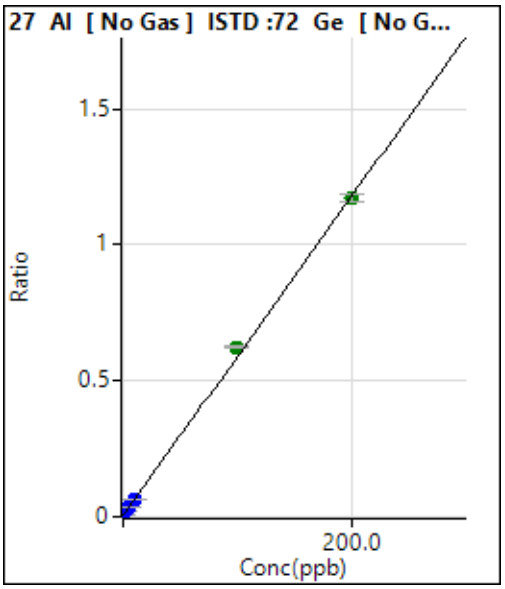
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	230.01	0.0005	P	25.7	
2	☐	200.000	194.946	83616.62	0.1664	P	1.0	-2.5
3	☐	500.000	497.858	210280.27	0.4243	P	0.9	-0.4
4	☐	1000.000	984.174	418263.94	0.8383	P	0.5	-1.6
5	☐	10000.00	9840.633	4300565.67	8.3781	A	1.1	-1.6
6	☐	20000.00	20080.57	8274881.96	17.0957	A	0.8	0.4

y = 8.5133E-004 * x + 4.5935E-004
R = 1.0000
DL = 0.4152 ppb
BEC = 0.5396 ppb

Weight: <None>
Min Conc: <None>

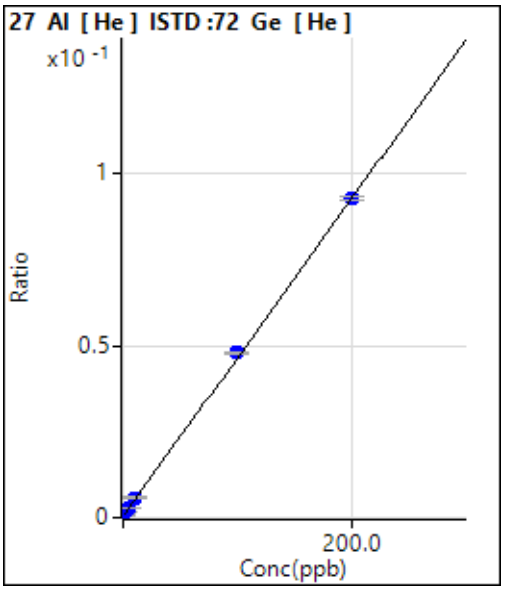


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	15919.34	0.0103	P	0.4	
2	☐	2.000	1.657	31282.21	0.0200	P	3.7	-17.1
3	☐	5.000	4.532	57274.60	0.0369	P	3.3	-9.4
4	☐	10.000	9.240	98869.78	0.0645	P	2.4	-7.6
5	☐	100.000	104.321	984938.71	0.6228	A	1.5	4.3
6	☐	200.000	197.893	1751152.73	1.1723	A	2.5	-1.1

y = 0.0059 * x + 0.0103
R = 0.9996
DL = 0.02216 ppb
BEC = 1.749 ppb

Weight: <None>
Min Conc: <None>

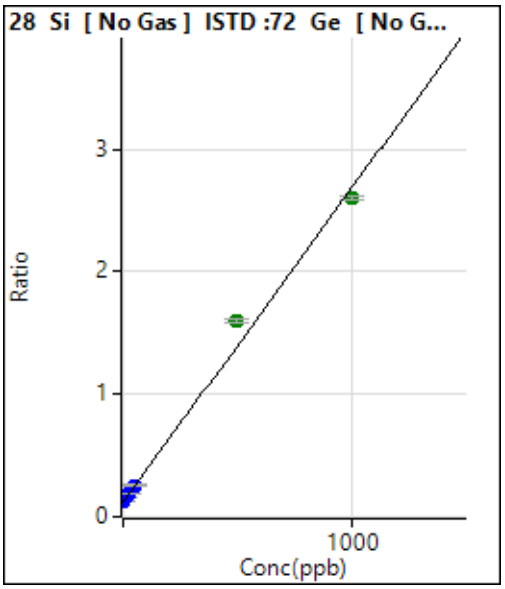
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	456.68	0.0009	P	16.7	
2	☐	2.000	1.655	843.37	0.0017	P	9.6	-17.3
3	☐	5.000	4.454	1473.44	0.0030	P	7.2	-10.9
4	☐	10.000	10.429	2860.35	0.0057	P	7.6	4.3
5	☐	100.000	101.677	24588.66	0.0479	P	2.0	1.7
6	☐	200.000	199.157	44989.48	0.0929	P	1.4	-0.4

y = 4.6213E-004 * x + 9.1379E-004
R = 0.9999
DL = 0.9934 ppb
BEC = 1.977 ppb

Weight: <None>
Min Conc: <None>

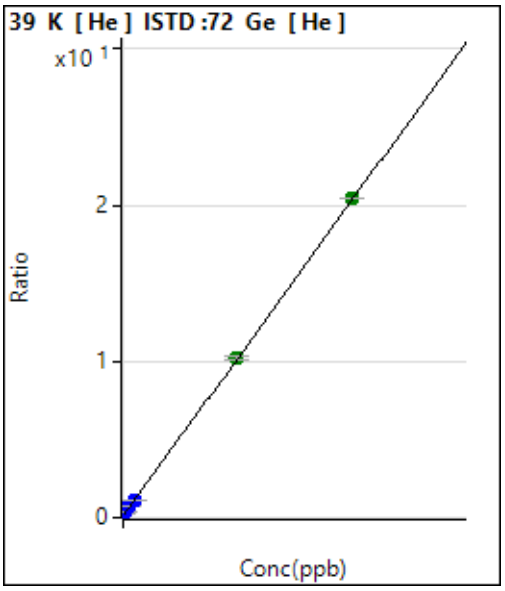


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	205315.44	0.1324	P	1.0	
2	☐	10.000	9.232	244200.56	0.1561	P	1.0	-7.7
3	☐	25.000	23.727	300208.48	0.1933	P	2.3	-5.1
4	☐	50.000	48.636	394073.99	0.2572	P	2.0	-2.7
5	☐	500.000	573.180	2533653.56	1.6024	A	1.7	14.6
6	☐	1000.000	963.518	3889495.36	2.6035	A	1.7	-3.6

y = 0.0026 * x + 0.1324
R = 0.9961
DL = 1.545 ppb
BEC = 51.64 ppb

Weight: <None>
Min Conc: <None>

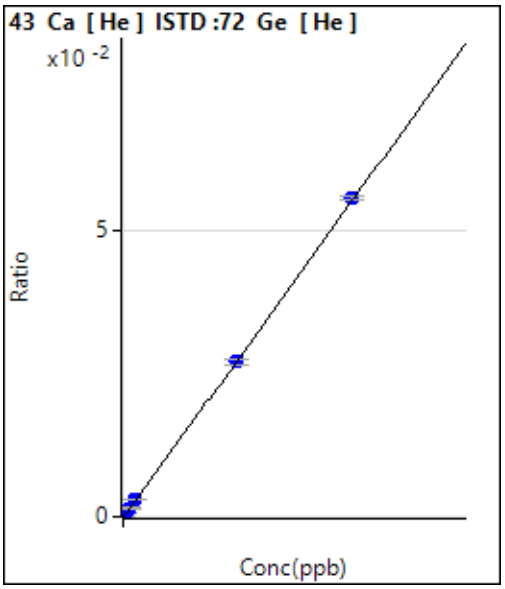
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	107432.12	0.2148	P	0.5	
2	☐	200.000	179.640	198983.79	0.3960	P	0.5	-10.2
3	☐	500.000	469.112	340986.62	0.6881	P	1.2	-6.2
4	☐	1000.000	938.980	579767.57	1.1620	P	0.3	-6.1
5	☐	10000.00	9924.403	5249259.72	10.2263	A	1.7	-0.8
6	☐	20000.00	20041.82	9890185.06	20.4326	A	0.6	0.2

y = 0.0010 * x + 0.2148
R = 1.0000
DL = 3.143 ppb
BEC = 213 ppb

Weight: <None>
Min Conc: <None>

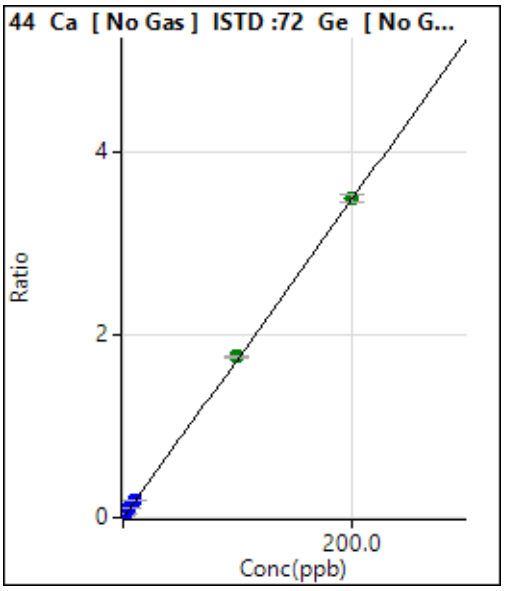


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	23.33	0.0000	P	49.4	
2	☐	200.000	209.041	313.34	0.0006	P	11.2	4.5
3	☐	500.000	506.917	716.70	0.0014	P	8.8	1.4
4	☐	1000.000	1028.718	1440.10	0.0029	P	2.3	2.9
5	☐	10000.00	9753.899	13843.85	0.0270	P	3.6	-2.5
6	☐	20000.00	20121.35	26906.58	0.0556	P	1.2	0.6

y = 2.7603E-006 * x + 4.6624E-005
R = 0.9999
DL = 25.02 ppb
BEC = 16.89 ppb

Weight: <None>
Min Conc: <None>

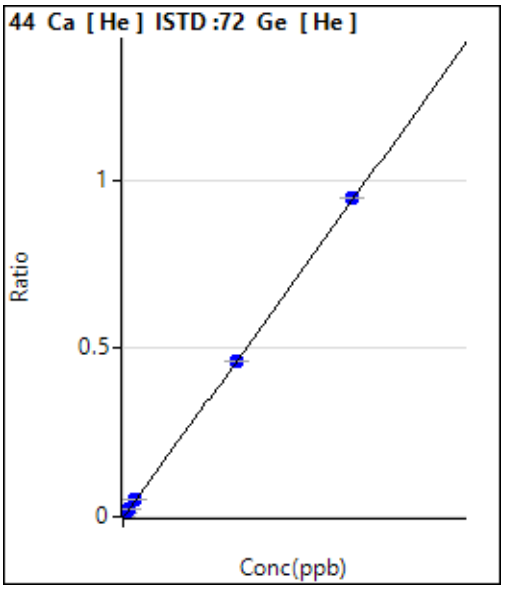
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	20165.05	0.0130	P	0.9	
2	☐	2.000	1.951	73405.30	0.0469	P	1.1	-2.4
3	☐	5.000	4.915	152911.93	0.0985	P	2.1	-1.7
4	☐	10.000	10.068	288119.22	0.1880	P	1.9	0.7
5	☐	100.000	100.330	2778142.04	1.7571	A	1.6	0.3
6	☐	200.000	199.834	5208772.32	3.4867	A	2.1	-0.1

y = 0.0174 * x + 0.0130
R = 1.0000
DL = 0.02078 ppb
BEC = 0.7483 ppb

Weight: <None>
Min Conc: <None>

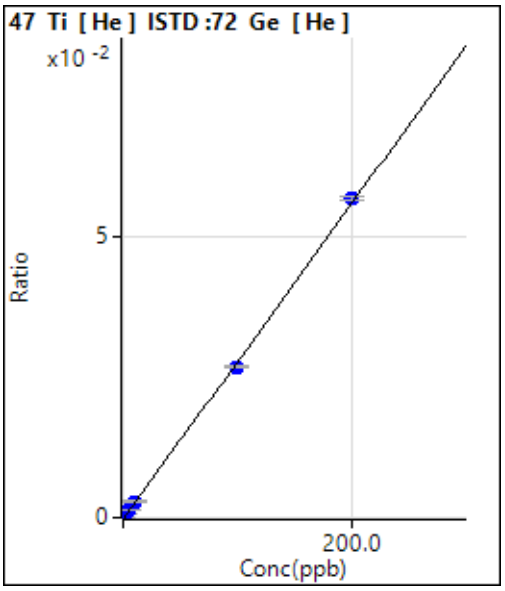


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	500.02	0.0010	P	9.4	
2	☐	200.000	198.587	5197.74	0.0103	P	12.5	-0.7
3	☐	500.000	509.708	12382.39	0.0250	P	2.2	1.9
4	☐	1000.000	1020.285	24452.04	0.0490	P	1.6	2.0
5	☐	10000.00	9793.780	237082.11	0.4619	P	0.3	-2.1
6	☐	20000.00	20101.86	458366.54	0.9469	P	0.5	0.5

y = 4.7057E-005 * x + 0.0010
R = 0.9999
DL = 6.001 ppb
BEC = 21.26 ppb

Weight: <None>
Min Conc: <None>

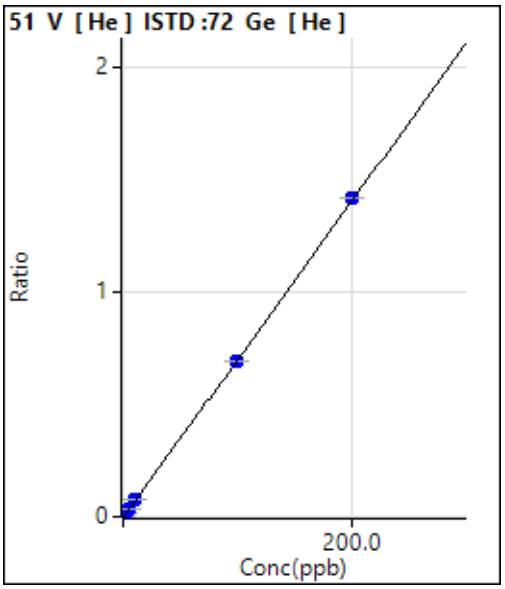
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	6.67	0.0000	P	86.6	
2	☐	2.000	2.056	296.68	0.0006	P	5.1	2.8
3	☐	5.000	4.818	676.70	0.0014	P	15.9	-3.6
4	☐	10.000	10.164	1430.10	0.0029	P	4.4	1.6
5	☐	100.000	95.218	13727.09	0.0267	P	1.1	-4.8
6	☐	200.000	202.387	27504.68	0.0568	P	1.2	1.2

y = 2.8071E-004 * x + 1.3386E-005
R = 0.9996
DL = 0.1239 ppb
BEC = 0.04769 ppb

Weight: <None>
Min Conc: <None>

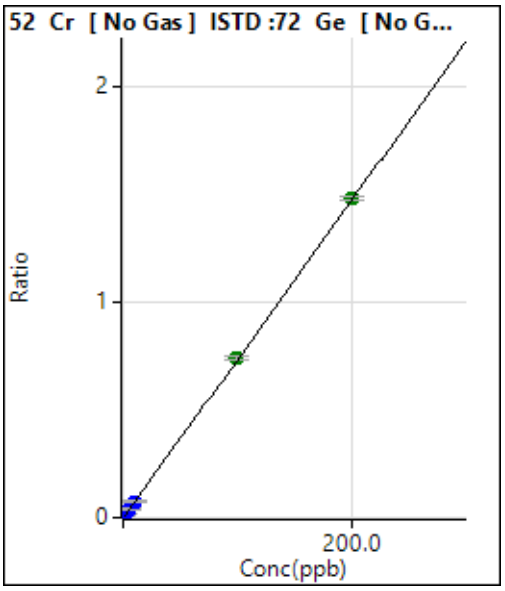


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	1341.18	0.0027	P	9.5	
2	☐	2.000	1.984	8370.37	0.0167	P	2.9	-0.8
3	☐	5.000	5.002	18797.35	0.0379	P	0.8	0.0
4	☐	10.000	9.998	36487.28	0.0731	P	0.6	0.0
5	☐	100.000	97.661	354618.58	0.6908	P	0.2	-2.3
6	☐	200.000	201.170	687440.29	1.4202	P	0.2	0.6

y = 0.0070 * x + 0.0027
R = 0.9999
DL = 0.1088 ppb
BEC = 0.3804 ppb

Weight: <None>
Min Conc: <None>

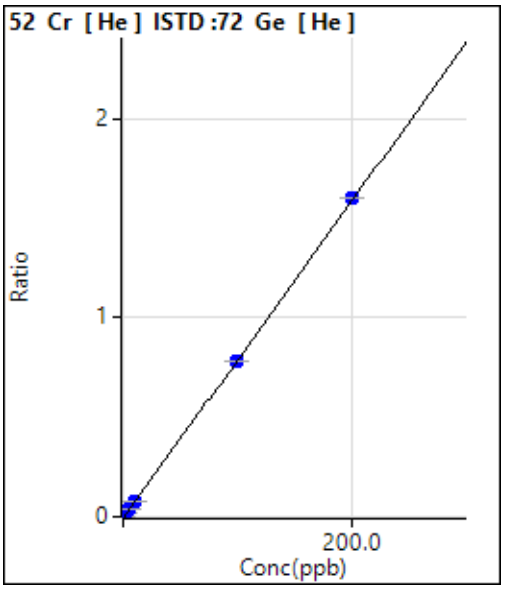
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	8199.27	0.0053	P	3.4	
2	☐	2.000	1.943	30641.19	0.0196	P	1.8	-2.9
3	☐	5.000	4.710	62053.94	0.0400	P	2.7	-5.8
4	☐	10.000	9.546	115769.24	0.0756	P	2.1	-4.5
5	☐	100.000	99.477	1166083.32	0.7375	A	2.1	-0.5
6	☐	200.000	200.292	2210491.74	1.4795	A	1.3	0.1

y = 0.0074 * x + 0.0053
R = 1.0000
DL = 0.07313 ppb
BEC = 0.7186 ppb

Weight: <None>
Min Conc: <None>

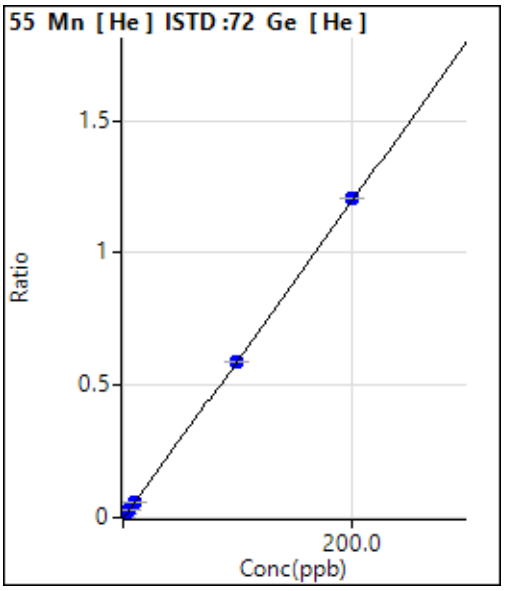


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	393.35	0.0008	P	8.3	
2	☐	2.000	1.930	8109.22	0.0161	P	4.7	-3.5
3	☐	5.000	5.078	20408.78	0.0412	P	2.6	1.6
4	☐	10.000	10.069	40356.53	0.0809	P	1.0	0.7
5	☐	100.000	97.872	400056.09	0.7794	P	0.1	-2.1
6	☐	200.000	201.059	774560.69	1.6002	P	0.4	0.5

y = 0.0080 * x + 7.8661E-004
R = 0.9999
DL = 0.02473 ppb
BEC = 0.09888 ppb

Weight: <None>
Min Conc: <None>

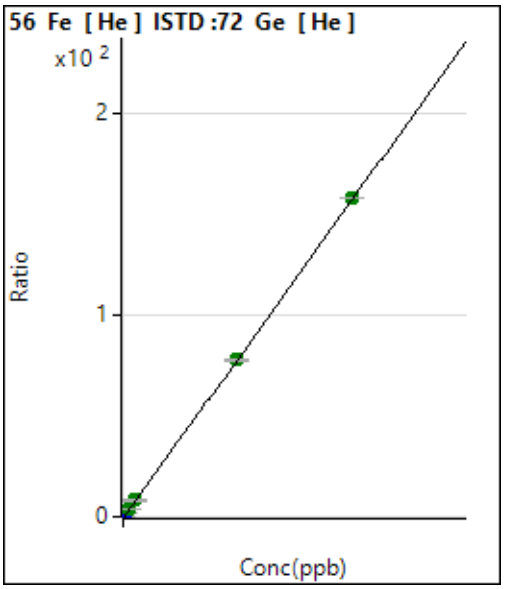
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	490.02	0.0010	P	19.1	
2	☐	2.000	2.008	6538.36	0.0130	P	4.4	0.4
3	☐	5.000	5.010	15365.52	0.0310	P	3.2	0.2
4	☐	10.000	9.912	30123.46	0.0604	P	0.3	-0.9
5	☐	100.000	97.878	301566.16	0.5875	P	0.5	-2.1
6	☐	200.000	201.065	583658.12	1.2058	P	0.5	0.5

y = 0.0060 * x + 9.7928E-004
R = 0.9999
DL = 0.0936 ppb
BEC = 0.1634 ppb

Weight: <None>
Min Conc: <None>

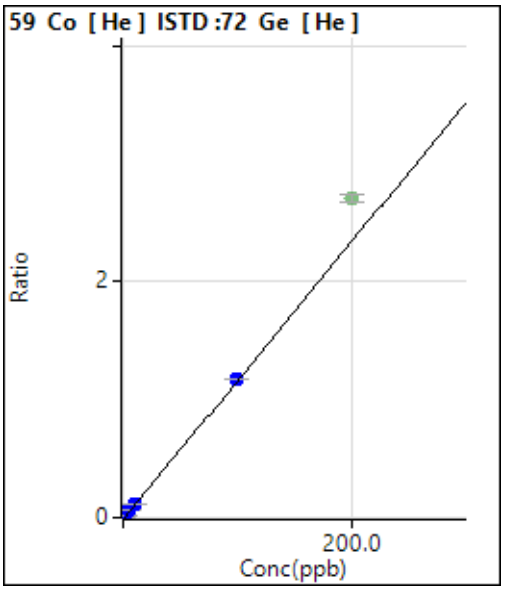


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	10631.01	0.0213	P	1.1	
2	☐	200.000	189.874	762336.97	1.5173	P	0.9	-5.1
3	☐	500.000	529.821	2079409.19	4.1957	A	0.4	6.0
4	☐	1000.000	1033.235	4072139.31	8.1622	A	1.9	3.3
5	☐	10000.00	9886.458	39996341.9	77.9172	A	1.1	-1.1
6	☐	20000.00	20054.46	76492987.1	158.031	A	0.5	0.3

y = 0.0079 * x + 0.0213
R = 1.0000
DL = 0.09221 ppb
BEC = 2.698 ppb

Weight: <None>
Min Conc: <None>

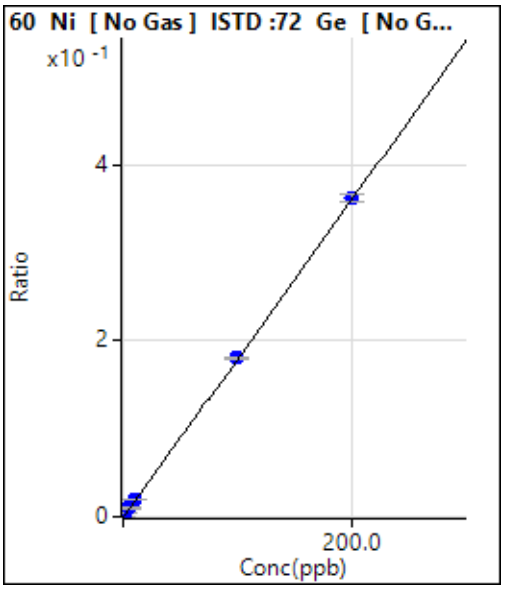
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	13.33	0.0000	P	43.6	
2	☐	2.000	2.057	12188.96	0.0243	P	1.1	2.9
3	☐	5.000	5.070	29609.12	0.0597	P	0.9	1.4
4	☐	10.000	10.287	60467.44	0.1212	P	0.9	2.9
5	☐	100.000	99.967	604442.77	1.1775	P	0.5	0.0
6	☑	200.000		1311575.37	2.7097	A	2.5	

y = 0.0118 * x + 2.6679E-005
R = 1.0000
DL = 0.00296 ppb
BEC = 0.002265 ppb

Weight: <None>
Min Conc: <None>

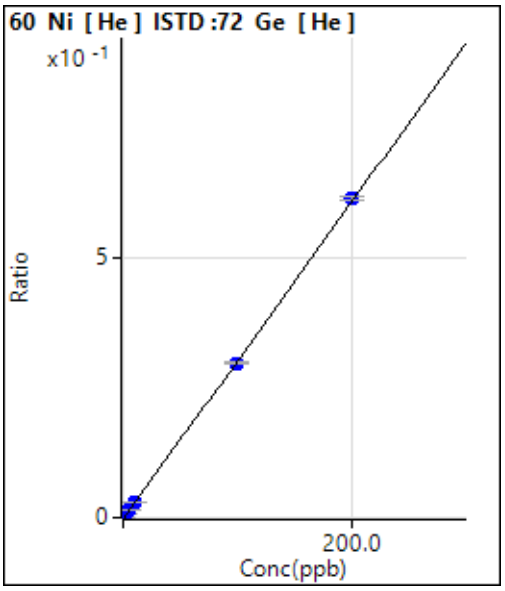


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	913.38	0.0006	P	0.9	
2	☐	2.000	1.949	6428.29	0.0041	P	6.9	-2.6
3	☐	5.000	5.159	15378.89	0.0099	P	6.5	3.2
4	☐	10.000	10.168	29047.89	0.0190	P	2.1	1.7
5	☐	100.000	99.581	285356.54	0.1805	P	0.9	-0.4
6	☐	200.000	200.198	541128.18	0.3622	P	1.8	0.1

y = 0.0018 * x + 5.8914E-004
R = 1.0000
DL = 0.008728 ppb
BEC = 0.3261 ppb

Weight: <None>
Min Conc: <None>

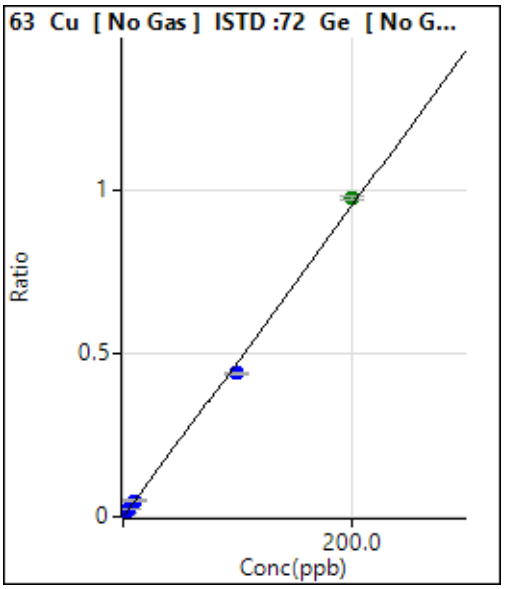
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	140.00	0.0003	P	42.3	
2	☐	2.000	2.118	3387.16	0.0067	P	3.5	5.9
3	☐	5.000	5.201	8002.52	0.0161	P	3.4	4.0
4	☐	10.000	9.980	15328.86	0.0307	P	1.6	-0.2
5	☐	100.000	97.380	152634.74	0.2974	P	1.5	-2.6
6	☐	200.000	201.305	297385.81	0.6144	P	0.7	0.7

y = 0.0031 * x + 2.7952E-004
R = 0.9999
DL = 0.1162 ppb
BEC = 0.09163 ppb

Weight: <None>
Min Conc: <None>

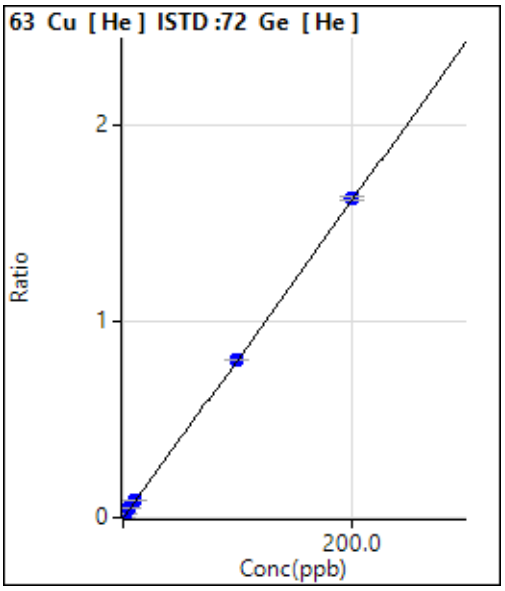


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	6328.25	0.0041	P	8.3	
2	☐	2.000	1.821	19974.97	0.0128	P	6.4	-8.9
3	☐	5.000	4.611	40500.46	0.0261	P	3.1	-7.8
4	☐	10.000	9.546	76025.33	0.0496	P	2.7	-4.5
5	☐	100.000	91.527	696785.51	0.4407	P	0.7	-8.5
6	☐	200.000	204.271	1461744.41	0.9784	A	1.6	2.1

y = 0.0048 * x + 0.0041
R = 0.9988
DL = 0.2121 ppb
BEC = 0.8562 ppb

Weight: <None>
Min Conc: <None>

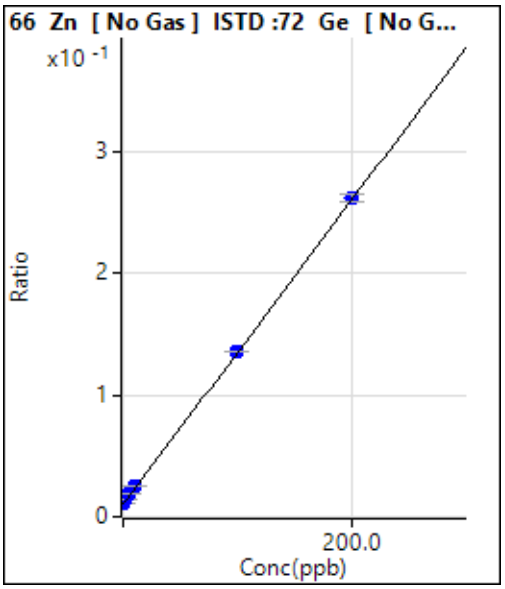
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	2290.23	0.0046	P	3.4	
2	☐	2.000	1.863	9860.39	0.0196	P	3.7	-6.8
3	☐	5.000	5.098	22672.56	0.0457	P	2.1	2.0
4	☐	10.000	9.970	42446.45	0.0851	P	2.6	-0.3
5	☐	100.000	98.727	411547.47	0.8017	P	0.2	-1.3
6	☐	200.000	200.637	786365.38	1.6246	P	0.6	0.3

y = 0.0081 * x + 0.0046
R = 1.0000
DL = 0.05865 ppb
BEC = 0.5671 ppb

Weight: <None>
Min Conc: <None>

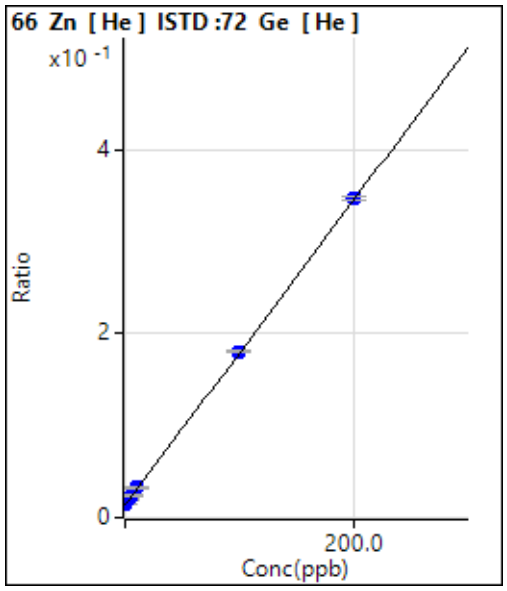


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	17895.40	0.0115	P	3.2	
2	☐	2.000	2.395	22749.29	0.0145	P	1.8	19.7
3	☐	5.000	5.544	28707.31	0.0185	P	3.0	10.9
4	☐	10.000	10.682	38183.86	0.0249	P	1.9	6.8
5	☐	100.000	99.207	214653.56	0.1357	P	0.9	-0.8
6	☐	200.000	200.345	391938.26	0.2624	P	2.3	0.2

y = 0.0013 * x + 0.0115
R = 1.0000
DL = 0.8821 ppb
BEC = 9.222 ppb

Weight: <None>
Min Conc: <None>

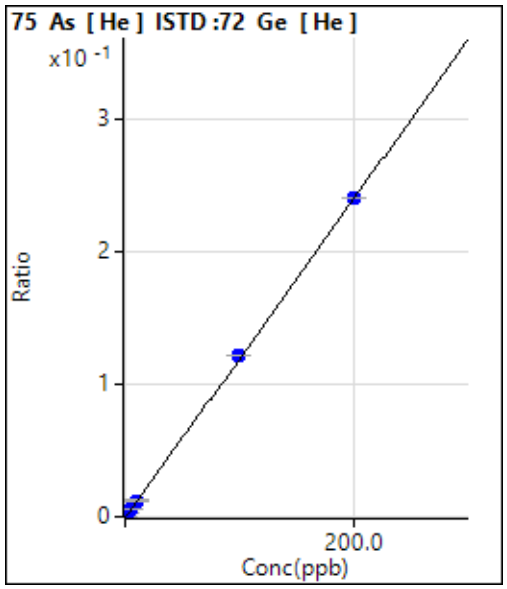
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	7715.65	0.0154	P	1.4	
2	☐	2.000	2.530	9857.11	0.0196	P	3.9	26.5
3	☐	5.000	5.169	11888.73	0.0240	P	3.8	3.4
4	☐	10.000	10.352	16253.25	0.0326	P	3.4	3.5
5	☐	100.000	99.602	92621.19	0.1804	P	1.6	-0.4
6	☐	200.000	200.172	167992.21	0.3470	P	0.8	0.1

y = 0.0017 * x + 0.0154
R = 1.0000
DL = 0.3775 ppb
BEC = 9.312 ppb

Weight: <None>
Min Conc: <None>

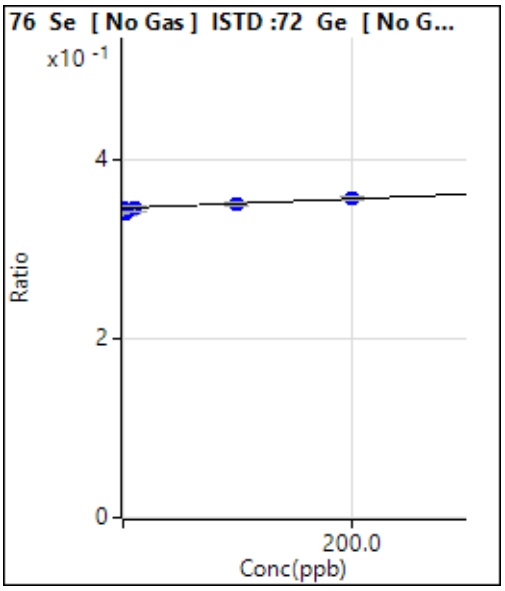


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	102.22	0.0002	P	21.0	
2	☐	2.000	2.018	1322.30	0.0026	P	2.6	0.9
3	☐	5.000	5.022	3094.82	0.0062	P	1.0	0.4
4	☐	10.000	10.028	6119.20	0.0123	P	1.1	0.3
5	☐	100.000	100.692	62266.07	0.1213	P	0.5	0.7
6	☐	200.000	199.652	116325.34	0.2403	P	0.3	-0.2

y = 0.0012 * x + 2.0448E-004
R = 1.0000
DL = 0.1069 ppb
BEC = 0.17 ppb

Weight: <None>
Min Conc: <None>

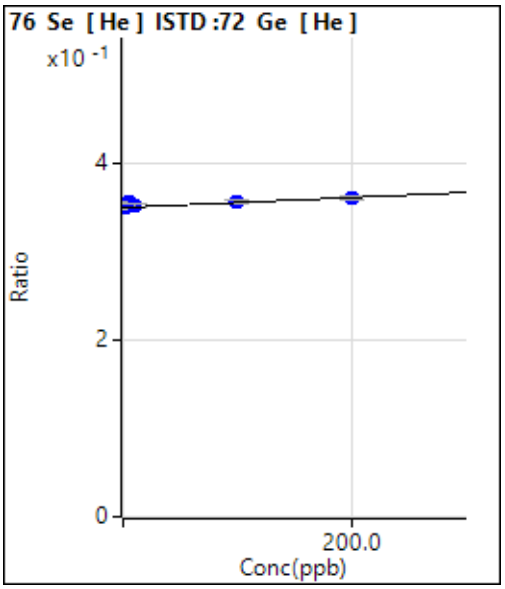
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	535833.03	0.3457	P	1.1	
2	☐	2.000	-137.769	529510.91	0.3385	P	0.6	-6988.
3	☐	5.000	-53.965	532509.17	0.3429	P	2.4	-1179.
4	☐	10.000	-9.344	528936.58	0.3452	P	1.9	-193.4
5	☐	100.000	87.415	553718.43	0.3502	P	0.7	-12.6
6	☐	200.000	210.131	532669.67	0.3565	P	1.4	5.1

y = 5.1807E-005 * x + 0.3457
R = 0.9171
DL = 216.5 ppb
BEC = 6672 ppb

Weight: <None>
Min Conc: <None>

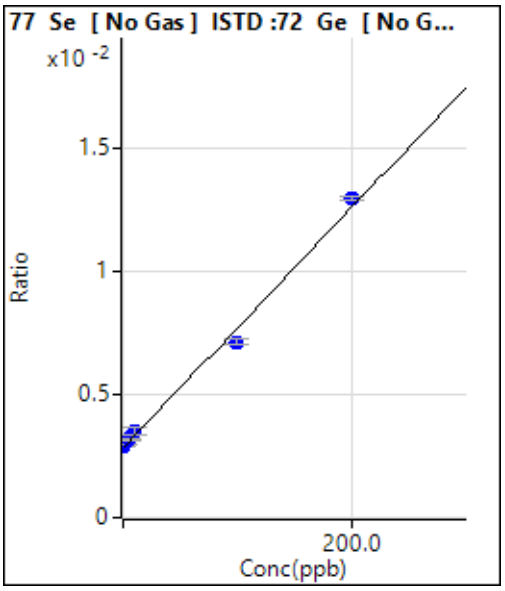


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	174689.26	0.3493	P	0.2	
2	☐	2.000	13.942	175905.22	0.3501	P	1.1	597.1
3	☐	5.000	116.419	176429.14	0.3560	P	0.4	2228.4
4	☐	10.000	39.667	175408.77	0.3516	P	0.9	296.7
5	☐	100.000	112.176	182609.57	0.3557	P	0.7	12.2
6	☐	200.000	189.524	174339.03	0.3602	P	1.3	-5.2

y = 5.7432E-005 * x + 0.3493
R = 0.8437
DL = 43.66 ppb
BEC = 6082 ppb

Weight: <None>
Min Conc: <None>

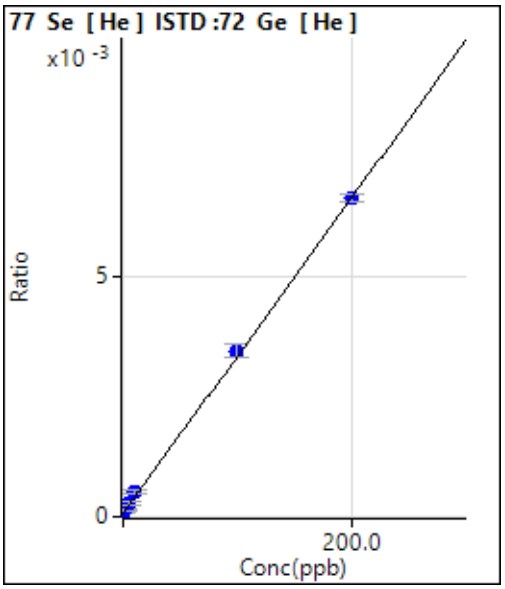
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	4504.18	0.0029	P	2.3	
2	☐	2.000	3.540	4814.27	0.0031	P	7.3	77.0
3	☐	5.000	5.315	4914.31	0.0032	P	4.3	6.3
4	☐	10.000	12.379	5374.52	0.0035	P	7.4	23.8
5	☐	100.000	86.980	11294.90	0.0071	P	3.7	-13.0
6	☐	200.000	206.368	19364.28	0.0130	P	1.4	3.2

y = 4.8726E-005 * x + 0.0029
R = 0.9968
DL = 4.101 ppb
BEC = 59.63 ppb

Weight: <None>
Min Conc: <None>

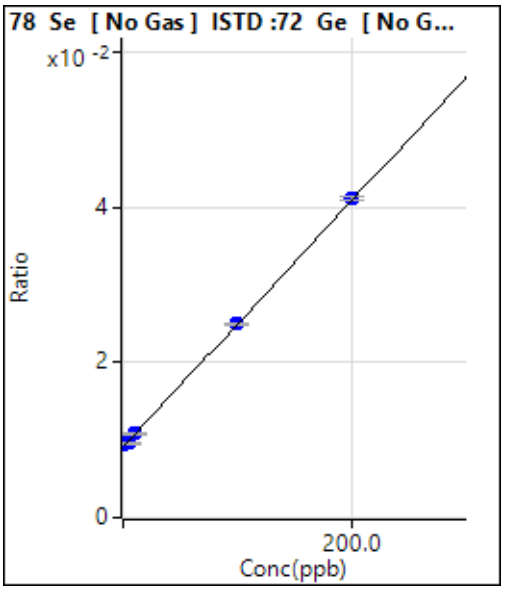


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	50.00	0.0001	P	20.7	
2	☐	2.000	1.391	73.33	0.0001	P	28.4	-30.4
3	☐	5.000	5.928	146.67	0.0003	P	27.9	18.6
4	☐	10.000	12.764	260.01	0.0005	P	11.4	27.6
5	☐	100.000	101.907	1776.81	0.0035	P	7.6	1.9
6	☐	200.000	198.891	3223.78	0.0067	P	2.0	-0.6

y = 3.2986E-005 * x + 1.0008E-004
R = 0.9998
DL = 1.88 ppb
BEC = 3.034 ppb

Weight: <None>
Min Conc: <None>

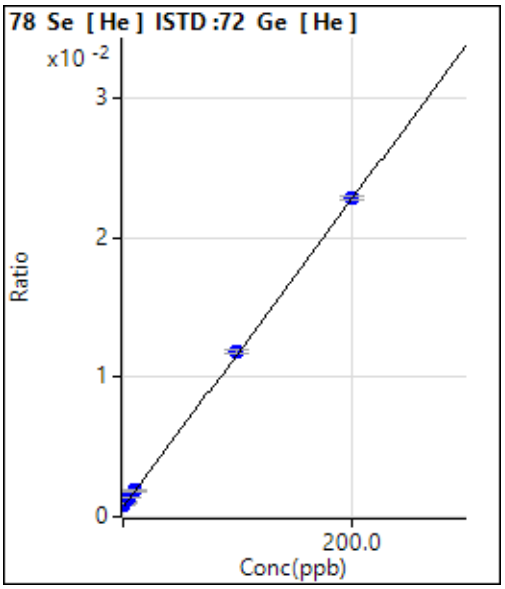
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	14451.31	0.0093	P	4.9	
2	☐	2.000	1.767	15021.92	0.0096	P	3.1	-11.7
3	☐	5.000	1.881	14945.16	0.0096	P	2.9	-62.4
4	☐	10.000	9.426	16573.76	0.0108	P	3.8	-5.7
5	☐	100.000	98.849	39524.94	0.0250	P	0.8	-1.2
6	☐	200.000	200.685	61467.03	0.0411	P	1.2	0.3

y = 1.5855E-004 * x + 0.0093
R = 0.9999
DL = 8.656 ppb
BEC = 58.81 ppb

Weight: <None>
Min Conc: <None>

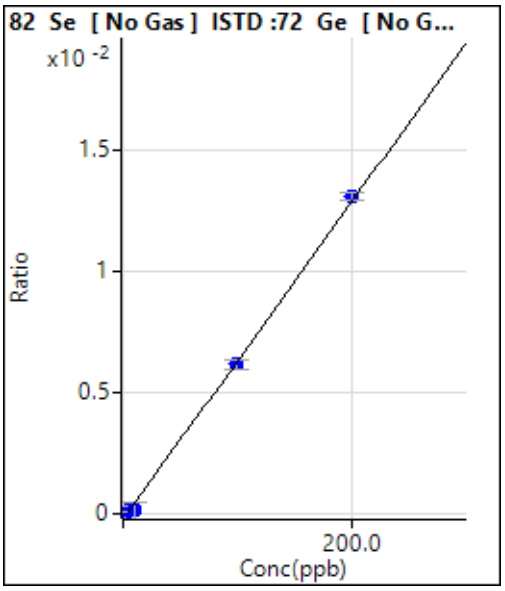


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	400.01	0.0008	P	1.5	
2	☐	2.000	2.310	530.01	0.0011	P	8.7	15.5
3	☐	5.000	5.200	680.69	0.0014	P	5.8	4.0
4	☐	10.000	9.901	944.04	0.0019	P	7.2	-1.0
5	☐	100.000	100.134	6082.72	0.0119	P	2.7	0.1
6	☐	200.000	199.930	11065.90	0.0229	P	1.6	0.0

y = 1.1035E-004 * x + 7.9990E-004
R = 1.0000
DL = 0.3178 ppb
BEC = 7.249 ppb

Weight: <None>
Min Conc: <None>

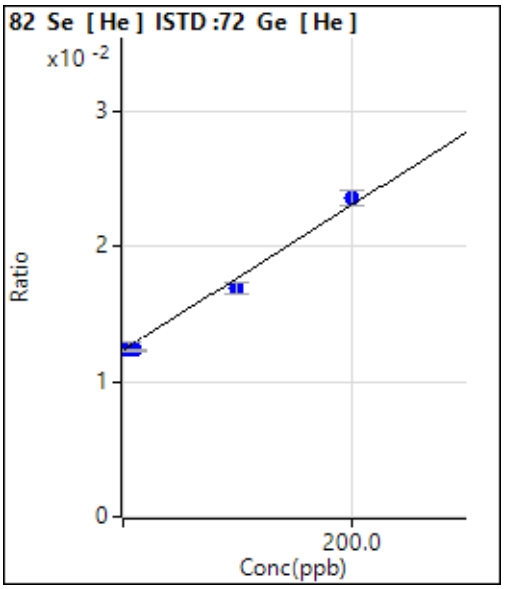
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	-223.37	-0.0001	P	-260.	
2	☐	2.000	1.271	-99.14	-0.0001	P	-769.	-36.4
3	☐	5.000	5.393	325.13	0.0002	P	118.9	7.9
4	☐	10.000	4.423	212.85	0.0001	P	490.6	-55.8
5	☐	100.000	96.493	9727.15	0.0062	P	6.0	-3.5
6	☐	200.000	202.030	19478.17	0.0130	P	2.5	1.0

y = 6.5259E-005 * x - 1.4614E-004
R = 0.9995
DL = 17.53 ppb
BEC = -2.239 ppb

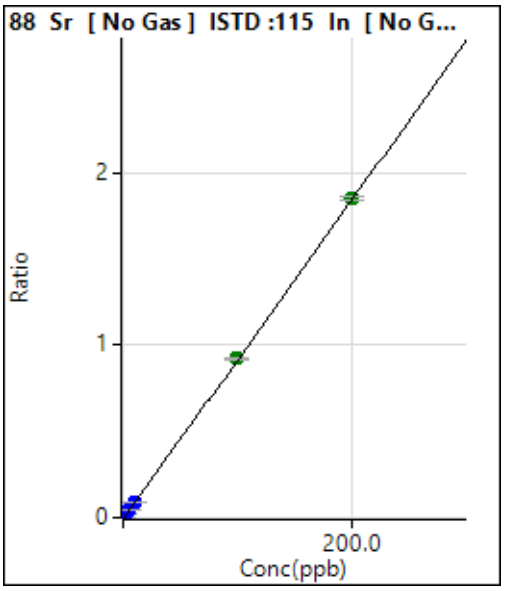
Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	6211.54	0.0124	P	2.4	
2	☐	2.000	-0.317	6231.55	0.0124	P	2.3	-115.8
3	☐	5.000	2.956	6234.89	0.0126	P	6.4	-40.9
4	☐	10.000	-1.053	6168.17	0.0124	P	1.1	-110.5
5	☐	100.000	84.136	8692.97	0.0169	P	5.2	-15.9
6	☐	200.000	208.559	11428.43	0.0236	P	4.6	4.3

y = 5.3669E-005 * x + 0.0124
R = 0.9955
DL = 16.35 ppb
BEC = 231.4 ppb

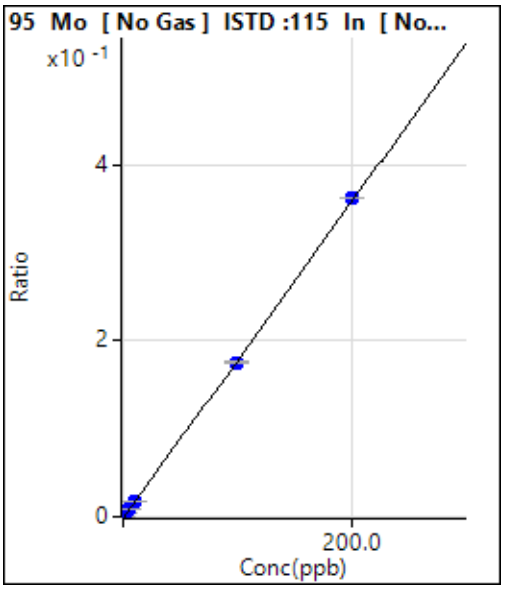
Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	546.68	0.0003	P	15.8	
2	☐	2.000	1.867	32663.56	0.0176	P	1.4	-6.7
3	☐	5.000	4.764	81004.33	0.0443	P	1.2	-4.7
4	☐	10.000	9.445	161164.55	0.0876	P	0.8	-5.6
5	☐	100.000	99.616	1690617.01	0.9211	A	1.4	-0.4
6	☐	200.000	200.227	3279735.68	1.8511	A	0.7	0.1

y = 0.0092 * x + 2.9562E-004
R = 1.0000
DL = 0.01519 ppb
BEC = 0.03198 ppb

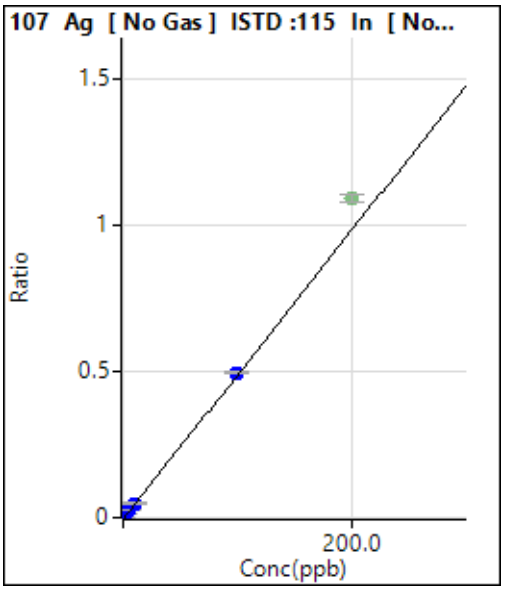
Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	16.67	0.0000	P	173.2	
2	☐	2.000	1.914	6418.32	0.0035	P	5.4	-4.3
3	☐	5.000	4.990	16413.69	0.0090	P	2.1	-0.2
4	☐	10.000	9.878	32700.36	0.0178	P	2.0	-1.2
5	☐	100.000	97.231	320972.17	0.1749	P	1.2	-2.8
6	☐	200.000	201.392	641732.88	0.3622	P	0.5	0.7

y = 0.0018 * x + 8.9885E-006
R = 0.9999
DL = 0.02597 ppb
BEC = 0.004998 ppb

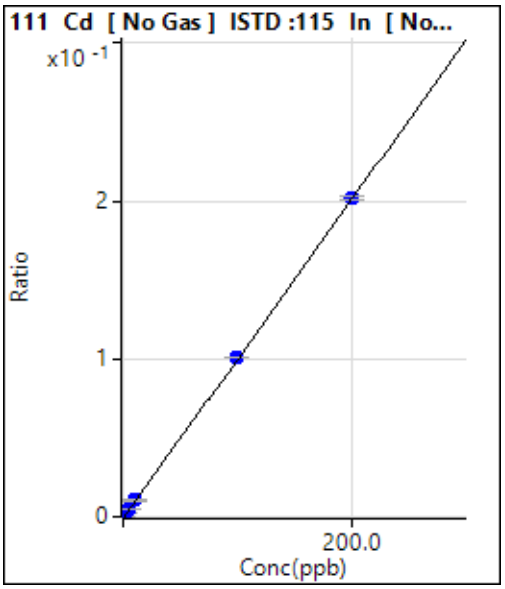
Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	1100.07	0.0006	P	3.4	
2	☐	2.000	1.915	18723.42	0.0101	P	2.4	-4.3
3	☐	5.000	4.947	45772.79	0.0251	P	2.1	-1.1
4	☐	10.000	9.859	90783.06	0.0493	P	0.6	-1.4
5	☐	100.000	100.018	908715.04	0.4951	P	1.3	0.0
6	☑	200.000		1937136.90	1.0934	A	1.8	

y = 0.0049 * x + 5.9472E-004
R = 1.0000
DL = 0.01237 ppb
BEC = 0.1203 ppb

Weight: <None>
Min Conc: <None>

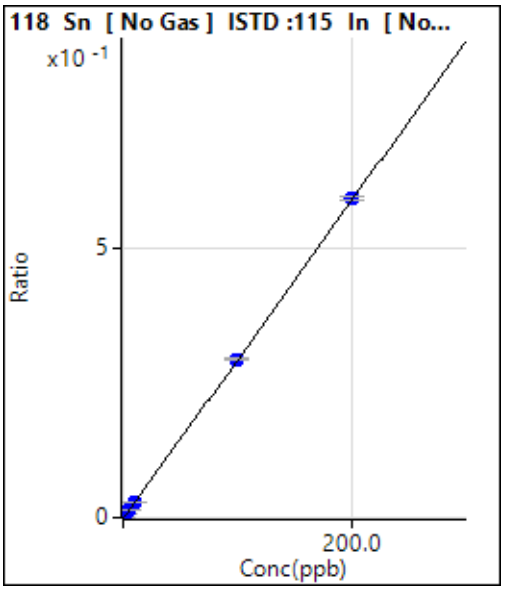


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	10.00	0.0000	P	100.3	
2	☐	2.000	2.055	3870.65	0.0021	P	7.9	2.8
3	☐	5.000	4.834	8929.82	0.0049	P	3.7	-3.3
4	☐	10.000	10.265	19077.42	0.0104	P	4.6	2.6
5	☐	100.000	100.070	185509.97	0.1011	P	0.7	0.1
6	☐	200.000	199.955	357767.98	0.2019	P	1.4	0.0

y = 0.0010 * x + 5.4197E-006
R = 1.0000
DL = 0.01614 ppb
BEC = 0.005367 ppb

Weight: <None>
Min Conc: <None>

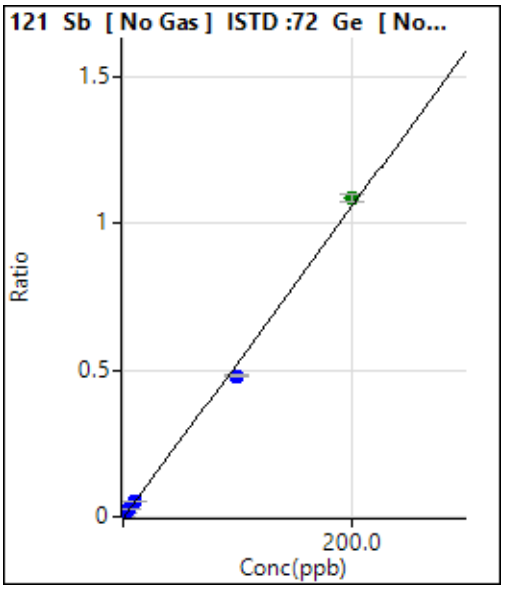
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	1180.07	0.0006	P	7.2	
2	☐	2.000	1.850	11355.06	0.0061	P	3.5	-7.5
3	☐	5.000	4.795	27044.79	0.0148	P	1.3	-4.1
4	☐	10.000	9.857	54747.27	0.0298	P	2.1	-1.4
5	☐	100.000	99.289	539506.25	0.2939	P	1.8	-0.7
6	☐	200.000	200.369	1049747.98	0.5925	P	1.0	0.2

y = 0.0030 * x + 6.3789E-004
R = 1.0000
DL = 0.04655 ppb
BEC = 0.2159 ppb

Weight: <None>
Min Conc: <None>

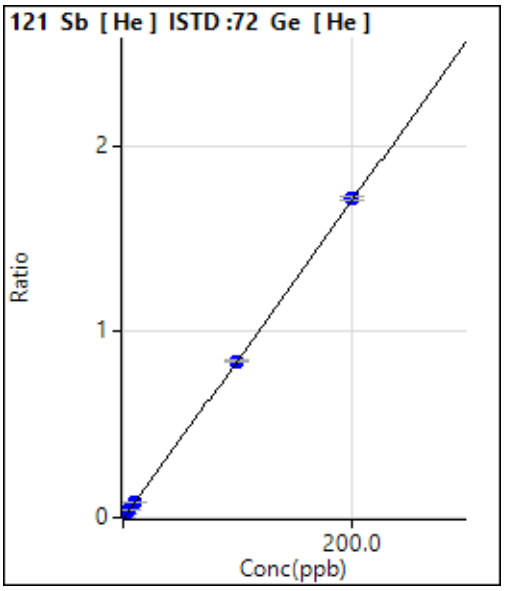


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	466.68	0.0003	P	20.9	
2	☐	2.000	1.821	15566.16	0.0100	P	2.6	-9.0
3	☐	5.000	4.567	38082.18	0.0245	P	1.3	-8.7
4	☐	10.000	9.372	76602.88	0.0500	P	0.7	-6.3
5	☐	100.000	90.590	759804.36	0.4805	P	0.8	-9.4
6	☐	200.000	204.749	1621985.76	1.0857	A	2.2	2.4

y = 0.0053 * x + 3.0098E-004
R = 0.9985
DL = 0.03556 ppb
BEC = 0.05678 ppb

Weight: <None>
Min Conc: <None>

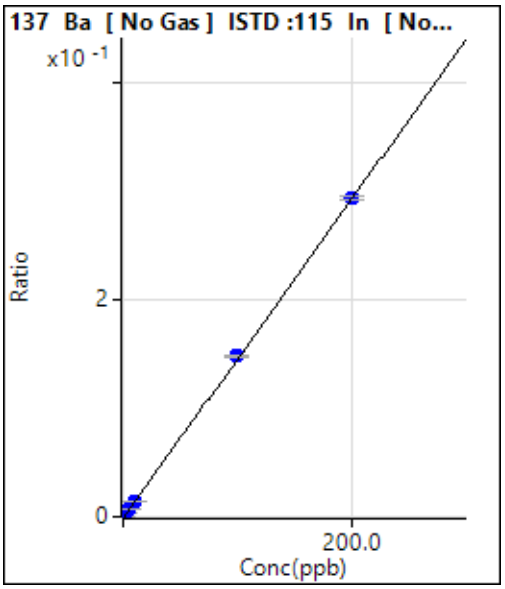
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	256.68	0.0005	P	28.7	
2	☐	2.000	1.980	8759.76	0.0174	P	3.1	-1.0
3	☐	5.000	5.049	21638.20	0.0437	P	2.5	1.0
4	☐	10.000	10.067	43174.68	0.0865	P	2.4	0.7
5	☐	100.000	98.430	432014.51	0.8416	P	0.5	-1.6
6	☐	200.000	200.781	830721.06	1.7162	P	0.6	0.4

y = 0.0085 * x + 5.1370E-004
R = 1.0000
DL = 0.05177 ppb
BEC = 0.06012 ppb

Weight: <None>
Min Conc: <None>

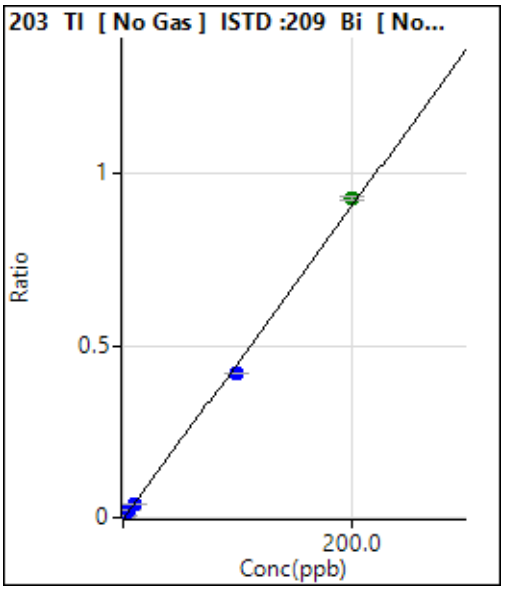


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	163.33	0.0001	P	7.3	
2	☐	2.000	2.023	5688.04	0.0031	P	2.9	1.2
3	☐	5.000	5.000	13567.32	0.0074	P	1.7	0.0
4	☐	10.000	9.895	26871.50	0.0146	P	1.7	-1.0
5	☐	100.000	100.473	270722.48	0.1475	P	1.3	0.5
6	☐	200.000	199.768	519420.77	0.2932	P	0.8	-0.1

y = 0.0015 * x + 8.8307E-005
R = 1.0000
DL = 0.01314 ppb
BEC = 0.06019 ppb

Weight: <None>
Min Conc: <None>

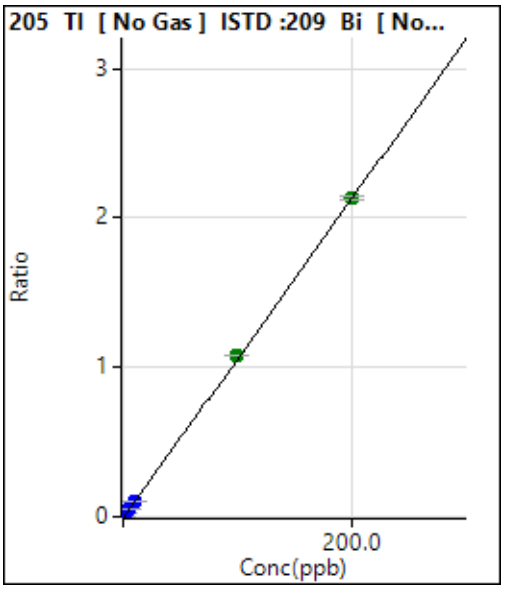
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	73.33	0.0000	P	42.6	
2	☐	2.000	1.735	15169.41	0.0079	P	1.5	-13.2
3	☐	5.000	4.544	39857.23	0.0207	P	2.8	-9.1
4	☐	10.000	8.932	77425.83	0.0406	P	1.9	-10.7
5	☐	100.000	91.768	794535.51	0.4169	P	0.2	-8.2
6	☐	200.000	204.183	1673950.18	0.9276	A	0.9	2.1

y = 0.0045 * x + 3.8696E-005
R = 0.9989
DL = 0.0109 ppb
BEC = 0.008518 ppb

Weight: <None>
Min Conc: <None>

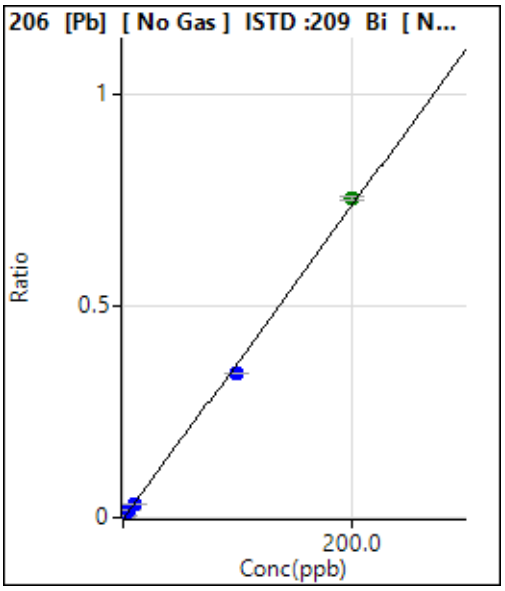


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	136.67	0.0001	P	18.9	
2	☐	2.000	1.818	37366.27	0.0195	P	0.9	-9.1
3	☐	5.000	4.506	93001.68	0.0482	P	2.4	-9.9
4	☐	10.000	9.157	186769.21	0.0980	P	1.8	-8.4
5	☐	100.000	100.956	2057235.49	1.0795	A	1.1	1.0
6	☐	200.000	199.578	3851008.59	2.1340	A	1.6	-0.2

y = 0.0107 * x + 7.1883E-005
R = 1.0000
DL = 0.003807 ppb
BEC = 0.006723 ppb

Weight: <None>
Min Conc: <None>

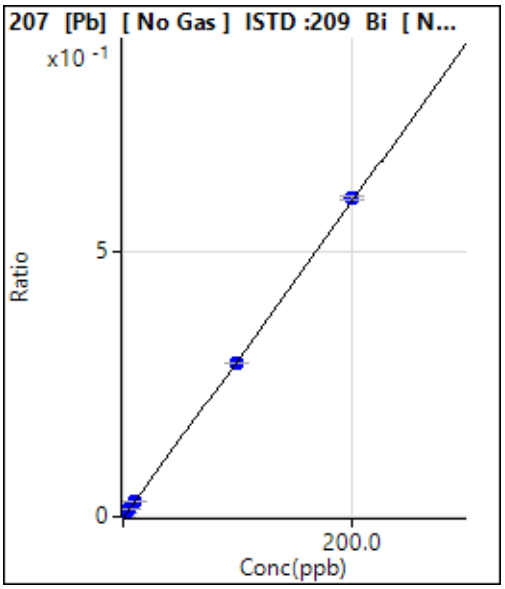
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	376.68	0.0002	P	11.9	
2	☐	2.000	1.753	12826.79	0.0067	P	3.0	-12.3
3	☐	5.000	4.509	32599.56	0.0169	P	3.0	-9.8
4	☐	10.000	9.017	64104.42	0.0336	P	1.7	-9.8
5	☐	100.000	92.374	652986.07	0.3427	P	0.4	-7.6
6	☐	200.000	203.877	1364294.31	0.7560	A	1.7	1.9

y = 0.0037 * x + 1.9822E-004
R = 0.9990
DL = 0.01904 ppb
BEC = 0.05347 ppb

Weight: <None>
Min Conc: <None>

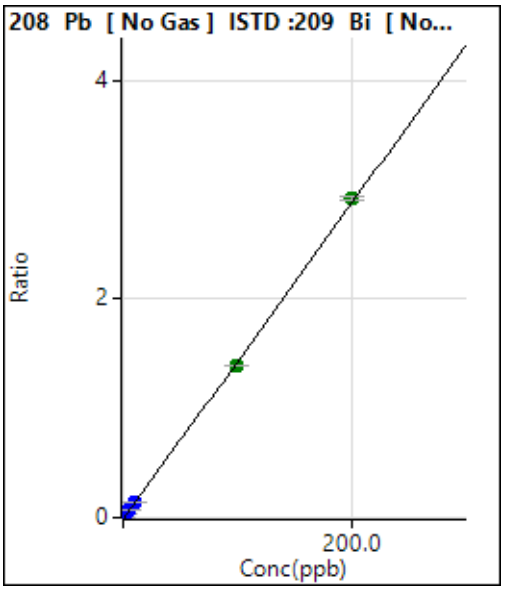


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	300.01	0.0002	P	17.2	
2	☐	2.000	1.955	11455.49	0.0060	P	3.1	-2.3
3	☐	5.000	4.869	28272.44	0.0147	P	1.5	-2.6
4	☐	10.000	9.863	56330.98	0.0295	P	0.6	-1.4
5	☐	100.000	96.984	550974.24	0.2891	P	0.9	-3.0
6	☐	200.000	201.519	1083735.53	0.6006	P	1.6	0.8

y = 0.0030 * x + 1.5748E-004
R = 0.9998
DL = 0.02731 ppb
BEC = 0.05286 ppb

Weight: <None>
Min Conc: <None>

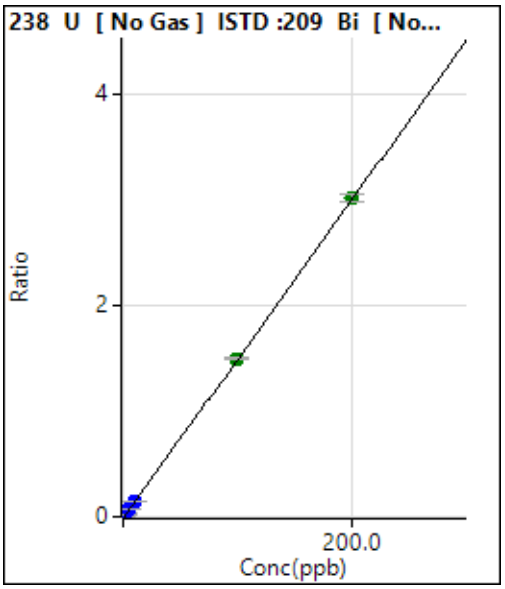
Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	1995.23	0.0010	P	48.0	
2	☐	2.000	1.812	52157.07	0.0272	P	1.3	-9.4
3	☐	5.000	4.560	129082.00	0.0670	P	0.5	-8.8
4	☐	10.000	9.211	255802.69	0.1342	P	0.7	-7.9
5	☐	100.000	95.962	2645084.29	1.3880	A	0.4	-4.0
6	☐	200.000	202.071	5272108.85	2.9217	A	1.4	1.0

y = 0.0145 * x + 0.0010
R = 0.9997
DL = 0.1046 ppb
BEC = 0.07263 ppb

Weight: <None>
Min Conc: <None>

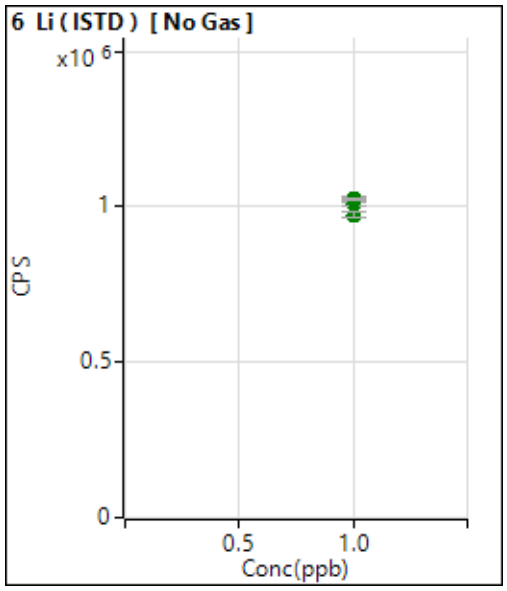


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	0.000	0.000	30.00	0.0000	P	58.0	
2	☐	2.000	1.807	52245.05	0.0273	P	0.9	-9.7
3	☐	5.000	4.518	131473.74	0.0682	P	1.1	-9.6
4	☐	10.000	9.199	264698.14	0.1389	P	0.9	-8.0
5	☐	100.000	99.436	2859803.92	1.5007	A	0.5	-0.6
6	☐	200.000	200.336	5455499.92	3.0234	A	2.3	0.2

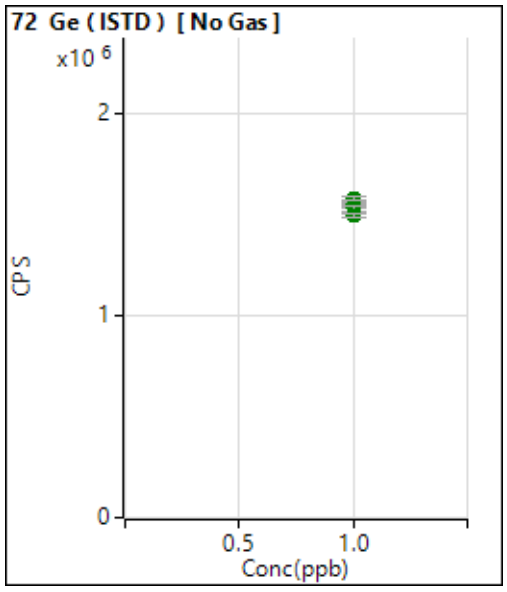
y = 0.0151 * x + 1.5786E-005
R = 1.0000
DL = 0.00182 ppb
BEC = 0.001046 ppb

Weight: <None>
Min Conc: <None>

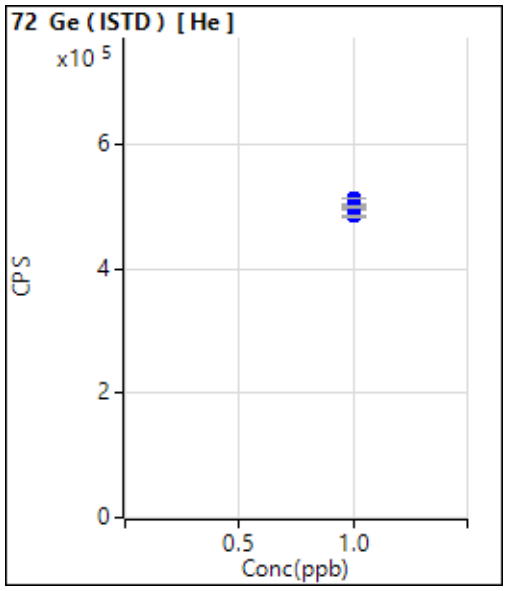
Calibration for 017_ICV.d



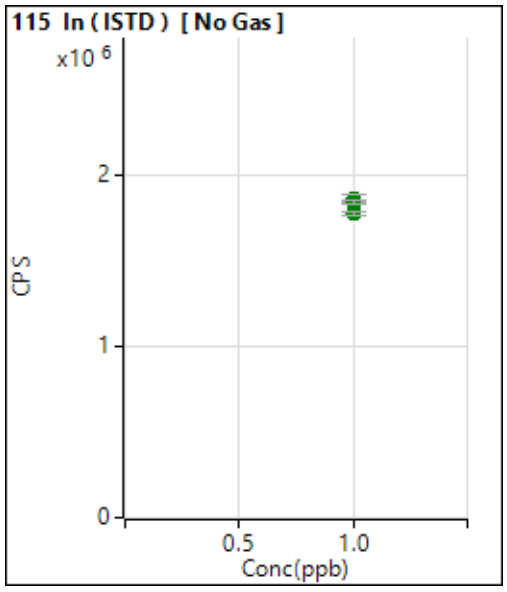
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	1.000		1027100.19		A	0.8	
2	☐	1.000		1027180.48		A	0.5	
3	☐	1.000		1022886.54		A	1.4	
4	☐	1.000		1010173.94		A	2.1	
5	☐	1.000		1021629.77		A	0.5	
6	☐	1.000		974151.78		A	1.5	



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	1.000		1550290.86		A	0.9	
2	☐	1.000		1564197.27		A	0.3	
3	☐	1.000		1553640.91		A	2.1	
4	☐	1.000		1532698.10		A	1.8	
5	☐	1.000		1581290.18		A	0.9	
6	☐	1.000		1494185.24		A	1.5	

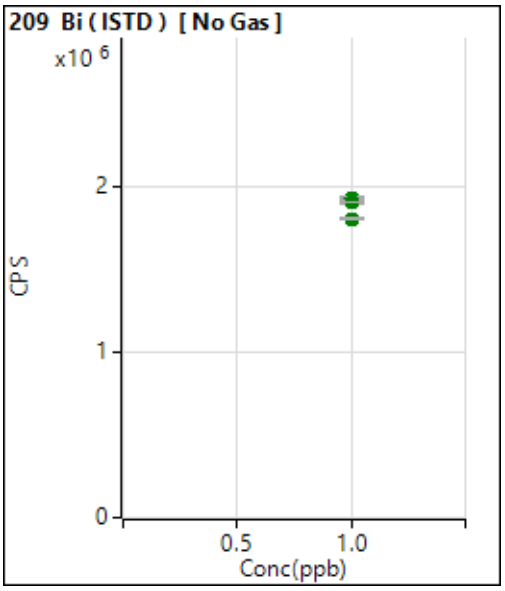


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	1.000		500104.25		P	0.7	
2	☐	1.000		502435.86		P	0.0	
3	☐	1.000		495607.38		P	0.7	
4	☐	1.000		498925.83		P	0.5	
5	☐	1.000		513314.51		P	0.1	
6	☐	1.000		484044.16		P	0.7	



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	1.000		1849812.88		A	0.5	
2	☐	1.000		1861444.65		A	2.0	
3	☐	1.000		1827258.90		A	0.4	
4	☐	1.000		1839991.22		A	1.4	
5	☐	1.000		1835620.84		A	1.0	
6	☐	1.000		1771768.50		A	0.8	

Calibration for 017_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	☐	1.000		1902183.67		A	1.3	
2	☐	1.000		1914814.71		A	1.0	
3	☐	1.000		1927953.25		A	1.7	
4	☐	1.000		1906496.58		A	1.4	
5	☐	1.000		1905661.33		A	0.2	
6	☐	1.000		1804640.96		A	0.9	

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	010CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:41:05-05:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	7	1	No Gas	55178	0.00
Be	9	1	No Gas	40	93.75
V	51	2	He	1341	0.77
Cr	52	2	He	393	2.08
Fe	56	2	He	10631	0.02
Se	78	2	He	400	0.22
As	75	2	He	102	20.26
Ca	44	2	He	500	1.74
Na	23	2	He	193119	0.00
Mg	24	2	He	230	11.50
K	39	2	He	107432	0.00
Mn	55	2	He	490	3.97
Co	59	2	He	13	324.76
Ni	60	2	He	140	30.61
Cu	63	2	He	2290	0.18
Zn	66	2	He	7716	0.02
Al	27	2	He	457	3.53
B	11	1	No Gas	14795	0.02
Al	27	1	No Gas	15919	0.00
Si	28	1	No Gas	205315	0.00
Ag	107	1	No Gas	1100	0.30
Cd	111	1	No Gas	10	1000.00
Sr	88	1	No Gas	547	2.85
Mo	95	1	No Gas	17	1039.23
Sn	118	1	No Gas	1180	0.63
Sb	121	1	No Gas	467	4.51
Ba	137	1	No Gas	163	4.33
Tl	205	1	No Gas	137	13.47
Tl	203	1	No Gas	73	56.81
Pb	208	1	No Gas	1995	2.39
U	238	1	No Gas	30	192.45
Ca	43	2	He	23	212.09
Sb	121	2	He	257	10.98
Ti	47	2	He	7	1299.04
Cu	63	1	No Gas	6328	0.12

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD

Calibration Blank Report

Li	6	1	No Gas	1027100	0.77
Ge	72	2	He	500104	0.73
Ge	72	1	No Gas	1550291	0.89
In	115	1	No Gas	1849813	0.45

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Bi	209	1	No Gas	1902184	1.30

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	011CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:43:26-05:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	4793	0.11
V	51	2	He	8370	0.03
Cr	52	2	He	8109	0.06
Fe	56	2	He	762337	0.00
Se	78	2	He	530	1.64
As	75	2	He	1322	0.19
Ca	44	2	He	5198	0.24
Na	23	2	He	334691	0.00
Mg	24	2	He	83617	0.00
K	39	2	He	198984	0.00
Mn	55	2	He	6538	0.07
Co	59	2	He	12189	0.01
Ni	60	2	He	3387	0.10
Cu	63	2	He	9860	0.04
Zn	66	2	He	9857	0.04
Al	27	2	He	843	1.14
B	11	1	No Gas	25335	0.01
Al	27	1	No Gas	31282	0.01
Si	28	1	No Gas	244201	0.00
Ag	107	1	No Gas	18723	0.00
Cd	111	1	No Gas	3871	0.17
Sr	88	1	No Gas	32664	0.00
Mo	95	1	No Gas	6418	0.05
Sn	118	1	No Gas	11355	0.02
Sb	121	1	No Gas	15566	0.02
Ba	137	1	No Gas	5688	0.04
Tl	205	1	No Gas	37366	0.00
Tl	203	1	No Gas	15169	0.01
Pb	208	1	No Gas	52157	0.00
U	238	1	No Gas	52245	0.00
Ca	43	2	He	313	3.58
Sb	121	2	He	8760	0.04
Cu	63	1	No Gas	19975	0.03

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1027180	0.50	1027100	100.01	70	120	
Ge	72	2	He	502436	0.03	500104	100.47	70	120	
Ge	72	1	No Gas	1564197	0.26	1550291	100.90	70	120	

Calibration Standard Report

In	115	1	No Gas	1861445	1.97	1849813	100.63	70	120	
Bi	209	1	No Gas	1914815	0.95	1902184	100.66	70	120	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	012CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:45:47-05:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	11912	0.02
V	51	2	He	18797	0.01
Cr	52	2	He	20409	0.01
Fe	56	2	He	2079409	0.00
Se	78	2	He	681	0.78
As	75	2	He	3095	0.05
Ca	44	2	He	12382	0.02
Na	23	2	He	547604	0.00
Mg	24	2	He	210280	0.00
K	39	2	He	340987	0.00
Mn	55	2	He	15366	0.02
Co	59	2	He	29609	0.00
Ni	60	2	He	8003	0.05
Cu	63	2	He	22673	0.01
Zn	66	2	He	11889	0.03
Al	27	2	He	1473	0.52
B	11	1	No Gas	40978	0.00
Al	27	1	No Gas	57275	0.00
Si	28	1	No Gas	300208	0.00
Ag	107	1	No Gas	45773	0.00
Cd	111	1	No Gas	8930	0.04
Sr	88	1	No Gas	81004	0.00
Mo	95	1	No Gas	16414	0.01
Sn	118	1	No Gas	27045	0.00
Sb	121	1	No Gas	38082	0.01
Ba	137	1	No Gas	13567	0.02
Tl	205	1	No Gas	93002	0.00
Tl	203	1	No Gas	39857	0.00
Pb	208	1	No Gas	129082	0.00
U	238	1	No Gas	131474	0.00
Ca	43	2	He	717	1.27
Sb	121	2	He	21638	0.01
Cu	63	1	No Gas	40500	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1022887	1.36	1027100	99.59	70	120	
Ge	72	2	He	495607	0.65	500104	99.10	70	120	
Ge	72	1	No Gas	1553641	2.14	1550291	100.22	70	120	

Calibration Standard Report

In	115	1	No Gas	1827259	0.43	1849813	98.78	70	120	
Bi	209	1	No Gas	1927953	1.71	1902184	101.35	70	120	

Calibration Standard Report

Sample Table

Sample Name	10/50/100
Data File Name	013CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:48:08-05:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	23900	0.00
V	51	2	He	36487	0.00
Cr	52	2	He	40357	0.00
Fe	56	2	He	4072139	0.00
Se	78	2	He	944	0.72
As	75	2	He	6119	0.02
Ca	44	2	He	24452	0.00
Na	23	2	He	978037	0.00
Mg	24	2	He	418264	0.00
K	39	2	He	579768	0.00
Mn	55	2	He	30123	0.00
Co	59	2	He	60467	0.00
Ni	60	2	He	15329	0.01
Cu	63	2	He	42446	0.01
Zn	66	2	He	16253	0.02
Al	27	2	He	2860	0.26
B	11	1	No Gas	68971	0.00
Al	27	1	No Gas	98870	0.00
Si	28	1	No Gas	394074	0.00
Ag	107	1	No Gas	90783	0.00
Cd	111	1	No Gas	19077	0.02
Sr	88	1	No Gas	161165	0.00
Mo	95	1	No Gas	32700	0.01
Sn	118	1	No Gas	54747	0.00
Sb	121	1	No Gas	76603	0.00
Ba	137	1	No Gas	26871	0.00
Tl	205	1	No Gas	186769	0.00
Tl	203	1	No Gas	77426	0.00
Pb	208	1	No Gas	255803	0.00
U	238	1	No Gas	264698	0.00
Ca	43	2	He	1440	0.19
Sb	121	2	He	43175	0.01
Cu	63	1	No Gas	76025	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1010174	2.06	1027100	98.35	70	120	
Ge	72	2	He	498926	0.49	500104	99.76	70	120	
Ge	72	1	No Gas	1532698	1.83	1550291	98.87	70	120	

Calibration Standard Report

In	115	1	No Gas	1839991	1.37	1849813	99.47	70	120	
Bi	209	1	No Gas	1906497	1.44	1902184	100.23	70	120	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	014CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:50:28-05:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	240887	0.00
V	51	2	He	354619	0.00
Cr	52	2	He	400056	0.00
Fe	56	2	He	39996342	0.00
Se	78	2	He	6083	0.04
As	75	2	He	62266	0.00
Ca	44	2	He	237082	0.00
Na	23	2	He	7717556	0.00
Mg	24	2	He	4300566	0.00
K	39	2	He	5249260	0.00
Mn	55	2	He	301566	0.00
Co	59	2	He	604443	0.00
Ni	60	2	He	152635	0.00
Cu	63	2	He	411547	0.00
Zn	66	2	He	92621	0.00
Al	27	2	He	24589	0.01
B	11	1	No Gas	570765	0.00
Al	27	1	No Gas	984939	0.00
Si	28	1	No Gas	2533654	0.00
Ag	107	1	No Gas	908715	0.00
Cd	111	1	No Gas	185510	0.00
Sr	88	1	No Gas	1690617	0.00
Mo	95	1	No Gas	320972	0.00
Sn	118	1	No Gas	539506	0.00
Sb	121	1	No Gas	759804	0.00
Ba	137	1	No Gas	270722	0.00
Tl	205	1	No Gas	2057235	0.00
Tl	203	1	No Gas	794536	0.00
Pb	208	1	No Gas	2645084	0.00
U	238	1	No Gas	2859804	0.00
Ca	43	2	He	13844	0.03
Sb	121	2	He	432015	0.00
Cu	63	1	No Gas	696786	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1021630	0.49	1027100	99.47	70	120	
Ge	72	2	He	513315	0.13	500104	102.64	70	120	
Ge	72	1	No Gas	1581290	0.92	1550291	102.00	70	120	

Calibration Standard Report

In	115	1	No Gas	1835621	1.04	1849813	99.23	70	120	
Bi	209	1	No Gas	1905661	0.19	1902184	100.18	70	120	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	015CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:52:43-05:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	465212	0.00
V	51	2	He	687440	0.00
Cr	52	2	He	774561	0.00
Fe	56	2	He	76492987	0.00
Se	78	2	He	11066	0.01
As	75	2	He	116325	0.00
Ca	44	2	He	458367	0.00
Na	23	2	He	14750604	0.00
Mg	24	2	He	8274882	0.00
K	39	2	He	9890185	0.00
Mn	55	2	He	583658	0.00
Co	59	2	He	1311575	0.00
Ni	60	2	He	297386	0.00
Cu	63	2	He	786365	0.00
Zn	66	2	He	167992	0.00
Al	27	2	He	44989	0.00
B	11	1	No Gas	1177516	0.00
Al	27	1	No Gas	1751153	0.00
Si	28	1	No Gas	3889495	0.00
Ag	107	1	No Gas	1937137	0.00
Cd	111	1	No Gas	357768	0.00
Sr	88	1	No Gas	3279736	0.00
Mo	95	1	No Gas	641733	0.00
Sn	118	1	No Gas	1049748	0.00
Sb	121	1	No Gas	1621986	0.00
Ba	137	1	No Gas	519421	0.00
Tl	205	1	No Gas	3851009	0.00
Tl	203	1	No Gas	1673950	0.00
Pb	208	1	No Gas	5272109	0.00
U	238	1	No Gas	5455500	0.00
Ca	43	2	He	26907	0.00
Sb	121	2	He	830721	0.00
Cu	63	1	No Gas	1461744	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	974152	1.47	1027100	94.84	70	120	
Ge	72	2	He	484044	0.68	500104	96.79	70	120	
Ge	72	1	No Gas	1494185	1.45	1550291	96.38	70	120	

Calibration Standard Report

In	115	1	No Gas	1771769	0.77	1849813	95.78	70	120	
Bi	209	1	No Gas	1804641	0.90	1902184	94.87	70	120	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	017_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T11:58:04-05:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	No Gas	101.776	0.552	1126674	1.36	100	101.8	90	110	
Be	9	1	No Gas	99.582	1.119	235765	0.12	100	99.6	90	110	
V	51	2	He	99.904	0.447	350773	0.31	100	99.9	90	110	
Cr	52	2	He	99.961	0.269	395125	0.76	100	100.0	90	110	
Fe	56	2	He	9949.478	0.038	38924353	0.50	10000	99.5	90	110	
Se	78	2	He	100.191	2.641	5886	2.96	100	100.2	90	110	
As	75	2	He	98.893	0.745	59139	0.46	100	98.9	90	110	
Ca	44	2	He	9951.487	0.072	232953	0.57	10000	99.5	90	110	
Na	23	2	He	9993.350	0.836	7615838	0.59	10000	99.9	90	110	
Mg	24	2	He	10142.264	0.851	4286269	0.75	10000	101.4	90	110	
K	39	2	He	10164.563	0.448	5196561	0.57	10000	101.6	90	110	
Mn	55	2	He	100.210	0.728	298573	1.18	100	100.2	90	110	
Co	59	2	He	101.099	0.562	591133	0.24	100	101.1	90	110	
Ni	60	2	He	100.279	0.706	151997	1.06	100	100.3	90	110	
Cu	63	2	He	100.110	0.708	403527	0.70	100	100.1	90	110	
Zn	66	2	He	101.022	0.715	90735	0.81	100	101.0	90	110	
Al	27	2	He	99.523	1.379	23283	1.01	100	99.5	90	110	
B	11	1	No Gas	465.527	2.452	557037	1.49	500	93.1	90	110	
Al	27	1	No Gas	90.950	0.716	835659	0.80	100	90.9	90	110	
Si	28	1	No Gas	499.450	1.829	2169797	1.42	500	99.9	90	110	
Ag	107	1	No Gas	99.580	1.041	885519	0.23	100	99.6	90	110	
Cd	111	1	No Gas	100.300	1.414	181975	0.64	100	100.3	90	110	
Sr	88	1	No Gas	100.750	1.655	1673467	0.57	100	100.8	90	110	
Mo	95	1	No Gas	99.511	0.691	321528	0.65	100	99.5	90	110	
Sn	118	1	No Gas	99.974	0.869	531690	0.92	100	100.0	90	110	
Sb	121	1	No Gas	91.059	0.436	741535	0.51	100	91.1	90	110	
Ba	137	1	No Gas	99.326	1.811	261933	0.73	100	99.3	90	110	
Tl	205	1	No Gas	98.255	1.097	1984363	0.99	100	98.3	90	110	
Tl	203	1	No Gas	88.550	1.610	759799	0.67	100	88.6	90	110	ICV Main CR1 Failed
Pb	208	1	No Gas	94.902	0.958	2592538	0.26	100	94.9	90	110	
U	238	1	No Gas	98.030	1.023	2794191	0.42	100	98.0	90	110	
Ca	43	2	He	10176.202	1.512	13967	2.00	10000	101.8	90	110	
Sb	121	2	He	100.422	0.545	426231	0.89	100	100.4	90	110	
Ti	47	2	He	98.410	1.903	13720	2.40	100	98.4	90	110	
Cu	63	1	No Gas	91.784	1.019	678398	0.67	100	91.8	90	110	
Se	82	1	No Gas	93.490	5.870	9144	6.32	100	93.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	993965	1.19	1027100	96.77	70	120	
Ge	72	2	He	496397	0.50	500104	99.26	70	120	
Ge	72	1	No Gas	1535271	0.35	1550291	99.03	70	120	
In	115	1	No Gas	1796607	1.09	1849813	97.12	70	120	
Bi	209	1	No Gas	1888783	1.17	1902184	99.30	70	120	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	018_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:00:06-05:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.054	320.4	54565	1.5	0.5	
Be	9	1	No Gas	0.006	113.9	53	28.6	0.5	
V	51	2	He	-0.133	-9.1	843	5.8	2.5	
Cr	52	2	He	0.022	199.1	467	37.0	2.5	
Fe	56	2	He	1.439	8.4	15786	2.9	100	
Se	78	2	He	-0.775	-78.7	346	9.5	1	
As	75	2	He	0.013	132.9	107	9.4	2.5	
Ca	44	2	He	8.897	47.1	687	13.1	100	
Na	23	2	He	-7.323	-40.7	181701	0.5	100	
Mg	24	2	He	0.713	19.4	517	11.3	100	
K	39	2	He	1.275	177.2	104658	0.2	100	
Mn	55	2	He	0.087	34.1	727	12.0	2.5	
Co	59	2	He	0.001	377.6	20	132.3	2.5	
Ni	60	2	He	0.032	83.4	183	22.7	2.5	
Cu	63	2	He	-0.004	-902.5	2204	6.5	1	
Zn	66	2	He	0.441	51.6	7826	2.4	2.5	
Al	27	2	He	1.746	4.3	833	2.5	5	
B	11	1	No Gas	25.881	14.8	44942	7.9	0.5	ICB Main CR1 Failed
Al	27	1	No Gas	1.467	1.8	28419	0.3	5	
Si	28	1	No Gas	7.987	20.7	230099	1.8	10	
Ag	107	1	No Gas	-0.052	-4.1	607	3.4	2.5	
Cd	111	1	No Gas	0.008	153.2	23	89.2	1	
Sr	88	1	No Gas	0.036	33.7	1130	18.6	2.5	
Mo	95	1	No Gas	0.006	112.2	37	63.0	2.5	
Sn	118	1	No Gas	0.233	13.4	2380	6.1	5	
Sb	121	1	No Gas	0.085	19.9	1130	11.7	2.5	
Ba	137	1	No Gas	0.147	12.2	547	9.4	2.5	
Tl	205	1	No Gas	0.015	53.6	430	37.4	1	
Tl	203	1	No Gas	0.007	87.1	130	38.5	1	
Pb	208	1	No Gas	-0.011	-81.8	1640	15.2	2.5	
U	238	1	No Gas	0.005	22.9	173	18.5	2.5	
Ca	43	2	He	5.476	269.4	30	66.7	100	
Sb	121	2	He	0.059	18.2	493	9.4	2.5	
Ti	47	2	He	0.002	2651.4	7	86.6	2.5	
Se	82	1	No Gas	-0.253	-3355.3	-245	-342.5	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1005323	2.00	1027100	97.88	70	120	
Ge	72	2	He	484314	0.91	500104	96.84	70	120	
Ge	72	1	No Gas	1504907	1.09	1550291	97.07	70	120	
In	115	1	No Gas	1795684	0.90	1849813	97.07	70	120	
Bi	209	1	No Gas	1855275	0.85	1902184	97.53	70	120	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	019LCV2.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:02:54-05:00
Sample Type	LLCCV2
Dilution	1
Comment	
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	1.842	1.842	4.04	74566	0.00	2	
Be	9	1	No Gas	1.923	1.923	7.83	4701	0.04	2	
V	51	2	He	1.862	1.862	1.15	7827	0.02	2	
Cr	52	2	He	2.022	2.022	2.54	8356	0.02	2	
Fe	56	2	He	191.911	191.911	1.16	759347	0.03	200	
Se	78	2	He	2.057	2.057	17.35	509	0.40	2	
As	75	2	He	1.877	1.877	7.52	1219	0.15	2	
Ca	44	2	He	192.303	192.303	3.43	4978	3.86	200	
Na	23	2	He	164.350	164.350	2.10	313052	0.05	200	
Mg	24	2	He	198.640	198.640	0.54	83979	0.24	200	
K	39	2	He	184.552	184.552	1.88	198586	0.09	200	
Mn	55	2	He	2.055	2.055	4.82	6582	0.03	2	
Co	59	2	He	1.971	1.971	2.66	11512	0.02	2	
Ni	60	2	He	1.888	1.888	5.52	2990	0.06	2	
Cu	63	2	He	1.871	1.871	6.84	9750	0.02	2	
Zn	66	2	He	2.705	2.705	28.60	9857	0.03	2	NewName Main CR1 Failed
Al	27	2	He	1.707	1.707	6.11	843	0.20	2	
B	11	1	No Gas	16.475	16.475	1.75	34329	0.05	10	NewName Main CR1 Failed
Al	27	1	No Gas	1.752	1.752	0.59	31286	0.01	2	
Si	28	1	No Gas	10.981	10.981	5.94	244426	0.00	10	
Ag	107	1	No Gas	1.905	1.905	2.91	18343	0.01	2	
Cd	111	1	No Gas	1.919	1.919	7.93	3557	0.05	2	
Sr	88	1	No Gas	1.885	1.885	4.02	32443	0.01	2	
Mo	95	1	No Gas	1.973	1.973	3.50	6515	0.03	2	
Sn	118	1	No Gas	1.938	1.938	5.59	11652	0.02	2	
Sb	121	1	No Gas	1.915	1.915	0.92	15910	0.01	2	
Ba	137	1	No Gas	1.926	1.926	3.23	5338	0.04	2	
Tl	205	1	No Gas	1.852	1.852	0.64	37754	0.00	2	
Tl	203	1	No Gas	1.766	1.766	3.38	15313	0.01	2	
Pb	208	1	No Gas	1.795	1.795	4.43	51249	0.00	2	
U	238	1	No Gas	1.808	1.808	0.86	51847	0.00	2	
Ca	43	2	He	202.760	202.760	25.75	300	67.59	200	
Sb	121	2	He	2.022	2.022	5.57	8813	0.02	2	
Ti	47	2	He	1.967	1.967	13.61	280	0.70	200	
Cu	63	1	No Gas	1.719	1.719	2.03	18696	0.01	2	
Se	82	1	No Gas	2.171	2.171	43.85	-7	-31.48	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1017770	0.59	1027100	99.09	70	120	
Ge	72	2	He	495256	0.80	500104	99.03	70	120	
Ge	72	1	No Gas	1521942	0.30	1550291	98.17	70	120	
In	115	1	No Gas	1832239	2.16	1849813	99.05	70	120	
Bi	209	1	No Gas	1899582	1.56	1902184	99.86	70	120	

Sample Report

Sample Table

Sample Name	LLICV5
Data File Name	020LCV5.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:04:59-05:00
Sample Type	LLCCV5
Dilution	1
Comment	
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	4.761	4.761	5.13	105060	0.00	5	
Be	9	1	No Gas	4.970	4.970	2.65	11977	0.04	5	
V	51	2	He	4.936	4.936	1.20	18430	0.03	5	
Cr	52	2	He	5.053	5.053	2.76	20162	0.03	5	
Fe	56	2	He	530.960	530.960	1.86	2068480	0.03	500	
Se	78	2	He	5.363	5.363	5.78	685	0.78	5	
As	75	2	He	5.100	5.100	3.67	3118	0.16	5	
Ca	44	2	He	507.428	507.428	2.17	12239	4.15	500	
Na	23	2	He	465.664	465.664	1.29	532819	0.09	500	
Mg	24	2	He	499.588	499.588	1.81	209455	0.24	500	
K	39	2	He	470.115	470.115	0.68	338983	0.14	500	
Mn	55	2	He	5.062	5.062	1.79	15406	0.03	5	
Co	59	2	He	5.072	5.072	1.68	29402	0.02	5	
Ni	60	2	He	5.276	5.276	5.77	8056	0.07	5	
Cu	63	2	He	4.900	4.900	2.06	21714	0.02	5	
Zn	66	2	He	5.468	5.468	9.55	12046	0.05	5	
Al	27	2	He	5.222	5.222	11.87	1637	0.32	5	
B	11	1	No Gas	28.015	28.015	4.27	47640	0.06	25	
Al	27	1	No Gas	4.575	4.575	1.81	56378	0.01	5	
Si	28	1	No Gas	24.717	24.717	5.84	297326	0.01	25	
Ag	107	1	No Gas	4.858	4.858	1.79	44913	0.01	5	
Cd	111	1	No Gas	5.169	5.169	1.29	9537	0.05	5	
Sr	88	1	No Gas	4.632	4.632	2.17	78661	0.01	5	
Mo	95	1	No Gas	5.092	5.092	2.70	16727	0.03	5	
Sn	118	1	No Gas	4.818	4.818	1.66	27138	0.02	5	
Sb	121	1	No Gas	4.649	4.649	1.83	37875	0.01	5	
Ba	137	1	No Gas	4.881	4.881	1.19	13230	0.04	5	
Tl	205	1	No Gas	4.543	4.543	1.40	92824	0.00	5	
Tl	203	1	No Gas	4.445	4.445	3.09	38603	0.01	5	
Pb	208	1	No Gas	4.574	4.574	1.00	128139	0.00	5	
U	238	1	No Gas	4.570	4.570	0.68	131619	0.00	5	
Ca	43	2	He	515.811	515.811	0.98	723	71.31	500	
Sb	121	2	He	5.061	5.061	2.68	21528	0.02	5	
Ti	47	2	He	5.118	5.118	5.47	713	0.72	5	
Cu	63	1	No Gas	4.580	4.580	2.89	39374	0.01	5	
Se	82	1	No Gas	7.270	7.270	111.81	500	1.45	5	NewName2 Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1008291	1.98	1027100	98.17	70	120	
Ge	72	2	He	491949	0.15	500104	98.37	70	120	
Ge	72	1	No Gas	1518497	1.62	1550291	97.95	70	120	
In	115	1	No Gas	1825083	1.24	1849813	98.66	70	120	
Bi	209	1	No Gas	1908140	0.64	1902184	100.31	70	120	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	022ICSA.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:13:26-05:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.137	101.4	53121	1.9	0	ICSA Main CR1 Failed
Be	9	1	No Gas	-0.004	-197.7	28	66.8	0	ICSA Main CR1 Failed
V	51	2	He	0.003	426.9	1298	3.7	0	ICSA Main CR1 Failed
Cr	52	2	He	1.445	1.5	5898	1.8	0	ICSA Main CR1 Failed
Fe	56	2	He	109865.552	0.5	415771420	0.5	0	
Se	78	2	He	-0.483	-129.3	359	9.6	0	ICSA Main CR1 Failed
As	75	2	He	0.246	18.4	240	10.5	0	ICSA Main CR1 Failed
Ca	44	2	He	111181.969	0.3	2513361	0.7	0	
Na	23	2	He	111214.497	0.8	80131214	1.2	0	
Mg	24	2	He	110762.755	0.1	45290283	0.4	0	
K	39	2	He	111088.934	0.0	53927293	0.4	0	
Mn	55	2	He	0.350	7.8	1477	5.0	0	ICSA Main CR1 Failed
Co	59	2	He	0.249	3.1	1423	3.5	0	ICSA Main CR1 Failed
Ni	60	2	He	0.768	7.8	1260	6.9	0	ICSA Main CR1 Failed
Cu	63	2	He	0.088	48.8	2540	6.3	0	ICSA Main CR1 Failed
Zn	66	2	He	2.057	9.6	9046	1.6	0	ICSA Main CR1 Failed
Al	27	2	He	112625.288	0.3	24998383	0.3	0	
B	11	1	No Gas	4.409	3.5	18848	1.1	0	
Al	27	1	No Gas	103111.940	1.0	904145267	0.1	0	
Si	28	1	No Gas	22.316	5.0	283239	0.7	0	
Ag	107	1	No Gas	0.111	16.1	1994	8.2	0	ICSA Main CR1 Failed
Cd	111	1	No Gas	1.356	3.1	2394	2.8	0	ICSA Main CR1 Failed
Sr	88	1	No Gas	4.720	1.7	76441	0.6	0	ICSA Main CR1 Failed
Mo	95	1	No Gas	2379.567	2.5	7446981	0.8	0	
Sn	118	1	No Gas	0.327	6.8	2790	5.6	0	ICSA Main CR1 Failed
Sb	121	1	No Gas	0.277	15.4	2647	13.3	0	ICSA Main CR1 Failed
Ba	137	1	No Gas	0.765	10.1	2104	7.4	0	ICSA Main CR1 Failed
Tl	205	1	No Gas	0.012	49.6	363	31.7	0	ICSA Main CR1 Failed
Tl	203	1	No Gas	0.014	30.9	180	19.2	0	ICSA Main CR1 Failed
Pb	208	1	No Gas	0.159	8.7	6004	6.2	0	ICSA Main CR1 Failed
U	238	1	No Gas	0.008	12.4	240	11.0	0	ICSA Main CR1 Failed
Ca	43	2	He	107508.503	0.7	142555	1.0	0	
Sb	121	2	He	0.288	9.5	1427	7.4	0	ICSA Main CR1 Failed
Ti	47	2	He	2195.447	0.4	296006	0.1	0	
Se	82	1	No Gas	7.227	65.4	489	94.8	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	962953	2.01	1027100	93.75	70	120	
Ge	72	2	He	480298	0.41	500104	96.04	70	120	
Ge	72	1	No Gas	1493407	0.90	1550291	96.33	70	120	
In	115	1	No Gas	1740723	2.07	1849813	94.10	70	120	
Bi	209	1	No Gas	1796801	0.34	1902184	94.46	70	120	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	023ICSB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:15:33-05:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	No Gas	108.487	2.506	1121455	2.01	100	108.5	180	120	ICSB Main CR1 Failed
Be	9	1	No Gas	105.857	1.023	234742	0.20	100	105.9	80	120	
V	51	2	He	108.360	0.875	366790	0.72	100	108.4	80	120	
Cr	52	2	He	108.558	1.102	413763	0.98	100	108.6	80	120	
Fe	56	2	He	116566.649	0.457	439662727	0.54	100	116566.6	80	120	ICSB Main CR1 Failed
Se	78	2	He	107.417	0.373	6057	0.54	100	107.4	80	120	
As	75	2	He	105.827	0.449	61023	0.19	100	105.8	80	120	
Ca	44	2	He	119926.133	0.878	2701899	0.63	100	119926.1	80	120	
Na	23	2	He	118255.484	0.139	84907205	0.38	100	118255.5	80	120	ICSB Main CR1 Failed
Mg	24	2	He	117430.604	0.207	47856839	0.47	100	117430.6	80	120	ICSB Main CR1 Failed
K	39	2	He	117100.370	0.636	56651007	0.87	100	117100.4	80	120	ICSB Main CR1 Failed
Mn	55	2	He	106.844	0.618	306953	0.82	100	106.8	80	120	
Co	59	2	He	107.299	0.451	605024	0.71	100	107.3	80	120	
Ni	60	2	He	104.386	1.058	152573	1.15	100	104.4	80	120	
Cu	63	2	He	104.007	1.318	404210	1.51	100	104.0	80	120	
Zn	66	2	He	108.254	0.999	93236	1.03	100	108.3	80	120	
Al	27	2	He	109244.687	0.703	24167619	0.95	100	109244.7	80	120	ICSB Main CR1 Failed
B	11	1	No Gas	555.620	1.310	620181	0.98	100	555.6	80	120	
Al	27	1	No Gas	98296.862	1.136	853902841	0.46	100	98296.9	80	120	ICSB Main CR1 Failed
Si	28	1	No Gas	546.413	2.030	2269390	2.48	100	546.4	80	120	
Ag	107	1	No Gas	103.993	2.062	888399	1.13	100	104.0	80	120	
Cd	111	1	No Gas	108.920	2.981	189845	2.05	100	108.9	80	120	
Sr	88	1	No Gas	113.804	2.473	1816052	1.67	100	113.8	80	120	
Mo	95	1	No Gas	2402.658	2.004	7458204	1.74	100	2402.7	80	120	ICSB Main CR1 Failed
Sn	118	1	No Gas	109.318	1.658	558442	0.73	100	109.3	80	120	
Sb	121	1	No Gas	99.156	1.776	778032	1.06	100	99.2	80	120	
Ba	137	1	No Gas	110.303	1.689	279461	0.76	100	110.3	80	120	
Tl	205	1	No Gas	109.666	1.860	2078383	1.66	100	109.7	80	120	
Tl	203	1	No Gas	99.485	1.165	801096	0.92	100	99.5	80	120	
Pb	208	1	No Gas	107.252	1.002	2749340	0.98	100	107.3	80	120	
U	238	1	No Gas	112.739	0.520	3015644	0.55	100	112.7	80	120	
Ca	43	2	He	115368.966	0.833	152466	1.01	100	115369.0	80	120	ICSB Main CR1 Failed
Sb	121	2	He	108.594	0.681	444454	0.61	100	108.6	80	120	
Ti	47	2	He	2245.758	1.085	301777	0.82	100	2245.8	80	120	ICSB Main CR1 Failed
Cu	63	1	No Gas	94.634	1.087	673849	0.57	100	94.6	80	120	
Se	82	1	No Gas	103.706	17.881	9806	18.99	100	103.7	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	930973	0.93	1027100	90.64	70	120	
Ge	72	2	He	478697	0.27	500104	95.72	70	120	
Ge	72	1	No Gas	1479501	0.79	1550291	95.43	70	120	
In	115	1	No Gas	1726140	0.93	1849813	93.31	70	120	
Bi	209	1	No Gas	1772399	0.29	1902184	93.18	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	026_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:23:10-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	96.797	1.735	1078627	1.23	100	96.8	90	110	
Be	9	1	No Gas	96.410	0.474	229237	0.81	100	96.4	90	110	
V	51	2	He	97.933	0.488	347339	0.58	100	97.9	90	110	
Cr	52	2	He	98.289	0.535	392417	0.46	100	98.3	90	110	
Fe	56	2	He	9892.289	0.273	39089376	0.33	10000	98.9	90	110	
Se	78	2	He	101.734	2.134	6030	2.08	100	101.7	90	110	
As	75	2	He	101.940	0.991	61571	0.85	100	101.9	90	110	
Ca	44	2	He	9863.431	0.448	233215	0.45	10000	98.6	90	110	
Na	23	2	He	9817.344	0.584	7560439	0.71	10000	98.2	90	110	
Mg	24	2	He	9932.315	0.706	4239751	0.67	10000	99.3	90	110	
K	39	2	He	10003.233	0.233	5167184	0.36	10000	100.0	90	110	
Mn	55	2	He	99.171	0.809	298442	0.84	100	99.2	90	110	
Co	59	2	He	99.356	0.598	586786	0.62	100	99.4	90	110	
Ni	60	2	He	98.956	0.492	151498	0.63	100	99.0	90	110	
Cu	63	2	He	97.937	0.836	398781	0.70	100	97.9	90	110	
Zn	66	2	He	99.141	0.619	90084	0.44	100	99.1	90	110	
Al	27	2	He	107.862	1.300	25450	1.39	100	107.9	90	110	
B	11	1	No Gas	448.578	1.171	539626	1.24	500	89.7	90	110	CCV Main CR1-2 Failed
Al	27	1	No Gas	104.752	0.654	967182	0.41	100	104.8	90	110	
Si	28	1	No Gas	600.147	2.625	2585206	2.06	5000	12.0	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	98.275	0.800	886364	0.52	100	98.3	90	110	
Cd	111	1	No Gas	98.527	0.772	181309	0.95	100	98.5	90	110	
Sr	88	1	No Gas	98.443	0.691	1658579	1.20	100	98.4	90	110	
Mo	95	1	No Gas	95.214	0.698	312015	0.24	100	95.2	90	110	
Sn	118	1	No Gas	98.758	0.814	532689	0.31	100	98.8	90	110	
Sb	121	1	No Gas	91.159	1.001	747821	0.42	100	91.2	90	110	
Ba	137	1	No Gas	98.854	1.124	264419	1.30	100	98.9	90	110	
Tl	205	1	No Gas	99.766	1.771	2066226	1.07	100	99.8	90	110	
Tl	203	1	No Gas	90.649	0.580	797720	0.30	100	90.6	90	110	
Pb	208	1	No Gas	94.502	0.908	2647581	0.20	100	94.5	90	110	
U	238	1	No Gas	97.901	0.549	2861878	0.55	100	97.9	90	110	
Ca	43	2	He	9672.572	1.388	13410	1.51	10000	96.7	90	110	
Sb	121	2	He	99.461	0.406	426391	0.28	100	99.5	90	110	
Ti	47	2	He	95.040	2.744	13383	2.89	100	95.0	90	110	
Cu	63	1	No Gas	90.024	0.930	670438	0.56	100	90.0	90	110	
Se	82	1	No Gas	94.715	9.145	9337	9.91	100	94.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	998155	0.70	1027100	97.18	70	120	
Ge	72	2	He	501382	0.14	500104	100.26	70	120	
Ge	72	1	No Gas	1546657	0.61	1550291	99.77	70	120	
In	115	1	No Gas	1822077	0.50	1849813	98.50	70	120	
Bi	209	1	No Gas	1936974	0.71	1902184	101.83	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	027_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:25:29-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.162	63.0	54144	0.3	0.5	
Be	9	1	No Gas	-0.005	-107.8	27	47.2	0.5	
V	51	2	He	-0.037	-37.0	1167	3.7	2.5	
Cr	52	2	He	0.102	23.9	770	11.9	2.5	
Fe	56	2	He	4.162	2.0	26099	0.1	100	
Se	78	2	He	-0.530	-56.9	358	4.6	2	
As	75	2	He	0.017	147.8	109	14.5	2.5	
Ca	44	2	He	0.405	1830.9	493	35.2	100	
Na	23	2	He	-22.958	-7.8	169874	0.4	100	
Mg	24	2	He	0.564	18.7	453	8.9	100	
K	39	2	He	-5.503	-37.6	101052	0.8	100	
Mn	55	2	He	-0.042	-61.8	350	20.6	2.5	
Co	59	2	He	0.004	102.5	33	62.4	2.5	
Ni	60	2	He	0.024	83.4	170	17.6	2.5	
Cu	63	2	He	-0.228	-15.3	1320	9.3	2	
Zn	66	2	He	0.150	141.4	7569	1.9	2.5	
Al	27	2	He	-0.096	-391.4	420	20.3	5	
B	11	1	No Gas	14.704	14.2	30926	8.5	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.005	839.3	15239	2.6	5	
Si	28	1	No Gas	3.437	24.2	209002	1.5	10	
Ag	107	1	No Gas	-0.064	-2.4	503	3.0	2.5	
Cd	111	1	No Gas	0.002	420.8	13	114.6	1	
Sr	88	1	No Gas	-0.004	-92.5	460	13.6	2.5	
Mo	95	1	No Gas	0.017	55.7	70	42.9	2.5	
Sn	118	1	No Gas	0.002	1007.1	1157	10.0	5	
Sb	121	1	No Gas	0.011	174.6	533	28.7	2.5	
Ba	137	1	No Gas	-0.016	-14.8	117	4.9	2.5	
Tl	205	1	No Gas	0.004	23.1	223	9.3	1	
Tl	203	1	No Gas	0.001	345.7	83	42.1	1	
Pb	208	1	No Gas	-0.023	-15.5	1363	7.3	2.5	
U	238	1	No Gas	0.002	28.5	83	18.3	2.5	
Ca	43	2	He	5.584	132.4	30	33.3	100	
Sb	121	2	He	0.006	252.8	273	23.8	2.5	
Ti	47	2	He	-0.023	-180.6	3	173.2	2.5	
Cu	63	1	No Gas	-0.252	-19.1	4261	7.7	2.5	
Se	82	1	No Gas	-5.701	-124.4	-766	-89.3	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	976796	1.64	1027100	95.10	70	120	
Ge	72	2	He	482900	1.10	500104	96.56	70	120	
Ge	72	1	No Gas	1479589	0.33	1550291	95.44	70	120	
In	115	1	No Gas	1794823	1.07	1849813	97.03	70	120	
Bi	209	1	No Gas	1890668	0.29	1902184	99.39	70	120	

Sample Report

Sample Table

Sample Name	LCS-180802
Data File Name	029SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:31:45-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.063	0.063	71.00	58082	0.00	2000	
Be	9	1	No Gas	52.614	52.614	0.80	133847	0.04	2000	
V	51	2	He	53.642	53.642	0.30	198163	0.03	2000	
Cr	52	2	He	74.220	74.220	1.29	307749	0.02	2000	
Fe	56	2	He	5504.657	5504.657	0.85	22588577	0.02	200000	
Se	78	2	He	56.280	56.280	1.89	3649	1.54	2000	
As	75	2	He	54.513	54.513	0.57	34236	0.16	2000	
Ca	44	2	He	5252.103	5252.103	0.56	129182	4.07	200000	
Na	23	2	He	5457.550	5457.550	0.63	4452892	0.12	200000	
Mg	24	2	He	5535.778	5535.778	0.72	2453568	0.23	200000	
K	39	2	He	5562.295	5562.295	0.38	3032727	0.18	200000	
Mn	55	2	He	55.068	55.068	0.49	172289	0.03	2000	
Co	59	2	He	54.612	54.612	0.19	334881	0.02	2000	
Ni	60	2	He	55.166	55.166	1.05	87748	0.06	2000	
Cu	63	2	He	54.596	54.596	0.67	231866	0.02	2000	
Zn	66	2	He	56.474	56.474	1.16	56736	0.10	2000	
Al	27	2	He	56.277	56.277	0.32	14014	0.40	2000	
B	11	1	No Gas	-1.869	-1.869	-7.76	13038	-0.01	2000	
Al	27	1	No Gas	51.467	51.467	1.44	504051	0.01	2000	
Si	28	1	No Gas	-0.791	-0.791	-96.55	210383	0.00	2000	
Ag	107	1	No Gas	44.587	44.587	2.61	428207	0.01	2000	
Cd	111	1	No Gas	54.246	54.246	1.46	106158	0.05	2000	
Sr	88	1	No Gas	0.067	0.067	6.07	1763	0.00	2000	
Mo	95	1	No Gas	52.060	52.060	1.98	181415	0.03	2000	
Sn	118	1	No Gas	0.039	0.039	20.56	1460	0.00	2000	
Sb	121	1	No Gas	49.289	49.289	0.56	421979	0.01	2000	
Ba	137	1	No Gas	52.709	52.709	1.31	150012	0.04	2000	
Tl	205	1	No Gas	48.706	48.706	2.81	1062345	0.00	2000	
Tl	203	1	No Gas	47.500	47.500	3.29	440167	0.01	2000	
Pb	208	1	No Gas	49.175	49.175	2.36	1451865	0.00	2000	
U	238	1	No Gas	0.001	0.001	95.09	53	0.00	2000	
Ca	43	2	He	5127.837	5127.837	1.62	7392	69.37	200000	
Sb	121	2	He	53.917	53.917	1.49	240095	0.02	2000	
Ti	47	2	He	51.779	51.779	2.82	7572	0.68	2000	
Cu	63	1	No Gas	50.234	50.234	0.77	393120	0.01	2000	
Zn	66	1	No Gas	56.126	56.126	1.81	131973	0.04	2000	
Se	82	1	No Gas	51.178	51.178	5.01	5152	0.99	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1067766	0.26	1027100	103.96	70	120	
Ge	72	2	He	520567	0.85	500104	104.09	70	120	
Ge	72	1	No Gas	1613256	1.05	1550291	104.06	70	120	
In	115	1	No Gas	1937979	2.05	1849813	104.77	70	120	

Sample Report

Bi	209	1	No Gas	2040523	2.43	1902184	107.27	70	120	

Sample Report

Sample Table

Sample Name	HS22060855-03MS
Data File Name	034SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:42:05-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.269	0.269	21.40	58178	0.00	2000	
Be	9	1	No Gas	54.514	54.514	1.55	133527	0.04	2000	
V	51	2	He	53.588	53.588	1.11	198945	0.03	2000	
Cr	52	2	He	54.307	54.307	1.42	226412	0.02	2000	
Fe	56	2	He	5897.199	5897.199	0.97	24318647	0.02	200000	
Se	78	2	He	54.697	54.697	3.67	3576	1.53	2000	
As	75	2	He	55.424	55.424	1.06	34979	0.16	2000	
Ca	44	2	He	16837.171	16837.171	1.18	415012	4.06	200000	
Na	23	2	He	19962.336	19962.336	0.25	15832255	0.13	200000	
Mg	24	2	He	6789.498	6789.498	1.85	3023964	0.22	200000	
K	39	2	He	7882.629	7882.629	0.09	4272511	0.18	200000	
Mn	55	2	He	277.917	277.917	0.72	871746	0.03	2000	
Co	59	2	He	55.474	55.474	0.93	341850	0.02	2000	
Ni	60	2	He	54.350	54.350	1.99	86883	0.06	2000	
Cu	63	2	He	54.921	54.921	1.80	234381	0.02	2000	
Zn	66	2	He	58.626	58.626	0.82	58881	0.10	2000	
Al	27	2	He	97.878	97.878	1.57	24141	0.41	2000	
B	11	1	No Gas	46.815	46.815	1.79	71282	0.07	2000	
Al	27	1	No Gas	97.844	97.844	3.09	938610	0.01	2000	
Si	28	1	No Gas	2580.776	2580.776	1.26	10837964	0.02	2000	>LDR
Ag	107	1	No Gas	45.133	45.133	1.47	429846	0.01	2000	
Cd	111	1	No Gas	54.642	54.642	0.41	106040	0.05	2000	
Sr	88	1	No Gas	41.437	41.437	1.72	736413	0.01	2000	
Mo	95	1	No Gas	53.270	53.270	1.68	184071	0.03	2000	
Sn	118	1	No Gas	0.088	0.088	24.71	1727	0.01	2000	
Sb	121	1	No Gas	50.237	50.237	2.29	427951	0.01	2000	
Ba	137	1	No Gas	80.237	80.237	1.66	226334	0.04	2000	
Tl	205	1	No Gas	50.105	50.105	2.45	1079535	0.00	2000	
Tl	203	1	No Gas	48.881	48.881	2.32	447481	0.01	2000	
Pb	208	1	No Gas	50.653	50.653	1.90	1477217	0.00	2000	
U	238	1	No Gas	0.036	0.036	3.55	1117	0.00	2000	
Ca	43	2	He	16761.231	16761.231	2.33	24228	69.18	200000	
Sb	121	2	He	54.305	54.305	1.10	243035	0.02	2000	
Ti	47	2	He	53.308	53.308	1.57	7836	0.68	2000	
Cu	63	1	No Gas	50.484	50.484	1.43	393126	0.01	2000	
Zn	66	1	No Gas	58.821	58.821	2.19	136753	0.04	2000	
Se	82	1	No Gas	45.979	45.979	12.01	4586	1.00	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1028229	1.21	1027100	100.11	70	120	
Ge	72	2	He	523165	0.65	500104	104.61	70	120	
Ge	72	1	No Gas	1605580	1.69	1550291	103.57	70	120	
In	115	1	No Gas	1921425	1.17	1849813	103.87	70	120	

Sample Report

Bi	209	1	No Gas	2015247	1.52	1902184	105.94	70	120	

Sample Report

Sample Table

Sample Name	HS22060855-03PDS
Data File Name	036SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:46:19-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.251	0.251	39.93	58021	0.00	2000	
Be	9	1	No Gas	105.915	105.915	2.04	259625	0.04	2000	
V	51	2	He	104.962	104.962	0.91	385118	0.03	2000	
Cr	52	2	He	105.921	105.921	1.74	437559	0.02	2000	
Fe	56	2	He	10981.083	10981.083	0.97	44900613	0.02	200000	
Se	78	2	He	107.318	107.318	0.63	6560	1.64	2000	
As	75	2	He	107.926	107.926	0.89	67447	0.16	2000	
Ca	44	2	He	21870.819	21870.819	0.69	534478	4.09	200000	
Na	23	2	He	25344.990	25344.990	0.35	19881154	0.13	200000	
Mg	24	2	He	11734.428	11734.428	0.69	5183355	0.23	200000	
K	39	2	He	12789.827	12789.827	1.55	6805175	0.19	200000	
Mn	55	2	He	377.251	377.251	2.43	1173372	0.03	2000	
Co	59	2	He	106.576	106.576	0.54	651325	0.02	2000	
Ni	60	2	He	105.445	105.445	1.35	167034	0.06	2000	
Cu	63	2	He	105.890	105.890	0.47	445978	0.02	2000	
Zn	66	2	He	109.630	109.630	0.92	102239	0.11	2000	
Al	27	2	He	155.537	155.537	1.25	37768	0.41	2000	
B	11	1	No Gas	48.274	48.274	4.65	73097	0.07	2000	
Al	27	1	No Gas	153.259	153.259	2.20	1442812	0.01	2000	
Si	28	1	No Gas	2653.002	2653.002	1.11	10995732	0.02	2000	>LDR
Ag	107	1	No Gas	103.388	103.388	1.38	979884	0.01	2000	
Cd	111	1	No Gas	105.670	105.670	0.84	204357	0.05	2000	
Sr	88	1	No Gas	42.466	42.466	1.68	752165	0.01	2000	
Mo	95	1	No Gas	104.069	104.069	0.79	358402	0.03	2000	
Sn	118	1	No Gas	-0.008	-0.008	-323.69	1173	0.00	2000	
Sb	121	1	No Gas	95.502	95.502	1.37	802987	0.01	2000	
Ba	137	1	No Gas	130.506	130.506	1.54	366783	0.04	2000	
Tl	205	1	No Gas	104.259	104.259	1.61	2248184	0.00	2000	
Tl	203	1	No Gas	94.943	94.943	0.73	869891	0.01	2000	
Pb	208	1	No Gas	103.083	103.083	1.00	3006671	0.00	2000	
U	238	1	No Gas	0.038	0.038	4.75	1187	0.00	2000	
Ca	43	2	He	21806.196	21806.196	2.23	31256	69.77	200000	
Sb	121	2	He	103.904	103.904	0.59	460921	0.02	2000	
Ti	47	2	He	102.387	102.387	1.51	14918	0.69	2000	
Cu	63	1	No Gas	97.924	97.924	1.84	746879	0.01	2000	
Zn	66	1	No Gas	108.118	108.118	2.24	232856	0.05	2000	
Se	82	1	No Gas	102.918	102.918	2.57	10416	0.99	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1029261	1.69	1027100	100.21	70	120	
Ge	72	2	He	518837	0.61	500104	103.75	70	120	
Ge	72	1	No Gas	1585383	1.35	1550291	102.26	70	120	
In	115	1	No Gas	1914959	1.08	1849813	103.52	70	120	

Sample Report

Bi	209	1	No Gas	2016674	0.46	1902184	106.02	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	038_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:51:55-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	97.066	1.069	1075585	0.34	100	97.1	90	110	
Be	9	1	No Gas	97.360	1.280	230220	0.32	100	97.4	90	110	
V	51	2	He	98.714	0.769	346081	0.89	100	98.7	90	110	
Cr	52	2	He	98.650	0.556	389339	0.69	100	98.7	90	110	
Fe	56	2	He	9921.419	0.265	38754341	0.40	10000	99.2	90	110	
Se	78	2	He	100.037	2.200	5868	2.13	100	100.0	90	110	
As	75	2	He	101.616	0.501	60671	0.44	100	101.6	90	110	
Ca	44	2	He	9818.530	0.622	229489	0.61	10000	98.2	90	110	
Na	23	2	He	9885.428	0.288	7524096	0.37	10000	98.9	90	110	
Mg	24	2	He	10106.646	0.448	4264620	0.36	10000	101.1	90	110	
K	39	2	He	10034.325	0.121	5123386	0.20	10000	100.3	90	110	
Mn	55	2	He	100.147	0.328	297915	0.18	100	100.1	90	110	
Co	59	2	He	100.788	0.400	588408	0.42	100	100.8	90	110	
Ni	60	2	He	100.141	0.947	151549	0.82	100	100.1	90	110	
Cu	63	2	He	98.592	1.200	396824	1.18	100	98.6	90	110	
Zn	66	2	He	99.441	0.569	89296	0.39	100	99.4	90	110	
Al	27	2	He	104.896	0.328	24478	0.46	100	104.9	90	110	
B	11	1	No Gas	447.107	1.962	534956	1.76	500	89.4	90	110	CCV Main CR1-2 Failed
Al	27	1	No Gas	104.963	1.850	956465	1.68	100	105.0	90	110	
Si	28	1	No Gas	604.316	0.353	2568008	0.63	5000	12.1	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	98.226	0.837	881671	0.24	100	98.2	90	110	
Cd	111	1	No Gas	99.711	0.579	182605	0.52	100	99.7	90	110	
Sr	88	1	No Gas	98.308	1.167	1648269	0.84	100	98.3	90	110	
Mo	95	1	No Gas	95.230	1.112	310560	0.16	100	95.2	90	110	
Sn	118	1	No Gas	99.630	0.221	534838	1.10	100	99.6	90	110	
Sb	121	1	No Gas	92.081	0.635	745556	0.49	100	92.1	90	110	
Ba	137	1	No Gas	100.002	0.426	266203	0.55	100	100.0	90	110	
Tl	205	1	No Gas	100.027	1.393	2043556	0.82	100	100.0	90	110	
Tl	203	1	No Gas	91.773	1.030	796664	1.11	100	91.8	90	110	
Pb	208	1	No Gas	95.979	1.303	2652349	0.18	100	96.0	90	110	
U	238	1	No Gas	99.398	1.475	2866027	0.70	100	99.4	90	110	
Ca	43	2	He	9824.667	3.903	13463	3.75	10000	98.2	90	110	
Sb	121	2	He	100.740	0.841	426910	0.70	100	100.7	90	110	
Ti	47	2	He	97.729	2.243	13604	2.33	100	97.7	90	110	
Cu	63	1	No Gas	89.780	0.686	659941	0.55	100	89.8	90	110	CCV Main CR1-2 Failed
Se	82	1	No Gas	97.875	3.965	9526	3.83	100	97.9	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	992746	1.24	1027100	96.66	70	120	
Ge	72	2	He	495625	0.15	500104	99.10	70	120	
Ge	72	1	No Gas	1526498	0.43	1550291	98.47	70	120	
In	115	1	No Gas	1813381	0.95	1849813	98.03	70	120	
Bi	209	1	No Gas	1910749	1.20	1902184	100.45	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	039_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T12:53:56-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.072	93.6	52548	1.1	0.5	
Be	9	1	No Gas	0.004	134.3	47	24.7	0.5	
V	51	2	He	-0.099	-7.4	957	2.2	2.5	
Cr	52	2	He	0.314	13.8	1587	9.6	2.5	
Fe	56	2	He	2.502	7.9	19788	3.7	100	
Se	78	2	He	-0.032	-1043.6	385	4.5	2	
As	75	2	He	-0.023	-76.7	86	11.9	2.5	
Ca	44	2	He	5.849	80.4	617	18.1	100	
Na	23	2	He	-39.777	-10.4	157755	1.2	100	
Mg	24	2	He	0.490	12.6	423	5.9	100	
K	39	2	He	-9.527	-37.2	99114	0.9	100	
Mn	55	2	He	0.006	384.4	490	13.4	2.5	
Co	59	2	He	0.008	48.6	57	36.7	2.5	
Ni	60	2	He	0.049	44.8	207	14.8	2.5	
Cu	63	2	He	-0.268	-4.2	1167	4.3	2	
Zn	66	2	He	0.927	42.7	8193	3.6	2.5	
Al	27	2	He	-0.215	-73.5	393	8.9	5	
B	11	1	No Gas	15.882	20.4	31818	9.8	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.271	-19.1	12766	1.9	5	
Si	28	1	No Gas	6.114	31.8	217929	1.8	10	
Ag	107	1	No Gas	-0.069	-12.6	460	17.4	2.5	
Cd	111	1	No Gas	0.002	316.1	13	86.6	1	
Sr	88	1	No Gas	0.002	362.7	570	25.3	2.5	
Mo	95	1	No Gas	0.010	76.8	50	52.9	2.5	
Sn	118	1	No Gas	0.069	74.8	1510	17.9	5	
Sb	121	1	No Gas	0.078	3.0	1053	2.4	2.5	
Ba	137	1	No Gas	-0.013	-97.5	123	28.5	2.5	
Tl	205	1	No Gas	0.009	16.6	317	9.1	1	
Tl	203	1	No Gas	0.009	77.5	150	40.6	1	
Pb	208	1	No Gas	-0.013	-208.6	1648	45.5	2.5	
U	238	1	No Gas	0.003	42.2	130	33.5	2.5	
Ca	43	2	He	3.125	141.5	27	21.7	100	
Sb	121	2	He	0.054	28.0	473	14.1	2.5	
Ti	47	2	He	0.050	168.9	13	86.6	2.5	
Cu	63	1	No Gas	-0.315	-10.6	3794	4.6	2.5	
Se	82	1	No Gas	-5.227	-260.2	-709	-184.6	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	964445	1.72	1027100	93.90	70	120	
Ge	72	2	He	483030	0.81	500104	96.59	70	120	
Ge	72	1	No Gas	1471790	1.59	1550291	94.94	70	120	
In	115	1	No Gas	1795049	1.20	1849813	97.04	70	120	
Bi	209	1	No Gas	1898349	1.03	1902184	99.80	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05
Data File Name	042SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:04:45-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	14.513	14.513	0.41	216993	0.01	2000	
Be	9	1	No Gas	-0.006	-0.006	-118.11	25	-0.02	2000	
V	51	2	He	1.126	1.126	7.29	5595	0.02	2000	
Cr	52	2	He	148.796	148.796	0.72	624398	0.02	2000	
Fe	56	2	He	1855.746	1855.746	0.92	7718793	0.02	200000	
Se	78	2	He	-0.338	-0.338	-48.26	402	-0.08	2000	
As	75	2	He	0.242	0.242	17.32	261	0.09	2000	
Ca	44	2	He	34333.178	34333.178	0.63	852190	4.03	200000	
Na	23	2	He	175471.367	175471.367	0.06	138642768	0.13	200000	
Mg	24	2	He	23029.500	23029.500	0.91	10335400	0.22	200000	
K	39	2	He	648.456	648.456	0.22	458083	0.14	200000	
Mn	55	2	He	299.708	299.708	0.66	947234	0.03	2000	
Co	59	2	He	21.433	21.433	1.75	133091	0.02	2000	
Ni	60	2	He	1422.922	1422.922	1.37	2288386	0.06	2000	
Cu	63	2	He	21.974	21.974	1.51	95940	0.02	2000	
Zn	66	2	He	5.558	5.558	2.79	12986	0.04	2000	
Al	27	2	He	6.493	6.493	4.41	2064	0.31	2000	
B	11	1	No Gas	10.294	10.294	7.59	27657	0.04	2000	
Al	27	1	No Gas	5.597	5.597	0.88	69630	0.01	2000	
Si	28	1	No Gas	22997.517	22997.517	0.52	95423175	0.02	2000	>LDR
Ag	107	1	No Gas	-0.071	-0.071	-12.27	453	-0.02	2000	
Cd	111	1	No Gas	0.284	0.284	11.95	547	0.05	2000	
Sr	88	1	No Gas	619.460	619.460	1.34	10706485	0.01	2000	
Mo	95	1	No Gas	4.446	4.446	7.33	14965	0.03	2000	
Sn	118	1	No Gas	0.046	0.046	58.41	1447	0.00	2000	
Sb	121	1	No Gas	0.123	0.123	19.87	1537	0.01	2000	
Ba	137	1	No Gas	298.848	298.848	1.50	819934	0.04	2000	
Tl	205	1	No Gas	0.004	0.004	14.47	233	0.00	2000	
Tl	203	1	No Gas	0.004	0.004	61.38	110	0.00	2000	
Pb	208	1	No Gas	0.009	0.009	17.46	2303	0.00	2000	
U	238	1	No Gas	0.046	0.046	2.91	1377	0.00	2000	
Ca	43	2	He	35643.836	35643.836	1.17	51891	68.69	200000	
Sb	121	2	He	0.093	0.093	5.59	690	0.01	2000	
Ti	47	2	He	0.267	0.267	38.19	47	0.57	2000	
Cu	63	1	No Gas	20.541	20.541	0.96	164759	0.01	2000	
Zn	66	1	No Gas	5.354	5.354	9.50	29459	0.02	2000	
Se	82	1	No Gas	-3.082	-3.082	-282.24	-558	0.55	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1044783	1.20	1027100	101.72	70	120	
Ge	72	2	He	527154	0.43	500104	105.41	70	120	
Ge	72	1	No Gas	1614273	0.42	1550291	104.13	70	120	
In	115	1	No Gas	1869816	0.66	1849813	101.08	70	120	
Bi	209	1	No Gas	1954511	1.17	1902184	102.75	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05SD
Data File Name	043SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:06:50-05:00
Sample Type	Sample
Dilution	5
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	2.928	14.638	7.08	85783	0.00	2000	
Be	9	1	No Gas	-0.005	-0.026	-20.33	27	-0.02	2000	
V	51	2	He	0.602	3.010	2.29	3469	0.02	2000	
Cr	52	2	He	30.498	152.489	1.85	121960	0.03	2000	
Fe	56	2	He	399.640	1998.199	1.10	1588543	0.03	200000	
Se	78	2	He	-0.364	-1.821	-117.98	381	-0.10	2000	
As	75	2	He	0.130	0.652	14.91	181	0.07	2000	
Ca	44	2	He	6913.042	34565.209	1.17	163512	4.23	200000	
Na	23	2	He	35519.869	177599.346	0.62	26833628	0.13	200000	
Mg	24	2	He	4883.554	24417.768	0.82	2083848	0.23	200000	
K	39	2	He	114.121	570.604	4.56	165348	0.07	200000	
Mn	55	2	He	61.370	306.852	1.14	184770	0.03	2000	
Co	59	2	He	4.370	21.852	1.13	25811	0.02	2000	
Ni	60	2	He	264.786	1323.928	1.03	404922	0.07	2000	
Cu	63	2	He	4.368	21.839	3.95	19965	0.02	2000	
Zn	66	2	He	1.643	8.217	28.90	9097	0.02	2000	
Al	27	2	He	3.710	18.551	7.45	1317	0.28	2000	
B	11	1	No Gas	0.297	1.487	115.10	14926	0.00	2000	
Al	27	1	No Gas	3.619	18.094	3.79	48384	0.01	2000	
Si	28	1	No Gas	4617.426	23087.128	1.44	18383853	0.03	2000	>LDR
Ag	107	1	No Gas	-0.064	-0.320	-10.29	507	-0.01	2000	
Cd	111	1	No Gas	0.082	0.408	57.58	160	0.05	2000	
Sr	88	1	No Gas	129.108	645.541	0.88	2171043	0.01	2000	
Mo	95	1	No Gas	0.820	4.098	5.38	2697	0.03	2000	
Sn	118	1	No Gas	-0.003	-0.016	-334.51	1143	0.00	2000	
Sb	121	1	No Gas	0.031	0.155	22.00	713	0.00	2000	
Ba	137	1	No Gas	60.234	301.168	0.87	160882	0.04	2000	
Tl	205	1	No Gas	-0.002	-0.010	-107.84	100	0.00	2000	
Tl	203	1	No Gas	-0.004	-0.018	-96.37	43	-0.01	2000	
Pb	208	1	No Gas	-0.030	-0.152	-16.85	1187	0.00	2000	
U	238	1	No Gas	0.009	0.043	24.80	283	0.00	2000	
Ca	43	2	He	7335.017	36675.083	1.93	10171	72.12	200000	
Sb	121	2	He	0.030	0.151	34.32	387	0.01	2000	
Ti	47	2	He	0.046	0.232	232.01	13	0.35	2000	
Cu	63	1	No Gas	4.113	20.564	2.16	36396	0.01	2000	
Zn	66	1	No Gas	1.597	7.984	15.64	20796	0.01	2000	
Se	82	1	No Gas	-3.931	-19.656	-207.18	-623	0.63	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1012003	1.34	1027100	98.53	70	120	
Ge	72	2	He	501141	1.07	500104	100.21	70	120	
Ge	72	1	No Gas	1535412	0.98	1550291	99.04	70	120	
In	115	1	No Gas	1818750	0.55	1849813	98.32	70	120	

Sample Report

Bi	209	1	No Gas	1943130	0.97	1902184	102.15	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05MS
Data File Name	044SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:08:53-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	15.347	15.347	1.98	224724	0.01	2000	
Be	9	1	No Gas	55.497	55.497	1.50	137214	0.04	2000	
V	51	2	He	55.520	55.520	0.51	208213	0.03	2000	
Cr	52	2	He	210.117	210.117	0.93	883960	0.02	2000	
Fe	56	2	He	7290.609	7290.609	0.24	30375685	0.02	200000	
Se	78	2	He	53.869	53.869	2.21	3565	1.51	2000	
As	75	2	He	56.037	56.037	1.76	35733	0.16	2000	
Ca	44	2	He	44150.879	44150.879	1.16	1098763	4.02	200000	
Na	23	2	He	190721.047	190721.047	0.94	151086881	0.13	200000	>LDR
Mg	24	2	He	29646.509	29646.509	0.91	13341532	0.22	200000	
K	39	2	He	6300.543	6300.543	1.58	3473214	0.18	200000	
Mn	55	2	He	420.734	420.734	0.99	1333194	0.03	2000	
Co	59	2	He	77.027	77.027	0.67	479605	0.02	2000	
Ni	60	2	He	1546.785	1546.785	0.57	2494452	0.06	2000	
Cu	63	2	He	76.874	76.874	0.61	330529	0.02	2000	
Zn	66	2	He	61.171	61.171	1.18	61724	0.10	2000	
Al	27	2	He	57.959	57.959	0.57	14641	0.40	2000	
B	11	1	No Gas	10.648	10.648	3.67	27911	0.04	2000	
Al	27	1	No Gas	55.051	55.051	1.12	534990	0.01	2000	
Si	28	1	No Gas	24518.058	24518.058	0.95	101075895	0.02	2000	>LDR
Ag	107	1	No Gas	46.009	46.009	0.89	431772	0.01	2000	
Cd	111	1	No Gas	55.922	55.922	1.53	106927	0.05	2000	
Sr	88	1	No Gas	654.275	654.275	1.06	11450231	0.01	2000	
Mo	95	1	No Gas	58.727	58.727	1.30	199970	0.03	2000	
Sn	118	1	No Gas	0.087	0.087	6.34	1693	0.01	2000	
Sb	121	1	No Gas	50.287	50.287	1.45	428071	0.01	2000	
Ba	137	1	No Gas	374.116	374.116	0.55	1039330	0.04	2000	
Tl	205	1	No Gas	50.295	50.295	1.68	1064715	0.00	2000	
Tl	203	1	No Gas	49.212	49.212	1.92	442634	0.01	2000	
Pb	208	1	No Gas	51.156	51.156	1.94	1465741	0.00	2000	
U	238	1	No Gas	0.046	0.046	5.96	1420	0.00	2000	
Ca	43	2	He	41985.978	41985.978	0.44	61286	68.51	200000	
Sb	121	2	He	54.954	54.954	0.49	248500	0.02	2000	
Ti	47	2	He	53.523	53.523	3.63	7949	0.67	2000	
Cu	63	1	No Gas	71.960	71.960	1.56	557120	0.01	2000	
Zn	66	1	No Gas	61.330	61.330	0.96	141687	0.04	2000	
Se	82	1	No Gas	48.538	48.538	12.55	4849	1.00	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1037928	1.45	1027100	101.05	70	120	
Ge	72	2	He	528601	0.14	500104	105.70	70	120	
Ge	72	1	No Gas	1604198	1.17	1550291	103.48	70	120	
In	115	1	No Gas	1893299	0.65	1849813	102.35	70	120	
Bi	209	1	No Gas	1979856	1.27	1902184	104.08	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05MSD
Data File Name	045SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:10:57-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	15.274	15.274	1.22	225443	0.01	2000	
Be	9	1	No Gas	54.801	54.801	0.46	136413	0.04	2000	
V	51	2	He	53.175	53.175	0.49	199442	0.03	2000	
Cr	52	2	He	207.493	207.493	0.62	872750	0.02	2000	
Fe	56	2	He	7036.620	7036.620	0.56	29311913	0.02	200000	
Se	78	2	He	51.538	51.538	3.52	3428	1.50	2000	
As	75	2	He	52.665	52.665	0.76	33582	0.16	2000	
Ca	44	2	He	43310.783	43310.783	1.58	1077663	4.02	200000	
Na	23	2	He	188414.186	188414.186	0.23	149232761	0.13	200000	>LDR
Mg	24	2	He	29532.801	29532.801	0.44	13287724	0.22	200000	
K	39	2	He	6323.389	6323.389	0.87	3484717	0.18	200000	
Mn	55	2	He	421.715	421.715	1.14	1336055	0.03	2000	
Co	59	2	He	76.615	76.615	0.19	476951	0.02	2000	
Ni	60	2	He	1540.365	1540.365	1.14	2483636	0.06	2000	
Cu	63	2	He	76.023	76.023	0.71	326835	0.02	2000	
Zn	66	2	He	60.634	60.634	1.55	61241	0.10	2000	
Al	27	2	He	58.217	58.217	1.68	14701	0.40	2000	
B	11	1	No Gas	10.339	10.339	1.08	27721	0.04	2000	
Al	27	1	No Gas	52.362	52.362	1.03	518891	0.01	2000	
Si	28	1	No Gas	23683.291	23683.291	1.36	99408399	0.02	2000	>LDR
Ag	107	1	No Gas	42.670	42.670	0.74	399742	0.01	2000	
Cd	111	1	No Gas	54.660	54.660	1.22	104310	0.05	2000	
Sr	88	1	No Gas	650.161	650.161	1.22	11355566	0.01	2000	
Mo	95	1	No Gas	55.685	55.685	2.18	189218	0.03	2000	
Sn	118	1	No Gas	0.068	0.068	13.77	1587	0.00	2000	
Sb	121	1	No Gas	46.980	46.980	0.84	407209	0.01	2000	
Ba	137	1	No Gas	369.988	369.988	1.90	1025720	0.04	2000	
Tl	205	1	No Gas	49.770	49.770	0.25	1053589	0.00	2000	
Tl	203	1	No Gas	48.491	48.491	0.20	436159	0.01	2000	
Pb	208	1	No Gas	50.757	50.757	0.41	1454295	0.00	2000	
U	238	1	No Gas	0.051	0.051	7.62	1543	0.00	2000	
Ca	43	2	He	41943.839	41943.839	0.21	61213	68.52	200000	
Sb	121	2	He	51.538	51.538	0.17	233023	0.02	2000	
Ti	47	2	He	50.902	50.902	3.15	7559	0.67	2000	
Cu	63	1	No Gas	69.781	69.781	1.35	550251	0.01	2000	
Zn	66	1	No Gas	59.550	59.550	1.75	140606	0.04	2000	
Se	82	1	No Gas	48.937	48.937	15.70	4982	0.98	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1044848	0.74	1027100	101.73	70	120	
Ge	72	2	He	528496	0.18	500104	105.68	70	120	
Ge	72	1	No Gas	1633253	1.02	1550291	105.35	70	120	
In	115	1	No Gas	1889660	1.47	1849813	102.15	70	120	
Bi	209	1	No Gas	1979563	0.35	1902184	104.07	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05PDS
Data File Name	046SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:13:01-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	14.872	14.872	2.56	223443	0.01	2000	
Be	9	1	No Gas	104.117	104.117	1.17	262039	0.04	2000	
V	51	2	He	106.112	106.112	0.86	395455	0.03	2000	
Cr	52	2	He	276.221	276.221	1.47	1158497	0.02	2000	
Fe	56	2	He	12117.384	12117.384	0.78	50325046	0.02	200000	
Se	78	2	He	106.563	106.563	1.69	6619	1.61	2000	
As	75	2	He	108.676	108.676	2.05	68982	0.16	2000	
Ca	44	2	He	47682.278	47682.278	0.51	1183025	4.03	200000	
Na	23	2	He	188305.846	188305.846	0.55	148725384	0.13	200000	>LDR
Mg	24	2	He	33819.081	33819.081	0.74	15173174	0.22	200000	
K	39	2	He	11238.384	11238.384	1.33	6087593	0.18	200000	
Mn	55	2	He	466.597	466.597	2.37	1473945	0.03	2000	
Co	59	2	He	125.694	125.694	0.80	780248	0.02	2000	
Ni	60	2	He	1555.158	1555.158	0.65	2500344	0.06	2000	
Cu	63	2	He	124.674	124.674	0.89	532920	0.02	2000	
Zn	66	2	He	110.457	110.457	0.85	104567	0.11	2000	
Al	27	2	He	107.481	107.481	1.22	26659	0.40	2000	
B	11	1	No Gas	9.428	9.428	3.12	26902	0.04	2000	
Al	27	1	No Gas	107.650	107.650	1.68	1043425	0.01	2000	
Si	28	1	No Gas	23347.292	23347.292	1.37	97470545	0.02	2000	>LDR
Ag	107	1	No Gas	100.330	100.330	1.05	951338	0.01	2000	
Cd	111	1	No Gas	103.596	103.596	1.24	200418	0.05	2000	
Sr	88	1	No Gas	625.982	625.982	0.34	11085028	0.01	2000	
Mo	95	1	No Gas	107.176	107.176	0.93	369246	0.03	2000	
Sn	118	1	No Gas	0.100	0.100	24.06	1787	0.01	2000	
Sb	121	1	No Gas	92.310	92.310	1.40	795277	0.01	2000	
Ba	137	1	No Gas	448.701	448.701	2.09	1261192	0.04	2000	
Tl	205	1	No Gas	102.234	102.234	1.92	2151111	0.00	2000	
Tl	203	1	No Gas	93.293	93.293	1.61	834060	0.01	2000	
Pb	208	1	No Gas	101.340	101.340	1.14	2884360	0.00	2000	
U	238	1	No Gas	0.049	0.049	8.26	1487	0.00	2000	
Ca	43	2	He	46517.967	46517.967	0.82	67693	68.72	200000	
Sb	121	2	He	101.902	101.902	0.96	459160	0.02	2000	
Ti	47	2	He	101.401	101.401	1.10	15008	0.68	2000	
Cu	63	1	No Gas	114.399	114.399	1.60	892946	0.01	2000	
Zn	66	1	No Gas	108.668	108.668	1.54	239730	0.05	2000	
Se	82	1	No Gas	100.338	100.338	15.00	10383	0.97	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1056675	1.78	1027100	102.88	70	120	
Ge	72	2	He	527011	0.69	500104	105.38	70	120	
Ge	72	1	No Gas	1624488	1.62	1550291	104.79	70	120	
In	115	1	No Gas	1915702	0.86	1849813	103.56	70	120	
Bi	209	1	No Gas	1968018	1.21	1902184	103.46	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-01
Data File Name	048SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:17:07-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	65.877	65.877	1.34	761062	0.01	2000	
Be	9	1	No Gas	0.004	0.004	122.58	48	0.01	2000	
V	51	2	He	1.402	1.402	3.78	6449	0.02	2000	
Cr	52	2	He	392.767	392.767	1.13	1604460	0.02	2000	
Fe	56	2	He	4680.803	4680.803	0.07	18945454	0.02	200000	
Se	78	2	He	-0.316	-0.316	-139.41	393	-0.08	2000	
As	75	2	He	0.587	0.587	9.16	468	0.13	2000	
Ca	44	2	He	257246.185	257246.185	0.99	6215240	4.14	200000	>LDR
Na	23	2	He	584098.819	584098.819	0.07	449007353	0.13	200000	>LDR
Mg	24	2	He	105225.944	105225.944	1.00	45990731	0.23	200000	
K	39	2	He	2272.325	2272.325	0.26	1287147	0.18	200000	
Mn	55	2	He	5710.189	5710.189	1.00	17567284	0.03	2000	>LDR
Co	59	2	He	40.888	40.888	0.42	247273	0.02	2000	
Ni	60	2	He	2747.905	2747.905	0.29	4303935	0.06	2000	>LDR
Cu	63	2	He	11.354	11.354	1.04	49417	0.02	2000	
Zn	66	2	He	7.506	7.506	12.59	14304	0.05	2000	
Al	27	2	He	26.030	26.030	0.19	6645	0.39	2000	
B	11	1	No Gas	18.579	18.579	3.11	36601	0.05	2000	
Al	27	1	No Gas	23.699	23.699	1.30	238226	0.01	2000	
Si	28	1	No Gas	15360.470	15360.470	1.24	63015019	0.02	2000	>LDR
Ag	107	1	No Gas	-0.062	-0.062	-19.94	537	-0.01	2000	
Cd	111	1	No Gas	0.574	0.574	2.37	1097	0.05	2000	
Sr	88	1	No Gas	4985.823	4985.823	1.03	86364822	0.01	2000	>LDR
Mo	95	1	No Gas	4.029	4.029	3.13	13594	0.03	2000	
Sn	118	1	No Gas	0.147	0.147	21.82	2010	0.01	2000	
Sb	121	1	No Gas	0.369	0.369	4.99	3594	0.01	2000	
Ba	137	1	No Gas	89.396	89.396	0.66	245958	0.04	2000	
Tl	205	1	No Gas	0.041	0.041	16.74	953	0.00	2000	
Tl	203	1	No Gas	0.048	0.048	16.26	477	0.01	2000	
Pb	208	1	No Gas	0.044	0.044	14.19	3154	0.00	2000	
U	238	1	No Gas	6.612	6.612	1.33	186072	0.00	2000	
Ca	43	2	He	261749.781	261749.781	0.89	370953	70.56	200000	>LDR
Sb	121	2	He	0.368	0.368	12.76	1877	0.02	2000	
Ti	47	2	He	0.276	0.276	95.35	47	0.59	2000	
Cu	63	1	No Gas	11.963	11.963	0.61	97491	0.01	2000	
Zn	66	1	No Gas	7.803	7.803	3.46	33980	0.02	2000	
Se	82	1	No Gas	-1.074	-1.074	-851.55	-349	0.31	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1011294	1.33	1027100	98.46	70	120	
Ge	72	2	He	513406	0.51	500104	102.66	70	120	
Ge	72	1	No Gas	1594361	0.83	1550291	102.84	70	120	
In	115	1	No Gas	1874081	0.85	1849813	101.31	70	120	
Bi	209	1	No Gas	1864540	1.49	1902184	98.02	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	050_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:21:39-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	99.484	4.077	1116738	1.30	100	99.5	90	110	
Be	9	1	No Gas	98.174	3.386	235470	0.32	100	98.2	90	110	
V	51	2	He	99.281	0.811	353218	0.62	100	99.3	90	110	
Cr	52	2	He	99.101	0.663	396914	0.56	100	99.1	90	110	
Fe	56	2	He	9987.720	0.866	39591741	0.80	10000	99.9	90	110	
Se	78	2	He	101.941	2.010	6061	1.95	100	101.9	90	110	
As	75	2	He	101.617	0.442	61572	0.46	100	101.6	90	110	
Ca	44	2	He	9926.519	0.802	235448	0.69	10000	99.3	90	110	
Na	23	2	He	10045.804	0.260	7756415	0.12	10000	100.5	90	110	
Mg	24	2	He	10030.662	0.989	4295318	0.83	10000	100.3	90	110	
K	39	2	He	10163.503	1.302	5264865	1.12	10000	101.6	90	110	
Mn	55	2	He	100.587	0.384	303660	0.27	100	100.6	90	110	
Co	59	2	He	101.139	0.840	599213	0.77	100	101.1	90	110	
Ni	60	2	He	99.337	0.944	152564	0.91	100	99.3	90	110	
Cu	63	2	He	99.196	1.254	405158	1.08	100	99.2	90	110	
Zn	66	2	He	101.407	0.346	92259	0.36	100	101.4	90	110	
Al	27	2	He	107.242	0.855	25387	0.75	100	107.2	90	110	
B	11	1	No Gas	449.538	4.519	545385	1.82	500	89.9	90	110	CCV Main CR1-2 Failed
Al	27	1	No Gas	106.317	0.377	975178	0.99	100	106.3	90	110	
Si	28	1	No Gas	630.101	1.176	2686953	1.18	5000	12.6	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	99.989	2.756	900978	1.28	100	100.0	90	110	
Cd	111	1	No Gas	100.801	3.053	185300	0.58	100	100.8	90	110	
Sr	88	1	No Gas	98.968	2.838	1665702	0.10	100	99.0	90	110	
Mo	95	1	No Gas	96.582	3.237	316159	0.31	100	96.6	90	110	
Sn	118	1	No Gas	100.128	2.497	539574	0.64	100	100.1	90	110	
Sb	121	1	No Gas	92.731	1.526	755839	0.43	100	92.7	90	110	
Ba	137	1	No Gas	99.956	3.657	267052	0.73	100	100.0	90	110	
Tl	205	1	No Gas	102.880	2.011	2100123	0.90	100	102.9	90	110	
Tl	203	1	No Gas	92.320	1.169	800765	0.05	100	92.3	90	110	
Pb	208	1	No Gas	96.930	0.740	2676760	0.82	100	96.9	90	110	
U	238	1	No Gas	100.319	0.903	2890722	1.52	100	100.3	90	110	
Ca	43	2	He	10379.957	2.226	14434	2.15	10000	103.8	90	110	
Sb	121	2	He	100.744	1.188	433256	0.99	100	100.7	90	110	
Ti	47	2	He	98.762	3.159	13951	2.96	100	98.8	90	110	
Cu	63	1	No Gas	91.873	1.017	679718	0.17	100	91.9	90	110	
Se	82	1	No Gas	99.931	1.727	9799	2.83	100	99.9	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1007581	3.14	1027100	98.10	70	120	
Ge	72	2	He	502978	0.19	500104	100.57	70	120	
Ge	72	1	No Gas	1536850	1.10	1550291	99.13	70	120	
In	115	1	No Gas	1821249	2.93	1849813	98.46	70	120	
Bi	209	1	No Gas	1909295	1.11	1902184	100.37	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	051_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:23:40-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.190	59.3	55449	0.6	0.5	
Be	9	1	No Gas	-0.002	-524.4	35	51.5	0.5	
V	51	2	He	-0.087	-21.4	1001	6.9	2.5	
Cr	52	2	He	0.268	7.1	1413	5.5	2.5	
Fe	56	2	He	2.783	1.1	20903	1.3	100	
Se	78	2	He	0.204	205.0	398	5.6	2	
As	75	2	He	0.009	202.4	104	11.2	2.5	
Ca	44	2	He	6.420	58.4	630	13.0	100	
Na	23	2	He	34.114	4.9	211606	0.7	100	
Mg	24	2	He	1.160	22.1	700	14.5	100	
K	39	2	He	-0.712	-602.8	103616	1.5	100	
Mn	55	2	He	0.032	101.3	567	15.9	2.5	
Co	59	2	He	0.008	46.8	57	36.7	2.5	
Ni	60	2	He	0.080	40.8	253	19.5	2.5	
Cu	63	2	He	-0.179	-16.8	1517	8.3	2	
Zn	66	2	He	1.797	24.8	8910	4.8	2.5	
Al	27	2	He	-0.532	-11.1	323	4.7	5	
B	11	1	No Gas	12.997	14.6	29526	9.0	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.397	-6.7	11995	3.4	5	
Si	28	1	No Gas	4.565	17.5	217768	1.6	10	
Ag	107	1	No Gas	-0.067	-11.6	477	13.7	2.5	
Cd	111	1	No Gas	0.000	12678.9	10	100.0	1	
Sr	88	1	No Gas	0.023	20.4	930	9.3	2.5	
Mo	95	1	No Gas	0.009	49.2	47	32.7	2.5	
Sn	118	1	No Gas	0.040	12.4	1377	3.0	5	
Sb	121	1	No Gas	0.051	19.4	860	10.7	2.5	
Ba	137	1	No Gas	-0.023	-27.8	100	17.3	2.5	
Tl	205	1	No Gas	0.005	19.6	240	8.3	1	
Tl	203	1	No Gas	0.000	-1732.9	73	20.8	1	
Pb	208	1	No Gas	-0.032	-18.2	1137	13.7	2.5	
U	238	1	No Gas	0.002	50.6	90	33.3	2.5	
Ca	43	2	He	13.217	262.2	40	114.6	100	
Sb	121	2	He	0.052	18.4	463	9.0	2.5	
Ti	47	2	He	0.001	7606.3	7	173.2	2.5	
Cu	63	1	No Gas	-0.261	-8.8	4284	2.4	2.5	
Se	82	1	No Gas	-5.085	-106.2	-719	-72.5	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	995086	1.63	1027100	96.88	70	120	
Ge	72	2	He	483994	0.80	500104	96.78	70	120	
Ge	72	1	No Gas	1510767	1.51	1550291	97.45	70	120	
In	115	1	No Gas	1817444	1.18	1849813	98.25	70	120	
Bi	209	1	No Gas	1916522	0.40	1902184	100.75	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-02
Data File Name	052SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:28:12-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	12.629	12.629	2.06	201064	0.01	2000	
Be	9	1	No Gas	0.003	0.003	162.37	50	0.01	2000	
V	51	2	He	1.946	1.946	0.62	8651	0.02	2000	
Cr	52	2	He	176.852	176.852	0.14	742906	0.02	2000	
Fe	56	2	He	3593.295	3593.295	0.36	14953135	0.02	200000	
Se	78	2	He	-0.552	-0.552	-63.57	390	-0.14	2000	
As	75	2	He	1.999	1.999	2.51	1377	0.15	2000	
Ca	44	2	He	29718.807	29718.807	0.73	738590	4.02	200000	
Na	23	2	He	229520.160	229520.160	0.60	181495084	0.13	200000	>LDR
Mg	24	2	He	21563.642	21563.642	0.42	9688847	0.22	200000	
K	39	2	He	608.502	608.502	0.59	437338	0.14	200000	
Mn	55	2	He	520.725	520.725	2.60	1647293	0.03	2000	
Co	59	2	He	7.921	7.921	1.05	49256	0.02	2000	
Ni	60	2	He	368.766	368.766	0.51	593868	0.06	2000	
Cu	63	2	He	3.260	3.260	2.41	16310	0.02	2000	
Zn	66	2	He	3.171	3.171	19.90	10915	0.03	2000	
Al	27	2	He	6.975	6.975	3.13	2184	0.32	2000	
B	11	1	No Gas	11.872	11.872	1.90	30346	0.04	2000	
Al	27	1	No Gas	6.298	6.298	1.05	76048	0.01	2000	
Si	28	1	No Gas	17817.000	17817.000	1.77	73745316	0.02	2000	>LDR
Ag	107	1	No Gas	-0.066	-0.066	-19.25	507	-0.01	2000	
Cd	111	1	No Gas	0.049	0.049	16.59	103	0.05	2000	
Sr	88	1	No Gas	472.992	472.992	0.36	8215564	0.01	2000	
Mo	95	1	No Gas	3.766	3.766	4.81	12740	0.03	2000	
Sn	118	1	No Gas	0.047	0.047	68.44	1457	0.00	2000	
Sb	121	1	No Gas	0.095	0.095	14.77	1297	0.01	2000	
Ba	137	1	No Gas	45.645	45.645	1.16	125993	0.04	2000	
Tl	205	1	No Gas	-0.003	-0.003	-56.74	87	0.00	2000	
Tl	203	1	No Gas	-0.003	-0.003	-89.43	53	0.00	2000	
Pb	208	1	No Gas	0.046	0.046	10.92	3390	0.00	2000	
U	238	1	No Gas	0.108	0.108	6.57	3261	0.00	2000	
Ca	43	2	He	30088.391	30088.391	0.71	43857	68.61	200000	
Sb	121	2	He	0.077	0.077	25.10	617	0.01	2000	
Ti	47	2	He	0.357	0.357	49.92	60	0.60	2000	
Cu	63	1	No Gas	3.456	3.456	2.60	33114	0.01	2000	
Zn	66	1	No Gas	3.467	3.467	2.06	25571	0.01	2000	
Se	82	1	No Gas	-4.990	-4.990	-102.17	-763	0.65	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1071171	0.54	1027100	104.29	70	120	
Ge	72	2	He	527764	0.09	500104	105.53	70	120	
Ge	72	1	No Gas	1609575	1.78	1550291	103.82	70	120	
In	115	1	No Gas	1878974	0.48	1849813	101.58	70	120	
Bi	209	1	No Gas	1982986	0.59	1902184	104.25	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-03
Data File Name	053SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:30:17-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	31.589	31.589	1.72	407365	0.01	2000	
Be	9	1	No Gas	0.002	0.002	238.88	45	0.00	2000	
V	51	2	He	1.125	1.125	2.26	5578	0.02	2000	
Cr	52	2	He	285.203	285.203	2.09	1193056	0.02	2000	
Fe	56	2	He	3834.981	3834.981	2.14	15894306	0.02	200000	
Se	78	2	He	-0.086	-0.086	-630.53	415	-0.02	2000	
As	75	2	He	0.329	0.329	18.94	316	0.10	2000	
Ca	44	2	He	144039.668	144039.668	1.06	3563702	4.04	200000	
Na	23	2	He	537808.552	537808.552	1.37	423324567	0.13	200000	>LDR
Mg	24	2	He	98108.171	98108.171	0.58	43908838	0.22	200000	
K	39	2	He	1896.208	1896.208	0.56	1118566	0.17	200000	
Mn	55	2	He	193.542	193.542	1.35	610178	0.03	2000	
Co	59	2	He	7.312	7.312	1.18	45292	0.02	2000	
Ni	60	2	He	309.923	309.923	1.58	497163	0.06	2000	
Cu	63	2	He	6.101	6.101	0.81	28306	0.02	2000	
Zn	66	2	He	6.241	6.241	5.24	13547	0.05	2000	
Al	27	2	He	8.684	8.684	8.75	2590	0.34	2000	
B	11	1	No Gas	14.445	14.445	1.05	32842	0.04	2000	
Al	27	1	No Gas	8.046	8.046	3.16	93484	0.01	2000	
Si	28	1	No Gas	17109.942	17109.942	0.67	71541147	0.02	2000	>LDR
Ag	107	1	No Gas	-0.061	-0.061	-16.80	547	-0.01	2000	
Cd	111	1	No Gas	0.336	0.336	3.38	647	0.05	2000	
Sr	88	1	No Gas	2260.979	2260.979	0.44	39151218	0.01	2000	>LDR
Mo	95	1	No Gas	4.893	4.893	2.29	16500	0.03	2000	
Sn	118	1	No Gas	0.120	0.120	3.71	1857	0.01	2000	
Sb	121	1	No Gas	0.064	0.064	23.80	1040	0.01	2000	
Ba	137	1	No Gas	93.544	93.544	0.75	257257	0.04	2000	
Tl	205	1	No Gas	0.003	0.003	109.72	183	0.00	2000	
Tl	203	1	No Gas	0.002	0.002	200.52	87	0.00	2000	
Pb	208	1	No Gas	0.001	0.001	590.43	1970	0.00	2000	
U	238	1	No Gas	0.894	0.894	2.18	25106	0.00	2000	
Ca	43	2	He	144748.902	144748.902	1.15	210064	68.91	200000	
Sb	121	2	He	0.079	0.079	18.30	627	0.01	2000	
Ti	47	2	He	0.155	0.155	114.54	30	0.52	2000	
Cu	63	1	No Gas	6.863	6.863	0.97	59852	0.01	2000	
Zn	66	1	No Gas	6.029	6.029	2.88	31036	0.02	2000	
Se	82	1	No Gas	3.242	3.242	78.25	106	3.06	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1047651	0.94	1027100	102.00	70	120	
Ge	72	2	He	525731	1.05	500104	105.12	70	120	
Ge	72	1	No Gas	1625460	0.15	1550291	104.85	70	120	
In	115	1	No Gas	1873341	0.76	1849813	101.27	70	120	
Bi	209	1	No Gas	1858227	1.14	1902184	97.69	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-04
Data File Name	054SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:32:22-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	19.521	19.521	0.47	290079	0.01	2000	
Be	9	1	No Gas	-0.006	-0.006	-38.23	28	-0.02	2000	
V	51	2	He	2.357	2.357	3.18	10418	0.02	2000	
Cr	52	2	He	3.440	3.440	2.21	15209	0.02	2000	
Fe	56	2	He	188.050	188.050	0.97	811997	0.02	200000	
Se	78	2	He	-0.963	-0.963	-40.86	375	-0.26	2000	
As	75	2	He	1.767	1.767	11.60	1259	0.14	2000	
Ca	44	2	He	4017.806	4017.806	1.24	102685	3.91	200000	
Na	23	2	He	67767.624	67767.624	0.66	55009528	0.12	200000	
Mg	24	2	He	3201.894	3201.894	1.83	1472871	0.22	200000	
K	39	2	He	5606.442	5606.442	1.69	3171767	0.18	200000	
Mn	55	2	He	25.620	25.620	1.74	83467	0.03	2000	
Co	59	2	He	0.241	0.241	10.88	1547	0.02	2000	
Ni	60	2	He	11.920	11.920	2.14	19798	0.06	2000	
Cu	63	2	He	0.375	0.375	11.43	4111	0.01	2000	
Zn	66	2	He	0.946	0.946	54.85	9180	0.01	2000	
Al	27	2	He	11.840	11.840	6.74	3451	0.34	2000	
B	11	1	No Gas	119.867	119.867	3.58	172376	0.07	2000	
Al	27	1	No Gas	10.498	10.498	1.52	118767	0.01	2000	
Si	28	1	No Gas	2792.339	2792.339	0.32	12047042	0.02	2000	>LDR
Ag	107	1	No Gas	-0.065	-0.065	-3.54	537	-0.01	2000	
Cd	111	1	No Gas	0.031	0.031	88.13	73	0.04	2000	
Sr	88	1	No Gas	451.911	451.911	1.08	8232889	0.01	2000	
Mo	95	1	No Gas	1.988	1.988	2.60	7065	0.03	2000	
Sn	118	1	No Gas	-0.003	-0.003	-433.54	1240	0.00	2000	
Sb	121	1	No Gas	0.156	0.156	10.00	1860	0.01	2000	
Ba	137	1	No Gas	65.346	65.346	1.57	189105	0.03	2000	
Tl	205	1	No Gas	-0.003	-0.003	-53.01	83	0.00	2000	
Tl	203	1	No Gas	-0.003	-0.003	-63.77	53	-0.01	2000	
Pb	208	1	No Gas	0.037	0.037	21.29	3214	0.00	2000	
U	238	1	No Gas	0.272	0.272	5.77	8383	0.00	2000	
Ca	43	2	He	5127.060	5127.060	1.60	7672	66.83	200000	
Sb	121	2	He	0.148	0.148	23.36	963	0.02	2000	
Ti	47	2	He	0.260	0.260	58.79	47	0.56	2000	
Cu	63	1	No Gas	0.514	0.514	8.05	10794	0.00	2000	
Zn	66	1	No Gas	1.273	1.273	11.93	21701	0.01	2000	
Se	82	1	No Gas	0.861	0.861	931.20	-145	-0.59	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1112128	0.68	1027100	108.28	70	120	
Ge	72	2	He	540298	0.89	500104	108.04	70	120	
Ge	72	1	No Gas	1651722	0.59	1550291	106.54	70	120	
In	115	1	No Gas	1970938	1.23	1849813	106.55	70	120	

Sample Report

Bi	209	1	No Gas	2038460	1.84	1902184	107.16	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-06
Data File Name	057SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:42:35-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	32.770	32.770	2.06	424329	0.01	2000	
Be	9	1	No Gas	-0.005	-0.005	-85.97	28	-0.02	2000	
V	51	2	He	0.896	0.896	1.64	4725	0.02	2000	
Cr	52	2	He	144.475	144.475	0.59	604035	0.02	2000	
Fe	56	2	He	2693.153	2693.153	1.28	11155955	0.02	200000	
Se	78	2	He	-0.243	-0.243	-101.63	406	-0.06	2000	
As	75	2	He	0.356	0.356	10.88	332	0.11	2000	
Ca	44	2	He	63815.111	63815.111	0.99	1577685	4.04	200000	
Na	23	2	He	267093.473	267093.473	0.67	210147784	0.13	200000	>LDR
Mg	24	2	He	39381.680	39381.680	0.38	17608831	0.22	200000	
K	39	2	He	1428.335	1428.335	0.73	869588	0.16	200000	
Mn	55	2	He	535.345	535.345	0.03	1685349	0.03	2000	
Co	59	2	He	14.131	14.131	0.45	87436	0.02	2000	
Ni	60	2	He	756.702	756.702	1.74	1212577	0.06	2000	
Cu	63	2	He	5.484	5.484	4.62	25665	0.02	2000	
Zn	66	2	He	6.407	6.407	5.43	13677	0.05	2000	
Al	27	2	He	11.483	11.483	6.36	3267	0.35	2000	
B	11	1	No Gas	19.421	19.421	6.45	39300	0.05	2000	
Al	27	1	No Gas	9.259	9.259	3.70	102237	0.01	2000	
Si	28	1	No Gas	18744.304	18744.304	1.36	76261947	0.02	2000	>LDR
Ag	107	1	No Gas	-0.061	-0.061	-8.98	550	-0.01	2000	
Cd	111	1	No Gas	0.136	0.136	5.96	267	0.05	2000	
Sr	88	1	No Gas	975.456	975.456	1.30	16871402	0.01	2000	
Mo	95	1	No Gas	0.919	0.919	1.29	3110	0.03	2000	
Sn	118	1	No Gas	0.080	0.080	34.35	1637	0.00	2000	
Sb	121	1	No Gas	0.092	0.092	9.32	1250	0.01	2000	
Ba	137	1	No Gas	94.428	94.428	2.45	259374	0.04	2000	
Tl	205	1	No Gas	0.015	0.015	31.17	447	0.00	2000	
Tl	203	1	No Gas	0.010	0.010	36.64	163	0.01	2000	
Pb	208	1	No Gas	0.009	0.009	30.01	2253	0.00	2000	
U	238	1	No Gas	0.188	0.188	0.78	5428	0.00	2000	
Ca	43	2	He	62490.801	62490.801	0.89	90620	68.96	200000	
Sb	121	2	He	0.093	0.093	27.86	687	0.01	2000	
Ti	47	2	He	0.269	0.269	38.38	47	0.58	2000	
Cu	63	1	No Gas	5.625	5.625	3.02	48901	0.01	2000	
Zn	66	1	No Gas	6.078	6.078	11.75	30294	0.02	2000	
Se	82	1	No Gas	-3.307	-3.307	-217.01	-578	0.57	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1057345	1.81	1027100	102.94	70	120	
Ge	72	2	He	525207	0.18	500104	105.02	70	120	
Ge	72	1	No Gas	1582255	1.45	1550291	102.06	70	120	
In	115	1	No Gas	1871309	1.33	1849813	101.16	70	120	
Bi	209	1	No Gas	1898455	1.60	1902184	99.80	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-07
Data File Name	058SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:44:40-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	28.533	28.533	1.99	377599	0.01	2000	
Be	9	1	No Gas	0.000	0.000	3187.21	42	0.00	2000	
V	51	2	He	2.245	2.245	4.21	9735	0.02	2000	
Cr	52	2	He	493.258	493.258	1.11	2065054	0.02	2000	
Fe	56	2	He	9491.210	9491.210	1.34	39359088	0.02	200000	
Se	78	2	He	-0.371	-0.371	-98.55	399	-0.09	2000	
As	75	2	He	0.543	0.543	10.77	451	0.12	2000	
Ca	44	2	He	51597.814	51597.814	2.22	1278211	4.04	200000	
Na	23	2	He	184715.295	184715.295	0.38	145668141	0.13	200000	>LDR
Mg	24	2	He	28219.638	28219.638	1.42	12641124	0.22	200000	
K	39	2	He	361.475	361.475	1.08	304909	0.12	200000	
Mn	55	2	He	120.162	120.162	0.55	379390	0.03	2000	
Co	59	2	He	11.161	11.161	1.89	69189	0.02	2000	
Ni	60	2	He	1115.289	1115.289	1.39	1790363	0.06	2000	
Cu	63	2	He	6.480	6.480	0.27	29940	0.02	2000	
Zn	66	2	He	2.113	2.113	14.42	9960	0.02	2000	
Al	27	2	He	8.783	8.783	8.03	2617	0.34	2000	
B	11	1	No Gas	16.518	16.518	2.99	35785	0.05	2000	
Al	27	1	No Gas	7.528	7.528	1.42	88084	0.01	2000	
Si	28	1	No Gas	23402.709	23402.709	1.22	97263295	0.02	2000	>LDR
Ag	107	1	No Gas	-0.073	-0.073	-4.16	443	-0.02	2000	
Cd	111	1	No Gas	0.109	0.109	32.49	220	0.05	2000	
Sr	88	1	No Gas	777.468	777.468	1.52	13673821	0.01	2000	
Mo	95	1	No Gas	1.525	1.525	5.49	5234	0.03	2000	
Sn	118	1	No Gas	0.051	0.051	28.25	1500	0.00	2000	
Sb	121	1	No Gas	0.064	0.064	7.51	1033	0.01	2000	
Ba	137	1	No Gas	231.235	231.235	0.11	645684	0.04	2000	
Tl	205	1	No Gas	-0.001	-0.001	-117.23	120	0.00	2000	
Tl	203	1	No Gas	-0.003	-0.003	-101.36	47	-0.01	2000	
Pb	208	1	No Gas	-0.004	-0.004	-49.27	1963	0.00	2000	
U	238	1	No Gas	0.515	0.515	1.03	15467	0.00	2000	
Ca	43	2	He	48918.272	48918.272	1.18	71073	68.83	200000	
Sb	121	2	He	0.046	0.046	46.86	477	0.01	2000	
Ti	47	2	He	0.245	0.245	124.30	43	0.57	2000	
Cu	63	1	No Gas	6.377	6.377	0.12	55794	0.01	2000	
Zn	66	1	No Gas	2.045	2.045	22.86	22803	0.01	2000	
Se	82	1	No Gas	1.826	1.826	298.62	-46	-3.95	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1059456	1.03	1027100	103.15	70	120	
Ge	72	2	He	526189	0.41	500104	105.22	70	120	
Ge	72	1	No Gas	1617117	1.16	1550291	104.31	70	120	
In	115	1	No Gas	1902781	0.87	1849813	102.86	70	120	
Bi	209	1	No Gas	1985015	0.28	1902184	104.35	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-08
Data File Name	059SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:46:43-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	25.203	25.203	1.55	343264	0.01	2000	
Be	9	1	No Gas	-0.003	-0.003	-153.35	35	-0.01	2000	
V	51	2	He	0.830	0.830	1.00	4519	0.02	2000	
Cr	52	2	He	59.237	59.237	0.34	249985	0.02	2000	
Fe	56	2	He	884.170	884.170	1.98	3700430	0.02	200000	
Se	78	2	He	-0.428	-0.428	-48.67	399	-0.11	2000	
As	75	2	He	0.273	0.273	8.96	282	0.10	2000	
Ca	44	2	He	30313.694	30313.694	0.97	755980	4.01	200000	
Na	23	2	He	125804.734	125804.734	0.59	99920442	0.13	200000	
Mg	24	2	He	20202.542	20202.542	1.43	9108922	0.22	200000	
K	39	2	He	1043.277	1043.277	1.79	671115	0.16	200000	
Mn	55	2	He	74.402	74.402	1.51	236628	0.03	2000	
Co	59	2	He	1.240	1.240	4.43	7752	0.02	2000	
Ni	60	2	He	148.148	148.148	1.42	239491	0.06	2000	
Cu	63	2	He	3.191	3.191	2.07	16070	0.02	2000	
Zn	66	2	He	6.635	6.635	6.41	13991	0.05	2000	
Al	27	2	He	14.799	14.799	6.95	4107	0.36	2000	
B	11	1	No Gas	15.914	15.914	1.46	35356	0.05	2000	
Al	27	1	No Gas	12.936	12.936	2.59	141433	0.01	2000	
Si	28	1	No Gas	18877.465	18877.465	1.71	79633200	0.02	2000	>LDR
Ag	107	1	No Gas	-0.069	-0.069	-6.52	490	-0.01	2000	
Cd	111	1	No Gas	0.179	0.179	31.31	360	0.05	2000	
Sr	88	1	No Gas	527.967	527.967	1.96	9430987	0.01	2000	
Mo	95	1	No Gas	0.863	0.863	3.09	3017	0.03	2000	
Sn	118	1	No Gas	0.014	0.014	13.84	1310	0.00	2000	
Sb	121	1	No Gas	0.048	0.048	29.74	913	0.01	2000	
Ba	137	1	No Gas	111.590	111.590	1.01	316572	0.04	2000	
Tl	205	1	No Gas	0.001	0.001	221.94	167	0.00	2000	
Tl	203	1	No Gas	0.001	0.001	507.79	83	0.00	2000	
Pb	208	1	No Gas	0.014	0.014	73.15	2493	0.00	2000	
U	238	1	No Gas	0.144	0.144	2.93	4388	0.00	2000	
Ca	43	2	He	31405.591	31405.591	2.64	45930	68.38	200000	
Sb	121	2	He	0.046	0.046	90.55	480	0.01	2000	
Ti	47	2	He	0.400	0.400	24.89	67	0.60	2000	
Cu	63	1	No Gas	3.138	3.138	1.53	31260	0.01	2000	
Zn	66	1	No Gas	6.272	6.272	3.99	31821	0.02	2000	
Se	82	1	No Gas	0.262	0.262	937.79	-215	-0.12	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1069112	1.54	1027100	104.09	70	120	
Ge	72	2	He	529623	0.85	500104	105.90	70	120	
Ge	72	1	No Gas	1640697	1.75	1550291	105.83	70	120	
In	115	1	No Gas	1932856	1.90	1849813	104.49	70	120	
Bi	209	1	No Gas	1998484	0.40	1902184	105.06	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-09
Data File Name	060SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:48:46-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	26.161	26.161	1.06	354697	0.01	2000	
Be	9	1	No Gas	0.073	0.073	11.80	228	0.03	2000	
V	51	2	He	0.553	0.553	6.65	3516	0.02	2000	
Cr	52	2	He	4.898	4.898	1.47	21243	0.02	2000	
Fe	56	2	He	7401.052	7401.052	0.63	31178714	0.02	200000	
Se	78	2	He	-0.489	-0.489	-70.47	399	-0.12	2000	
As	75	2	He	6.488	6.488	2.06	4280	0.15	2000	
Ca	44	2	He	101358.709	101358.709	0.81	2549737	3.98	200000	
Na	23	2	He	367038.992	367038.992	0.54	293801116	0.12	200000	>LDR
Mg	24	2	He	72322.247	72322.247	0.34	32907766	0.22	200000	
K	39	2	He	620.146	620.146	1.00	449174	0.14	200000	
Mn	55	2	He	475.263	475.263	0.52	1522647	0.03	2000	
Co	59	2	He	7.843	7.843	1.60	49390	0.02	2000	
Ni	60	2	He	3.894	3.894	3.82	6498	0.06	2000	
Cu	63	2	He	0.382	0.382	8.64	4097	0.01	2000	
Zn	66	2	He	2.615	2.615	6.62	10561	0.02	2000	
Al	27	2	He	45.427	45.427	1.26	11708	0.39	2000	
B	11	1	No Gas	17.794	17.794	0.89	37772	0.05	2000	
Al	27	1	No Gas	41.268	41.268	1.60	411868	0.01	2000	
Si	28	1	No Gas	18791.949	18791.949	0.29	78795975	0.02	2000	>LDR
Ag	107	1	No Gas	-0.081	-0.081	-3.58	370	-0.02	2000	
Cd	111	1	No Gas	0.092	0.092	57.27	187	0.05	2000	
Sr	88	1	No Gas	1733.666	1733.666	0.59	30300140	0.01	2000	
Mo	95	1	No Gas	0.160	0.160	12.48	560	0.03	2000	
Sn	118	1	No Gas	0.079	0.079	57.71	1644	0.00	2000	
Sb	121	1	No Gas	0.048	0.048	25.73	907	0.01	2000	
Ba	137	1	No Gas	390.799	390.799	1.00	1084206	0.04	2000	
Tl	205	1	No Gas	-0.004	-0.004	-43.39	63	-0.01	2000	
Tl	203	1	No Gas	-0.005	-0.005	-11.75	27	-0.02	2000	
Pb	208	1	No Gas	0.064	0.064	1.77	3807	0.00	2000	
U	238	1	No Gas	0.955	0.955	2.00	27812	0.00	2000	
Ca	43	2	He	98513.849	98513.849	0.89	145360	67.77	200000	
Sb	121	2	He	0.036	0.036	22.11	440	0.01	2000	
Ti	47	2	He	1.174	1.174	11.58	183	0.64	2000	
Cu	63	1	No Gas	1.061	1.061	8.79	14912	0.01	2000	
Zn	66	1	No Gas	2.042	2.042	8.55	22990	0.01	2000	
Se	82	1	No Gas	2.818	2.818	224.38	58	4.88	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1070791	1.30	1027100	104.25	70	120	
Ge	72	2	He	534473	0.36	500104	106.87	70	120	
Ge	72	1	No Gas	1630471	0.84	1550291	105.17	70	120	
In	115	1	No Gas	1890852	1.16	1849813	102.22	70	120	
Bi	209	1	No Gas	1928206	0.83	1902184	101.37	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	062_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:52:56-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	98.475	2.437	1099584	1.21	100	98.5	90	110	
Be	9	1	No Gas	99.481	1.916	237217	0.38	100	99.5	90	110	
V	51	2	He	99.208	1.171	351436	0.42	100	99.2	90	110	
Cr	52	2	He	100.133	0.994	399318	0.61	100	100.1	90	110	
Fe	56	2	He	10008.996	0.836	39505225	0.18	10000	100.1	90	110	
Se	78	2	He	103.528	1.459	6122	0.67	100	103.5	90	110	
As	75	2	He	103.725	0.472	62580	1.14	100	103.7	90	110	
Ca	44	2	He	10041.623	0.785	237150	0.50	10000	100.4	90	110	
Na	23	2	He	10168.663	0.959	7815046	0.23	10000	101.7	90	110	
Mg	24	2	He	10202.599	0.670	4350210	0.40	10000	102.0	90	110	
K	39	2	He	10232.901	1.075	5277254	0.42	10000	102.3	90	110	
Mn	55	2	He	100.274	1.149	301407	0.49	100	100.3	90	110	
Co	59	2	He	101.561	1.120	599114	0.44	100	101.6	90	110	
Ni	60	2	He	99.819	0.362	152648	0.68	100	99.8	90	110	
Cu	63	2	He	99.020	0.795	402709	0.40	100	99.0	90	110	
Zn	66	2	He	100.753	1.565	91316	0.68	100	100.8	90	110	
Al	27	2	He	109.306	1.959	25754	1.38	100	109.3	90	110	
B	11	1	No Gas	456.265	2.490	550183	1.11	500	91.3	90	110	
Al	27	1	No Gas	106.272	2.944	980094	2.23	100	106.3	90	110	
Si	28	1	No Gas	625.981	2.966	2685580	2.59	5000	12.5	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	99.187	0.393	889612	0.35	100	99.2	90	110	
Cd	111	1	No Gas	99.961	0.422	182924	0.62	100	100.0	90	110	
Sr	88	1	No Gas	100.735	2.225	1687565	1.64	100	100.7	90	110	
Mo	95	1	No Gas	96.028	0.839	312931	0.50	100	96.0	90	110	
Sn	118	1	No Gas	100.524	0.323	539191	0.48	100	100.5	90	110	
Sb	121	1	No Gas	91.818	0.396	752639	0.34	100	91.8	90	110	
Ba	137	1	No Gas	100.151	0.781	266392	0.72	100	100.2	90	110	
Tl	205	1	No Gas	102.731	1.078	2074517	1.15	100	102.7	90	110	
Tl	203	1	No Gas	93.440	0.327	801716	0.41	100	93.4	90	110	
Pb	208	1	No Gas	98.276	0.307	2684403	0.21	100	98.3	90	110	
U	238	1	No Gas	101.315	1.577	2887459	1.22	100	101.3	90	110	
Ca	43	2	He	10098.491	3.894	13984	3.98	10000	101.0	90	110	
Sb	121	2	He	101.284	0.739	433710	0.14	100	101.3	90	110	
Ti	47	2	He	98.094	4.109	13797	4.04	100	98.1	90	110	
Cu	63	1	No Gas	90.462	0.351	673152	0.69	100	90.5	90	110	
Se	82	1	No Gas	98.734	3.354	9730	2.86	100	98.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1001216	1.57	1027100	97.48	70	120	
Ge	72	2	He	500830	0.76	500104	100.15	70	120	
Ge	72	1	No Gas	1545420	0.69	1550291	99.69	70	120	
In	115	1	No Gas	1811950	0.60	1849813	97.95	70	120	
Bi	209	1	No Gas	1888482	0.47	1902184	99.28	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	063_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T13:54:57-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.266	8.6	55057	1.1	0.5	
Be	9	1	No Gas	-0.003	-64.5	30	16.7	0.5	
V	51	2	He	0.091	45.8	1592	8.5	2.5	
Cr	52	2	He	0.288	8.1	1477	6.6	2.5	
Fe	56	2	He	3.120	2.4	21975	2.1	100	
Se	78	2	He	0.657	128.4	418	10.0	2	
As	75	2	He	0.053	68.7	129	17.2	2.5	
Ca	44	2	He	11.254	29.8	733	10.4	100	
Na	23	2	He	43.397	5.0	216239	0.5	100	
Mg	24	2	He	1.086	5.9	663	4.6	100	
K	39	2	He	-1.995	-129.7	102011	1.2	100	
Mn	55	2	He	0.012	89.2	503	6.1	2.5	
Co	59	2	He	0.007	28.7	53	21.7	2.5	
Ni	60	2	He	0.082	56.8	253	26.3	2.5	
Cu	63	2	He	-0.190	-7.2	1460	3.1	2	
Zn	66	2	He	1.634	13.8	8693	1.8	2.5	
Al	27	2	He	-0.172	-21.2	400	2.5	5	
B	11	1	No Gas	13.279	16.7	29192	8.9	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.434	-16.6	11602	3.7	5	
Si	28	1	No Gas	3.918	61.6	214230	2.8	10	
Ag	107	1	No Gas	-0.064	-12.0	497	14.3	2.5	
Cd	111	1	No Gas	0.000	3650.3	10	100.0	1	
Sr	88	1	No Gas	0.019	7.8	843	4.2	2.5	
Mo	95	1	No Gas	0.009	93.6	43	58.1	2.5	
Sn	118	1	No Gas	0.043	48.0	1367	9.1	5	
Sb	121	1	No Gas	0.020	80.5	607	18.7	2.5	
Ba	137	1	No Gas	0.000	-3069.0	157	24.2	2.5	
Tl	205	1	No Gas	0.003	69.6	197	20.6	1	
Tl	203	1	No Gas	0.001	246.1	83	27.7	1	
Pb	208	1	No Gas	-0.040	-5.3	910	6.1	2.5	
U	238	1	No Gas	0.004	28.1	150	23.1	2.5	
Ca	43	2	He	3.269	134.7	27	21.7	100	
Sb	121	2	He	0.020	34.8	330	8.0	2.5	
Ti	47	2	He	-0.048	0.0	0	#DIV/0!	2.5	
Cu	63	1	No Gas	-0.252	-11.5	4337	5.2	2.5	
Se	82	1	No Gas	-10.526	-82.0	-1263	-69.1	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	973593	0.68	1027100	94.79	70	120	
Ge	72	2	He	479368	0.89	500104	95.85	70	120	
Ge	72	1	No Gas	1504257	2.25	1550291	97.03	70	120	
In	115	1	No Gas	1788137	1.25	1849813	96.67	70	120	
Bi	209	1	No Gas	1908714	0.63	1902184	100.34	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	098_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T15:12:54-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	105.407	1.862	1066782	0.87	100	105.4	90	110	
Be	9	1	No Gas	105.614	2.016	228982	0.52	100	105.6	90	110	
V	51	2	He	107.608	0.329	352364	0.78	100	107.6	90	110	
Cr	52	2	He	107.040	0.530	394656	0.30	100	107.0	90	110	
Fe	56	2	He	10524.740	0.845	38408329	0.42	10000	105.2	90	110	
Se	78	2	He	108.747	1.605	5927	1.26	100	108.7	90	110	
As	75	2	He	108.582	0.445	60564	0.34	100	108.6	90	110	
Ca	44	2	He	10431.196	0.373	227765	0.85	10000	104.3	90	110	
Na	23	2	He	10627.132	0.954	7543650	0.76	10000	106.3	90	110	
Mg	24	2	He	10637.109	0.753	4193562	0.88	10000	106.4	90	110	
K	39	2	He	10536.278	0.751	5021195	0.65	10000	105.4	90	110	
Mn	55	2	He	106.144	0.355	294981	0.52	100	106.1	90	110	
Co	59	2	He	109.022	1.216	594637	0.77	100	109.0	90	110	
Ni	60	2	He	107.028	0.707	151319	0.23	100	107.0	90	110	
Cu	63	2	He	107.445	0.952	403856	1.04	100	107.4	90	110	
Zn	66	2	He	109.057	0.625	90806	0.68	100	109.1	90	110	
Al	27	2	He	129.426	1.740	28119	1.55	100	129.4	90	110	CCV Main CR1-2 Failed
B	11	1	No Gas	554.603	3.101	605184	1.34	500	110.9	90	110	CCV Main CR1-2 Failed
Al	27	1	No Gas	127.974	1.299	1071983	1.43	100	128.0	90	110	CCV Main CR1-2 Failed
Si	28	1	No Gas	937.867	2.720	3570854	1.46	5000	18.8	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	106.705	1.557	898650	0.76	100	106.7	90	110	
Cd	111	1	No Gas	107.229	2.081	184266	1.56	100	107.2	90	110	
Sr	88	1	No Gas	105.325	1.562	1657025	0.52	100	105.3	90	110	
Mo	95	1	No Gas	104.193	1.020	318860	0.19	100	104.2	90	110	
Sn	118	1	No Gas	106.918	1.097	538497	0.90	100	106.9	90	110	
Sb	121	1	No Gas	102.043	1.522	761634	0.57	100	102.0	90	110	
Ba	137	1	No Gas	108.505	1.018	271025	0.18	100	108.5	90	110	
Tl	205	1	No Gas	110.967	1.906	2135209	0.90	100	111.0	90	110	CCV Main CR1-2 Failed
Tl	203	1	No Gas	100.554	2.030	822074	1.06	100	100.6	90	110	
Pb	208	1	No Gas	106.212	1.023	2764460	0.60	100	106.2	90	110	
U	238	1	No Gas	108.677	2.110	2951313	0.90	100	108.7	90	110	
Ca	43	2	He	10450.948	3.739	13380	3.80	10000	104.5	90	110	
Sb	121	2	He	109.302	0.996	432734	0.67	100	109.3	90	110	
Ti	47	2	He	102.534	3.037	13333	2.68	100	102.5	90	110	
Cu	63	1	No Gas	97.995	0.802	663566	0.60	100	98.0	90	110	
Se	82	1	No Gas	110.253	1.692	9920	1.81	100	110.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	910367	1.78	1027100	88.63	70	120	
Ge	72	2	He	463063	0.50	500104	92.59	70	120	
Ge	72	1	No Gas	1407386	1.12	1550291	90.78	70	120	
In	115	1	No Gas	1701690	1.05	1849813	91.99	70	120	
Bi	209	1	No Gas	1799723	1.23	1902184	94.61	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	099_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T15:15:08-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.053	107.3	49781	1.7	0.5	
Be	9	1	No Gas	0.005	67.8	47	16.4	0.5	
V	51	2	He	0.575	1.2	3060	0.9	2.5	
Cr	52	2	He	0.268	4.3	1327	2.9	2.5	
Fe	56	2	He	3.035	8.9	20526	4.8	100	
Se	78	2	He	0.382	128.4	383	6.7	2	
As	75	2	He	0.168	15.8	184	7.5	2.5	
Ca	44	2	He	5.383	108.3	570	22.4	100	
Na	23	2	He	20.671	6.6	189526	0.7	100	
Mg	24	2	He	0.571	30.7	430	16.3	100	
K	39	2	He	-6.362	-56.8	94704	2.3	100	
Mn	55	2	He	0.010	129.6	473	8.0	2.5	
Co	59	2	He	0.002	136.8	23	65.5	2.5	
Ni	60	2	He	0.045	110.4	190	36.8	2.5	
Cu	63	2	He	-0.213	-12.6	1300	8.1	2	
Zn	66	2	He	1.209	28.1	7919	2.7	2.5	
Al	27	2	He	-0.470	-66.7	317	21.0	5	
B	11	1	No Gas	49.518	7.3	66480	6.2	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.342	-19.5	11735	3.8	5	
Si	28	1	No Gas	1.029	125.4	191906	0.5	10	
Ag	107	1	No Gas	-0.062	-15.9	493	16.9	2.5	
Cd	111	1	No Gas	0.000	1334.1	10	100.0	1	
Sr	88	1	No Gas	0.027	20.1	933	8.9	2.5	
Mo	95	1	No Gas	0.010	48.5	47	32.7	2.5	
Sn	118	1	No Gas	0.072	55.5	1453	14.0	5	
Sb	121	1	No Gas	0.283	2.5	2560	4.1	2.5	
Ba	137	1	No Gas	-0.016	-112.5	110	41.7	2.5	
Tl	205	1	No Gas	0.003	124.1	183	35.5	1	
Tl	203	1	No Gas	0.004	42.1	107	14.3	1	
Pb	208	1	No Gas	-0.035	-13.3	1003	12.0	2.5	
U	238	1	No Gas	0.003	72.0	123	55.2	2.5	
Ca	43	2	He	9.621	189.4	33	69.3	100	
Sb	121	2	He	0.245	3.1	1183	2.6	2.5	
Ti	47	2	He	-0.022	-207.2	3	173.2	2.5	
Cu	63	1	No Gas	-0.418	-8.4	2970	7.6	2.5	
Se	82	1	No Gas	-9.421	-57.8	-1075	-45.4	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	916945	0.55	1027100	89.28	70	120	
Ge	72	2	He	454397	0.53	500104	90.86	70	120	
Ge	72	1	No Gas	1421136	2.04	1550291	91.67	70	120	
In	115	1	No Gas	1710109	0.31	1849813	92.45	70	120	
Bi	209	1	No Gas	1820996	0.05	1902184	95.73	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	110_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T15:43:43-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	101.618	3.788	1013951	1.37	100	101.6	90	110	
Be	9	1	No Gas	101.214	3.205	216002	0.42	100	101.2	90	110	
V	51	2	He	100.362	0.621	330052	0.27	100	100.4	90	110	
Cr	52	2	He	100.002	0.417	370241	0.71	100	100.0	90	110	
Fe	56	2	He	10056.462	0.786	36849940	0.71	10000	100.6	90	110	
Se	78	2	He	101.777	1.673	5594	1.32	100	101.8	90	110	
As	75	2	He	99.459	0.723	55710	0.85	100	99.5	90	110	
Ca	44	2	He	9941.947	0.865	217983	0.78	10000	99.4	90	110	
Na	23	2	He	10124.033	0.550	7224330	0.29	10000	101.2	90	110	
Mg	24	2	He	10153.318	0.393	4019114	0.24	10000	101.5	90	110	
K	39	2	He	10121.930	1.457	4847221	1.15	10000	101.2	90	110	
Mn	55	2	He	99.917	0.826	278837	1.10	100	99.9	90	110	
Co	59	2	He	102.619	0.414	562005	0.06	100	102.6	90	110	
Ni	60	2	He	101.797	0.497	144517	0.36	100	101.8	90	110	
Cu	63	2	He	102.031	0.095	385174	0.45	100	102.0	90	110	
Zn	66	2	He	100.572	0.731	84639	0.60	100	100.6	90	110	
Al	27	2	He	99.132	1.716	21724	1.34	100	99.1	90	110	
B	11	1	No Gas	463.711	5.540	499981	1.97	500	92.7	90	110	
Al	27	1	No Gas	90.314	0.254	772228	0.67	100	90.3	90	110	
Si	28	1	No Gas	483.555	1.440	1960644	0.42	5000	9.7	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	99.108	0.819	848613	0.29	100	99.1	90	110	
Cd	111	1	No Gas	99.306	1.029	173493	1.31	100	99.3	90	110	
Sr	88	1	No Gas	101.011	1.374	1615544	0.75	100	101.0	90	110	
Mo	95	1	No Gas	98.747	0.574	307223	1.13	100	98.7	90	110	
Sn	118	1	No Gas	98.485	0.653	504336	0.42	100	98.5	90	110	
Sb	121	1	No Gas	93.536	0.906	708711	0.18	100	93.5	90	110	
Ba	137	1	No Gas	99.468	0.323	252594	0.91	100	99.5	90	110	
Tl	205	1	No Gas	98.771	1.416	1947179	2.46	100	98.8	90	110	
Tl	203	1	No Gas	89.649	0.677	750805	0.54	100	89.6	90	110	CCV Main CR1-2 Failed
Pb	208	1	No Gas	96.827	1.212	2581770	1.62	100	96.8	90	110	
U	238	1	No Gas	99.682	0.910	2773120	0.80	100	99.7	90	110	
Ca	43	2	He	9867.393	1.981	12686	2.33	10000	98.7	90	110	
Sb	121	2	He	102.238	0.470	406438	0.51	100	102.2	90	110	
Ti	47	2	He	97.235	4.384	12696	4.13	100	97.2	90	110	
Cu	63	1	No Gas	91.862	1.070	631747	0.25	100	91.9	90	110	
Se	82	1	No Gas	103.562	11.678	9440	11.09	100	103.6	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	896588	3.69	1027100	87.29	70	120	
Ge	72	2	He	464948	0.36	500104	92.97	70	120	
Ge	72	1	No Gas	1428552	0.90	1550291	92.15	70	120	
In	115	1	No Gas	1729885	1.05	1849813	93.52	70	120	
Bi	209	1	No Gas	1843450	1.22	1902184	96.91	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	111_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T15:45:45-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.035	-114.5	49154	1.5	0.5	
Be	9	1	No Gas	0.003	347.5	42	48.5	0.5	
V	51	2	He	0.196	14.7	1867	5.3	2.5	
Cr	52	2	He	0.268	17.4	1340	13.2	2.5	
Fe	56	2	He	3.044	5.2	20779	1.7	100	
Se	78	2	He	0.183	129.3	377	3.0	2	
As	75	2	He	0.055	69.7	124	17.8	2.5	
Ca	44	2	He	3.100	80.4	527	10.8	100	
Na	23	2	He	-6.567	-34.5	172863	0.4	100	
Mg	24	2	He	0.585	5.7	440	3.9	100	
K	39	2	He	-12.031	-17.2	93103	0.8	100	
Mn	55	2	He	-0.023	-95.9	387	15.8	2.5	
Co	59	2	He	0.005	37.2	40	25.0	2.5	
Ni	60	2	He	0.056	60.8	207	23.9	2.5	
Cu	63	2	He	-0.295	-12.0	1010	13.9	2	
Zn	66	2	He	1.520	30.1	8243	4.1	2.5	
Al	27	2	He	-0.198	-330.4	377	35.9	5	
B	11	1	No Gas	19.168	14.0	33968	7.8	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.361	-11.7	11765	2.8	5	
Si	28	1	No Gas	-5.253	-24.8	171690	1.6	10	
Ag	107	1	No Gas	-0.073	-11.7	407	18.1	2.5	
Cd	111	1	No Gas	-0.003	-93.4	3	173.2	1	
Sr	88	1	No Gas	0.007	81.9	637	15.1	2.5	
Mo	95	1	No Gas	0.014	90.7	60	66.7	2.5	
Sn	118	1	No Gas	0.123	10.8	1757	3.7	5	
Sb	121	1	No Gas	0.101	33.0	1203	19.8	2.5	
Ba	137	1	No Gas	-0.016	-60.9	113	22.2	2.5	
Tl	205	1	No Gas	0.006	49.0	247	20.8	1	
Tl	203	1	No Gas	0.002	67.1	90	11.1	1	
Pb	208	1	No Gas	-0.038	-23.4	947	23.6	2.5	
U	238	1	No Gas	0.004	64.4	133	51.1	2.5	
Ca	43	2	He	11.973	136.1	37	56.8	100	
Sb	121	2	He	0.090	10.4	590	5.9	2.5	
Ti	47	2	He	0.004	2312.4	7	173.2	2.5	
Cu	63	1	No Gas	-0.486	-8.2	2547	9.6	2.5	
Se	82	1	No Gas	-3.506	-405.2	-544	-245.8	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	921190	0.88	1027100	89.69	70	120	
Ge	72	2	He	459368	1.07	500104	91.85	70	120	
Ge	72	1	No Gas	1443469	1.51	1550291	93.11	70	120	
In	115	1	No Gas	1756862	0.28	1849813	94.98	70	120	
Bi	209	1	No Gas	1886372	1.77	1902184	99.17	70	120	

Sample Report

Sample Table

Sample Name	HS22060855-03SD
Data File Name	113SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T15:50:26-05:00
Sample Type	Sample
Dilution	5
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	-0.112	-0.559	-71.93	48971	0.00	2000	
Be	9	1	No Gas	-0.009	-0.044	-53.70	17	-0.05	2000	
V	51	2	He	0.342	1.708	3.99	2430	0.01	2000	
Cr	52	2	He	0.303	1.514	7.64	1527	0.02	2000	
Fe	56	2	He	109.622	548.110	0.53	422772	0.03	200000	
Se	78	2	He	0.034	0.169	1342.90	384	0.01	2000	
As	75	2	He	0.136	0.678	51.81	176	0.08	2000	
Ca	44	2	He	2231.055	11155.274	2.21	50627	4.41	200000	
Na	23	2	He	2934.286	14671.431	1.71	2282357	0.13	200000	
Mg	24	2	He	251.540	1257.698	0.68	102518	0.25	200000	
K	39	2	He	406.180	2030.899	1.62	298371	0.14	200000	
Mn	55	2	He	43.670	218.348	0.39	125475	0.03	2000	
Co	59	2	He	0.097	0.486	9.96	560	0.02	2000	
Ni	60	2	He	0.023	0.113	164.24	167	0.01	2000	
Cu	63	2	He	-0.214	-1.068	-2.05	1363	-0.02	2000	
Zn	66	2	He	0.425	2.127	84.31	7706	0.01	2000	
Al	27	2	He	20.930	104.648	6.48	5058	0.41	2000	
B	11	1	No Gas	14.588	72.941	4.00	29377	0.05	2000	
Al	27	1	No Gas	16.848	84.239	9.22	161912	0.01	2000	
Si	28	1	No Gas	529.100	2645.498	2.17	2207807	0.02	2000	
Ag	107	1	No Gas	-0.081	-0.406	-4.20	347	-0.02	2000	
Cd	111	1	No Gas	0.011	0.056	85.32	30	0.04	2000	
Sr	88	1	No Gas	7.854	39.272	1.39	130521	0.01	2000	
Mo	95	1	No Gas	0.102	0.509	35.60	343	0.03	2000	
Sn	118	1	No Gas	-0.012	-0.062	-155.37	1077	0.00	2000	
Sb	121	1	No Gas	0.034	0.172	51.07	717	0.00	2000	
Ba	137	1	No Gas	4.417	22.087	3.83	11762	0.04	2000	
Tl	205	1	No Gas	0.001	0.004	115.13	157	0.00	2000	
Tl	203	1	No Gas	-0.004	-0.022	-76.82	37	-0.01	2000	
Pb	208	1	No Gas	-0.031	-0.153	-12.44	1170	0.00	2000	
U	238	1	No Gas	0.006	0.030	44.25	203	0.00	2000	
Ca	43	2	He	2321.114	11605.568	5.05	3084	75.27	200000	
Sb	121	2	He	0.046	0.230	26.37	433	0.01	2000	
Ti	47	2	He	0.226	1.128	82.79	37	0.62	2000	
Cu	63	1	No Gas	-0.435	-2.173	-4.13	2980	-0.01	2000	
Zn	66	1	No Gas	0.374	1.869	51.03	17809	0.00	2000	
Se	82	1	No Gas	2.623	13.114	188.89	39	6.80	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	932204	0.90	1027100	90.76	70	120	
Ge	72	2	He	477718	0.73	500104	95.52	70	120	
Ge	72	1	No Gas	1482471	0.56	1550291	95.63	70	120	
In	115	1	No Gas	1790552	0.45	1849813	96.80	70	120	

Sample Report

Bi	209	1	No Gas	1926700	0.40	1902184	101.29	70	120	

Sample Report

Sample Table

Sample Name	HS22060855-03MSD
Data File Name	119SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:03:09-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.108	0.108	32.51	53034	0.00	2000	
Be	9	1	No Gas	55.393	55.393	1.13	127541	0.04	2000	
V	51	2	He	55.137	55.137	1.65	194308	0.03	2000	
Cr	52	2	He	55.528	55.528	1.58	219792	0.03	2000	
Fe	56	2	He	6079.181	6079.181	0.62	23803222	0.03	200000	
Se	78	2	He	56.052	56.052	2.81	3470	1.62	2000	
As	75	2	He	56.853	56.853	0.38	34065	0.17	2000	
Ca	44	2	He	17060.891	17060.891	0.54	399283	4.27	200000	
Na	23	2	He	20636.134	20636.134	0.58	15532941	0.13	200000	
Mg	24	2	He	6947.998	6947.998	1.60	2938217	0.24	200000	
K	39	2	He	8073.384	8073.384	0.70	4152176	0.19	200000	
Mn	55	2	He	284.003	284.003	1.41	845792	0.03	2000	
Co	59	2	He	57.166	57.166	0.89	334475	0.02	2000	
Ni	60	2	He	56.241	56.241	0.36	85363	0.07	2000	
Cu	63	2	He	56.301	56.301	0.17	228090	0.02	2000	
Zn	66	2	He	61.299	61.299	0.33	58108	0.11	2000	
Al	27	2	He	99.004	99.004	1.07	23180	0.43	2000	
B	11	1	No Gas	49.026	49.026	1.36	69507	0.07	2000	
Al	27	1	No Gas	89.829	89.829	2.22	840927	0.01	2000	
Si	28	1	No Gas	2573.866	2573.866	0.50	10529219	0.02	2000	>LDR
Ag	107	1	No Gas	45.765	45.765	0.83	423280	0.01	2000	
Cd	111	1	No Gas	55.288	55.288	0.92	104189	0.05	2000	
Sr	88	1	No Gas	41.866	41.866	1.04	722595	0.01	2000	
Mo	95	1	No Gas	52.972	52.972	1.08	177766	0.03	2000	
Sn	118	1	No Gas	0.088	0.088	16.24	1677	0.01	2000	
Sb	121	1	No Gas	50.369	50.369	1.20	417984	0.01	2000	
Ba	137	1	No Gas	81.825	81.825	1.04	224156	0.04	2000	
Tl	205	1	No Gas	50.152	50.152	0.55	1074483	0.00	2000	
Tl	203	1	No Gas	48.779	48.779	0.40	444046	0.01	2000	
Pb	208	1	No Gas	50.920	50.920	0.91	1476560	0.00	2000	
U	238	1	No Gas	0.037	0.037	5.73	1160	0.00	2000	
Ca	43	2	He	17302.486	17302.486	0.47	23747	72.86	200000	
Sb	121	2	He	56.218	56.218	0.99	238876	0.02	2000	
Ti	47	2	He	52.024	52.024	3.95	7262	0.72	2000	
Cu	63	1	No Gas	49.582	49.582	1.28	376218	0.01	2000	
Zn	66	1	No Gas	57.850	57.850	1.15	131303	0.04	2000	
Se	82	1	No Gas	56.720	56.720	3.70	5560	1.02	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	966474	0.59	1027100	94.10	70	120	
Ge	72	2	He	496739	0.89	500104	99.33	70	120	
Ge	72	1	No Gas	1563738	0.66	1550291	100.87	70	120	
In	115	1	No Gas	1865904	0.60	1849813	100.87	70	120	

Sample Report

Bi	209	1	No Gas	2003469	0.36	1902184	105.32	70	120	

Sample Report

Sample Table

Sample Name	MBLK-180802
Data File Name	121SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:07:19-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	-0.147	-0.147	-14.53	46354	0.00	2000	
Be	9	1	No Gas	-0.001	-0.001	-620.85	32	0.00	2000	
V	51	2	He	0.559	0.559	4.92	2977	0.02	2000	
Cr	52	2	He	0.311	0.311	12.55	1467	0.02	2000	
Fe	56	2	He	1.610	1.610	1.86	15272	0.01	200000	
Se	78	2	He	-0.604	-0.604	-95.06	330	-0.18	2000	
As	75	2	He	0.095	0.095	18.99	143	0.07	2000	
Ca	44	2	He	13.696	13.696	2.59	740	1.85	200000	
Na	23	2	He	-20.028	-20.028	-17.31	160248	-0.01	200000	
Mg	24	2	He	18.257	18.257	6.13	7199	0.25	200000	
K	39	2	He	-13.929	-13.929	-22.08	90331	-0.02	200000	
Mn	55	2	He	0.001	0.001	3992.24	443	0.00	2000	
Co	59	2	He	0.007	0.007	94.62	50	0.01	2000	
Ni	60	2	He	-0.019	-0.019	-105.81	100	-0.02	2000	
Cu	63	2	He	-0.152	-0.152	-23.03	1507	-0.01	2000	
Zn	66	2	He	1.053	1.053	5.01	7726	0.01	2000	
Al	27	2	He	16.443	16.443	3.50	3831	0.43	2000	
B	11	1	No Gas	1.229	1.229	24.76	14082	0.01	2000	
Al	27	1	No Gas	14.965	14.965	2.12	137995	0.01	2000	
Si	28	1	No Gas	27.878	27.878	4.04	286829	0.01	2000	
Ag	107	1	No Gas	-0.084	-0.084	-10.40	307	-0.03	2000	
Cd	111	1	No Gas	-0.002	-0.002	-215.26	7	-0.02	2000	
Sr	88	1	No Gas	0.083	0.083	15.16	1840	0.00	2000	
Mo	95	1	No Gas	0.007	0.007	98.21	37	0.02	2000	
Sn	118	1	No Gas	0.013	0.013	228.52	1167	0.00	2000	
Sb	121	1	No Gas	0.034	0.034	21.33	680	0.01	2000	
Ba	137	1	No Gas	0.052	0.052	61.67	283	0.02	2000	
Tl	205	1	No Gas	-0.004	-0.004	-42.37	60	-0.01	2000	
Tl	203	1	No Gas	-0.004	-0.004	-45.00	37	-0.01	2000	
Pb	208	1	No Gas	-0.038	-0.038	-8.47	930	0.00	2000	
U	238	1	No Gas	-0.001	-0.001	-25.89	7	-0.01	2000	
Ca	43	2	He	15.343	15.343	53.60	40	38.36	200000	
Sb	121	2	He	0.032	0.032	32.99	353	0.01	2000	
Ti	47	2	He	0.111	0.111	124.62	20	0.56	2000	
Cu	63	1	No Gas	-0.416	-0.416	-4.41	2954	-0.01	2000	
Zn	66	1	No Gas	0.637	0.637	14.54	17358	0.00	2000	
Se	82	1	No Gas	1.395	1.395	685.36	-83	-1.68	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	888746	1.27	1027100	86.53	70	120	
Ge	72	2	He	449926	0.66	500104	89.97	70	120	
Ge	72	1	No Gas	1406406	1.47	1550291	90.72	70	120	
In	115	1	No Gas	1726352	0.14	1849813	93.33	70	120	

Sample Report

Bi	209	1	No Gas	1843677	1.16	1902184	96.92	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	122_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:09:24-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	99.594	1.636	982166	2.29	100	99.6	90	110	
Be	9	1	No Gas	100.128	0.938	210956	0.59	100	100.1	90	110	
V	51	2	He	101.261	0.828	326028	0.57	100	101.3	90	110	
Cr	52	2	He	101.088	0.504	366430	0.87	100	101.1	90	110	
Fe	56	2	He	10147.117	0.902	36403320	0.45	10000	101.5	90	110	
Se	78	2	He	103.488	3.002	5563	3.07	100	103.5	90	110	
As	75	2	He	99.566	1.040	54601	0.64	100	99.6	90	110	
Ca	44	2	He	9992.191	0.596	214502	0.88	10000	99.9	90	110	
Na	23	2	He	10095.065	0.278	7053484	0.43	10000	101.0	90	110	
Mg	24	2	He	10203.056	1.276	3954278	1.23	10000	102.0	90	110	
K	39	2	He	10103.490	1.064	4737432	1.06	10000	101.0	90	110	
Mn	55	2	He	101.262	1.300	276670	1.41	100	101.3	90	110	
Co	59	2	He	103.065	1.007	552630	0.57	100	103.1	90	110	
Ni	60	2	He	102.278	0.182	142163	0.63	100	102.3	90	110	
Cu	63	2	He	101.272	1.055	374320	0.94	100	101.3	90	110	
Zn	66	2	He	102.433	0.763	84271	0.27	100	102.4	90	110	
Al	27	2	He	98.996	2.890	21240	2.38	100	99.0	90	110	
B	11	1	No Gas	452.436	3.220	482078	2.04	500	90.5	90	110	
Al	27	1	No Gas	88.834	2.138	754629	0.34	100	88.8	90	110	CCV Main CR1-2 Failed
Si	28	1	No Gas	482.860	3.615	1944612	1.59	5000	9.7	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	98.801	1.503	837975	0.59	100	98.8	90	110	
Cd	111	1	No Gas	99.451	1.061	172098	0.17	100	99.5	90	110	
Sr	88	1	No Gas	100.291	1.526	1589142	2.27	100	100.3	90	110	
Mo	95	1	No Gas	98.479	0.745	303499	1.05	100	98.5	90	110	
Sn	118	1	No Gas	99.060	1.380	502471	0.55	100	99.1	90	110	
Sb	121	1	No Gas	94.053	1.585	707837	0.39	100	94.1	90	110	
Ba	137	1	No Gas	100.150	1.377	251920	1.28	100	100.1	90	110	
Tl	205	1	No Gas	100.838	2.701	1971004	2.27	100	100.8	90	110	
Tl	203	1	No Gas	90.865	2.598	754543	1.25	100	90.9	90	110	
Pb	208	1	No Gas	97.517	1.563	2578311	0.83	100	97.5	90	110	
U	238	1	No Gas	100.193	1.895	2763925	0.60	100	100.2	90	110	
Ca	43	2	He	9969.878	1.712	12549	2.06	10000	99.7	90	110	
Sb	121	2	He	102.325	0.427	398275	0.80	100	102.3	90	110	
Ti	47	2	He	97.846	0.721	12509	0.60	100	97.8	90	110	
Cu	63	1	No Gas	90.787	1.721	620223	0.53	100	90.8	90	110	
Se	82	1	No Gas	101.149	5.155	9154	3.48	100	101.1	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	884534	1.52	1027100	86.12	70	120	
Ge	72	2	He	455219	0.45	500104	91.02	70	120	
Ge	72	1	No Gas	1419134	1.79	1550291	91.54	70	120	
In	115	1	No Gas	1713607	1.22	1849813	92.64	70	120	
Bi	209	1	No Gas	1828244	1.76	1902184	96.11	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	123_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:11:25-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.130	-71.1	47128	0.6	0.5	
Be	9	1	No Gas	-0.001	-876.6	33	43.3	0.5	
V	51	2	He	0.288	16.6	2146	5.7	2.5	
Cr	52	2	He	0.228	13.1	1187	10.6	2.5	
Fe	56	2	He	1.199	12.5	13984	2.7	100	
Se	78	2	He	-0.630	-57.0	333	5.1	2	
As	75	2	He	0.078	55.2	136	16.7	2.5	
Ca	44	2	He	-0.602	-453.7	443	14.7	100	
Na	23	2	He	-33.456	-2.2	153103	1.1	100	
Mg	24	2	He	0.416	30.2	370	11.8	100	
K	39	2	He	-13.008	-18.9	91878	0.8	100	
Mn	55	2	He	-0.061	-48.8	280	27.9	2.5	
Co	59	2	He	0.003	56.6	30	33.3	2.5	
Ni	60	2	He	-0.005	-469.4	120	28.9	2.5	
Cu	63	2	He	-0.307	-6.2	957	8.7	2	
Zn	66	2	He	0.538	101.0	7432	4.8	2.5	
Al	27	2	He	-0.662	-18.9	277	8.3	5	
B	11	1	No Gas	17.712	15.9	31671	9.0	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.610	-4.7	9527	2.5	5	
Si	28	1	No Gas	-6.410	-9.9	165304	0.2	10	
Ag	107	1	No Gas	-0.077	-15.2	373	25.3	2.5	
Cd	111	1	No Gas	-0.003	-97.8	3	173.2	1	
Sr	88	1	No Gas	-0.002	-228.2	473	17.1	2.5	
Mo	95	1	No Gas	0.009	117.2	43	74.2	2.5	
Sn	118	1	No Gas	0.073	9.0	1477	3.7	5	
Sb	121	1	No Gas	0.072	2.6	973	2.1	2.5	
Ba	137	1	No Gas	-0.033	-19.4	70	24.7	2.5	
Tl	205	1	No Gas	0.005	65.2	240	28.9	1	
Tl	203	1	No Gas	-0.001	-223.6	60	44.1	1	
Pb	208	1	No Gas	-0.041	-1.8	847	2.7	2.5	
U	238	1	No Gas	0.003	38.2	120	28.9	2.5	
Ca	43	2	He	-3.721	-325.5	17	91.7	100	
Sb	121	2	He	0.032	28.0	360	8.3	2.5	
Ti	47	2	He	-0.022	-202.5	3	173.2	2.5	
Cu	63	1	No Gas	-0.523	-2.9	2267	4.9	2.5	
Se	82	1	No Gas	-0.614	-90.6	-265	-19.7	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	900433	1.28	1027100	87.67	70	120	
Ge	72	2	He	455561	1.47	500104	91.09	70	120	
Ge	72	1	No Gas	1425156	1.39	1550291	91.93	70	120	
In	115	1	No Gas	1729107	1.69	1849813	93.47	70	120	
Bi	209	1	No Gas	1860370	0.38	1902184	97.80	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	134_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:34:07-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	103.823	2.248	989436	0.73	100	103.8	90	110	
Be	9	1	No Gas	105.466	2.109	215182	1.08	100	105.5	90	110	
V	51	2	He	101.473	0.690	331791	0.10	100	101.5	90	110	
Cr	52	2	He	102.944	0.144	378955	0.48	100	102.9	90	110	
Fe	56	2	He	10226.747	0.394	37260667	0.22	10000	102.3	90	110	
Se	78	2	He	101.591	1.604	5552	1.17	100	101.6	90	110	
As	75	2	He	104.701	1.048	58309	1.31	100	104.7	90	110	
Ca	44	2	He	9899.090	1.146	215812	1.09	10000	99.0	90	110	
Na	23	2	He	10166.464	0.995	7212485	0.46	10000	101.7	90	110	
Mg	24	2	He	10231.501	1.252	4026899	0.69	10000	102.3	90	110	
K	39	2	He	10041.622	0.272	4782405	0.77	10000	100.4	90	110	
Mn	55	2	He	101.398	0.214	281352	0.37	100	101.4	90	110	
Co	59	2	He	104.191	0.686	567370	0.44	100	104.2	90	110	
Ni	60	2	He	102.495	1.088	144679	0.95	100	102.5	90	110	
Cu	63	2	He	102.671	0.441	385375	0.61	100	102.7	90	110	
Zn	66	2	He	103.779	0.979	86619	1.48	100	103.8	90	110	
Al	27	2	He	112.163	2.132	24385	2.02	100	112.2	90	110	CCV Main CR1-2 Failed
B	11	1	No Gas	488.065	3.293	502622	0.97	500	97.6	90	110	
Al	27	1	No Gas	109.018	2.435	933464	1.43	100	109.0	90	110	
Si	28	1	No Gas	536.229	3.723	2163668	2.36	5000	10.7	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	102.109	1.115	864730	0.57	100	102.1	90	110	
Cd	111	1	No Gas	103.842	1.492	179421	0.07	100	103.8	90	110	
Sr	88	1	No Gas	100.603	2.145	1591360	1.04	100	100.6	90	110	
Mo	95	1	No Gas	97.227	1.669	299157	0.32	100	97.2	90	110	
Sn	118	1	No Gas	102.393	0.694	518589	0.83	100	102.4	90	110	
Sb	121	1	No Gas	96.599	0.091	735479	1.07	100	96.6	90	110	
Ba	137	1	No Gas	104.165	1.848	261597	0.63	100	104.2	90	110	
Tl	205	1	No Gas	106.364	2.442	2099484	1.46	100	106.4	90	110	
Tl	203	1	No Gas	95.614	1.718	801923	0.78	100	95.6	90	110	
Pb	208	1	No Gas	100.315	2.229	2678296	0.93	100	100.3	90	110	
U	238	1	No Gas	102.416	0.496	2853592	0.93	100	102.4	90	110	
Ca	43	2	He	9785.117	1.666	12509	2.25	10000	97.9	90	110	
Sb	121	2	He	105.026	0.350	415147	0.81	100	105.0	90	110	
Ti	47	2	He	96.667	4.486	12549	3.98	100	96.7	90	110	
Cu	63	1	No Gas	91.598	1.297	632974	0.29	100	91.6	90	110	
Se	82	1	No Gas	99.225	2.155	9086	3.12	100	99.2	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	856758	2.35	1027100	83.42	70	120	
Ge	72	2	He	462307	0.59	500104	92.44	70	120	
Ge	72	1	No Gas	1435445	1.03	1550291	92.59	70	120	
In	115	1	No Gas	1711081	1.52	1849813	92.50	70	120	
Bi	209	1	No Gas	1846274	1.35	1902184	97.06	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	135_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:36:09-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.156	-36.0	46244	1.0	0.5	
Be	9	1	No Gas	-0.001	-607.2	32	50.8	0.5	
V	51	2	He	0.358	16.8	2345	7.7	2.5	
Cr	52	2	He	0.199	12.1	1067	8.0	2.5	
Fe	56	2	He	1.258	11.8	14054	4.2	100	
Se	78	2	He	-0.360	-178.7	343	9.1	2	
As	75	2	He	0.031	60.9	109	9.4	2.5	
Ca	44	2	He	-3.810	-67.6	370	14.3	100	
Na	23	2	He	-35.855	-3.1	149918	0.5	100	
Mg	24	2	He	0.311	45.7	327	16.9	100	
K	39	2	He	-18.927	-4.3	88251	0.2	100	
Mn	55	2	He	-0.045	-65.8	320	24.8	2.5	
Co	59	2	He	0.007	70.3	50	52.9	2.5	
Ni	60	2	He	-0.007	-274.8	117	21.6	2.5	
Cu	63	2	He	-0.267	-7.8	1093	7.1	2	
Zn	66	2	He	0.647	44.3	7439	2.5	2.5	
Al	27	2	He	-0.553	-57.7	297	21.9	5	
B	11	1	No Gas	25.510	15.7	39344	9.8	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.554	-6.5	9760	2.9	5	
Si	28	1	No Gas	8.094	23.4	213137	3.4	10	
Ag	107	1	No Gas	-0.082	-6.3	320	12.5	2.5	
Cd	111	1	No Gas	0.001	1159.1	10	100.0	1	
Sr	88	1	No Gas	0.000	-14383.3	500	18.0	2.5	
Mo	95	1	No Gas	0.009	73.1	43	48.0	2.5	
Sn	118	1	No Gas	0.024	61.3	1200	6.6	5	
Sb	121	1	No Gas	0.048	3.7	773	1.5	2.5	
Ba	137	1	No Gas	-0.016	-153.8	110	56.8	2.5	
Tl	205	1	No Gas	0.006	20.7	257	11.9	1	
Tl	203	1	No Gas	0.000	-3435.0	70	42.9	1	
Pb	208	1	No Gas	-0.033	-11.6	1060	10.9	2.5	
U	238	1	No Gas	0.003	70.8	100	50.0	2.5	
Ca	43	2	He	-0.783	-2064.5	20	100.0	100	
Sb	121	2	He	0.038	25.1	377	9.3	2.5	
Ti	47	2	He	0.031	251.4	10	100.0	2.5	
Cu	63	1	No Gas	-0.507	-7.1	2314	9.9	2.5	
Se	82	1	No Gas	-8.654	-96.3	-989	-76.7	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	888166	1.70	1027100	86.47	70	120	
Ge	72	2	He	450890	0.47	500104	90.16	70	120	
Ge	72	1	No Gas	1391140	0.43	1550291	89.73	70	120	
In	115	1	No Gas	1695817	1.25	1849813	91.68	70	120	
Bi	209	1	No Gas	1839640	1.84	1902184	96.71	70	120	

Sample Report

Sample Table

Sample Name	LCS-180802
Data File Name	139SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:44:59-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	-0.150	-0.150	-41.26	49993	0.00	2000	
Be	9	1	No Gas	54.062	54.062	2.82	123463	0.04	2000	
V	51	2	He	53.971	53.971	0.48	186096	0.03	2000	
Cr	52	2	He	54.489	54.489	0.32	211003	0.03	2000	
Fe	56	2	He	5398.285	5398.285	0.46	20677694	0.03	200000	
Se	78	2	He	55.696	55.696	1.26	3375	1.65	2000	
As	75	2	He	54.936	54.936	1.15	32202	0.17	2000	
Ca	44	2	He	5302.312	5302.312	0.38	121724	4.36	200000	
Na	23	2	He	5477.519	5477.519	1.05	4171015	0.13	200000	
Mg	24	2	He	5641.146	5641.146	1.59	2333698	0.24	200000	
K	39	2	He	5540.310	5540.310	1.21	2819997	0.20	200000	
Mn	55	2	He	53.860	53.860	0.74	157297	0.03	2000	
Co	59	2	He	55.861	55.861	0.88	319738	0.02	2000	
Ni	60	2	He	55.044	55.044	0.86	81728	0.07	2000	
Cu	63	2	He	55.875	55.875	1.31	221440	0.03	2000	
Zn	66	2	He	58.114	58.114	1.42	54279	0.11	2000	
Al	27	2	He	60.271	60.271	1.85	13977	0.43	2000	
B	11	1	No Gas	1.479	1.479	14.45	15472	0.01	2000	
Al	27	1	No Gas	55.719	55.719	3.17	513740	0.01	2000	
Si	28	1	No Gas	44.802	44.802	6.29	376586	0.01	2000	
Ag	107	1	No Gas	40.271	40.271	1.48	372259	0.01	2000	
Cd	111	1	No Gas	54.284	54.284	2.14	102200	0.05	2000	
Sr	88	1	No Gas	0.066	0.066	10.43	1680	0.00	2000	
Mo	95	1	No Gas	50.951	50.951	0.41	170838	0.03	2000	
Sn	118	1	No Gas	0.068	0.068	9.75	1563	0.00	2000	
Sb	121	1	No Gas	50.532	50.532	3.17	408278	0.01	2000	
Ba	137	1	No Gas	53.843	53.843	0.58	147426	0.04	2000	
Tl	205	1	No Gas	48.726	48.726	1.96	1055468	0.00	2000	
Tl	203	1	No Gas	47.668	47.668	2.34	438708	0.01	2000	
Pb	208	1	No Gas	49.315	49.315	1.90	1445913	0.00	2000	
U	238	1	No Gas	0.001	0.001	93.13	57	0.00	2000	
Ca	43	2	He	5216.255	5216.255	7.48	7019	74.32	200000	
Sb	121	2	He	55.086	55.086	0.22	228976	0.02	2000	
Ti	47	2	He	52.436	52.436	0.93	7159	0.73	2000	
Cu	63	1	No Gas	49.870	49.870	2.73	368402	0.01	2000	
Zn	66	1	No Gas	55.928	55.928	2.23	124201	0.05	2000	
Se	82	1	No Gas	54.536	54.536	12.32	5193	1.05	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	958918	2.07	1027100	93.36	70	120	
Ge	72	2	He	485905	0.35	500104	97.16	70	120	
Ge	72	1	No Gas	1523156	2.21	1550291	98.25	70	120	
In	115	1	No Gas	1864242	0.70	1849813	100.78	70	120	

Sample Report

Bi	209	1	No Gas	2025963	1.51	1902184	106.51	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	146_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T16:59:44-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	102.834	1.977	1023064	1.97	100	102.8	90	110	
Be	9	1	No Gas	103.991	1.140	221381	0.65	100	104.0	90	110	
V	51	2	He	102.582	0.411	338826	0.42	100	102.6	90	110	
Cr	52	2	He	103.056	0.187	383227	0.22	100	103.1	90	110	
Fe	56	2	He	10280.111	0.331	37836659	0.21	10000	102.8	90	110	
Se	78	2	He	105.111	1.500	5791	1.28	100	105.1	90	110	
As	75	2	He	106.157	0.918	59718	0.69	100	106.2	90	110	
Ca	44	2	He	10129.744	0.333	223079	0.16	10000	101.3	90	110	
Na	23	2	He	10238.752	0.653	7336628	0.52	10000	102.4	90	110	
Mg	24	2	He	10282.480	0.841	4088303	0.68	10000	102.8	90	110	
K	39	2	He	10186.359	0.853	4899189	0.68	10000	101.9	90	110	
Mn	55	2	He	102.583	0.464	287534	0.47	100	102.6	90	110	
Co	59	2	He	104.632	0.247	575578	0.08	100	104.6	90	110	
Ni	60	2	He	103.793	0.541	148004	0.50	100	103.8	90	110	
Cu	63	2	He	103.677	0.920	393097	1.18	100	103.7	90	110	
Zn	66	2	He	103.684	2.024	87424	1.93	100	103.7	90	110	
Al	27	2	He	110.562	0.872	24288	0.99	100	110.6	90	110	CCV Main CR1-2 Failed
B	11	1	No Gas	474.506	2.186	510326	1.83	500	94.9	90	110	
Al	27	1	No Gas	110.622	3.292	950367	1.85	100	110.6	90	110	CCV Main CR1-2 Failed
Si	28	1	No Gas	534.098	2.227	2163979	1.07	5000	10.7	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	100.466	2.738	870874	1.11	100	100.5	90	110	
Cd	111	1	No Gas	102.125	2.587	180621	0.83	100	102.1	90	110	
Sr	88	1	No Gas	100.578	1.622	1628810	0.70	100	100.6	90	110	
Mo	95	1	No Gas	96.588	3.388	304183	1.62	100	96.6	90	110	
Sn	118	1	No Gas	100.667	2.299	521880	0.52	100	100.7	90	110	
Sb	121	1	No Gas	97.659	1.137	746231	0.40	100	97.7	90	110	
Ba	137	1	No Gas	103.322	2.601	265613	0.86	100	103.3	90	110	
Tl	205	1	No Gas	106.386	0.794	2115259	0.31	100	106.4	90	110	
Tl	203	1	No Gas	95.727	0.985	808687	0.46	100	95.7	90	110	
Pb	208	1	No Gas	100.862	0.956	2712548	0.21	100	100.9	90	110	
U	238	1	No Gas	102.802	0.826	2884814	0.29	100	102.8	90	110	
Ca	43	2	He	10171.073	1.257	13133	1.17	10000	101.7	90	110	
Sb	121	2	He	105.117	0.101	419731	0.18	100	105.1	90	110	
Ti	47	2	He	98.454	3.051	12913	2.99	100	98.5	90	110	
Cu	63	1	No Gas	92.689	1.646	642793	0.79	100	92.7	90	110	
Se	82	1	No Gas	108.749	8.980	10024	10.64	100	108.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	893714	0.54	1027100	87.01	70	120	
Ge	72	2	He	467013	0.28	500104	93.38	70	120	
Ge	72	1	No Gas	1440800	1.53	1550291	92.94	70	120	
In	115	1	No Gas	1751753	1.79	1849813	94.70	70	120	
Bi	209	1	No Gas	1859473	0.76	1902184	97.75	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	147_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:01:46-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.225	-17.6	45701	1.6	0.5	
Be	9	1	No Gas	0.003	340.4	40	45.1	0.5	
V	51	2	He	0.123	12.7	1605	3.1	2.5	
Cr	52	2	He	0.223	19.6	1157	13.5	2.5	
Fe	56	2	He	1.095	6.4	13510	2.2	100	
Se	78	2	He	-0.032	-955.6	360	4.4	2	
As	75	2	He	0.030	61.2	109	8.8	2.5	
Ca	44	2	He	-0.721	-792.4	437	27.7	100	
Na	23	2	He	-56.465	-3.2	136355	0.6	100	
Mg	24	2	He	0.274	37.1	313	12.9	100	
K	39	2	He	-20.812	-28.6	87621	3.3	100	
Mn	55	2	He	-0.026	-135.7	373	25.3	2.5	
Co	59	2	He	0.004	27.8	33	17.3	2.5	
Ni	60	2	He	-0.034	-64.0	80	37.5	2.5	
Cu	63	2	He	-0.317	-7.2	913	8.9	2	
Zn	66	2	He	1.013	31.1	7732	2.8	2.5	
Al	27	2	He	-0.622	-69.3	283	32.0	5	
B	11	1	No Gas	19.458	13.8	33134	8.0	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.586	-3.7	9757	1.2	5	
Si	28	1	No Gas	1.013	91.9	192987	1.4	10	
Ag	107	1	No Gas	-0.080	-12.8	343	26.3	2.5	
Cd	111	1	No Gas	0.004	154.5	17	69.3	1	
Sr	88	1	No Gas	0.000	-993.9	503	9.8	2.5	
Mo	95	1	No Gas	0.005	182.9	30	88.2	2.5	
Sn	118	1	No Gas	0.075	32.1	1480	8.6	5	
Sb	121	1	No Gas	0.051	21.2	813	10.7	2.5	
Ba	137	1	No Gas	-0.034	-5.5	67	8.7	2.5	
Tl	205	1	No Gas	0.004	94.1	210	33.3	1	
Tl	203	1	No Gas	-0.002	-114.3	53	39.0	1	
Pb	208	1	No Gas	-0.034	-5.0	1040	3.3	2.5	
U	238	1	No Gas	0.003	63.1	127	47.6	2.5	
Ca	43	2	He	7.150	111.7	30	33.3	100	
Sb	121	2	He	0.048	41.3	417	18.6	2.5	
Ti	47	2	He	0.005	929.5	7	86.6	2.5	
Cu	63	1	No Gas	-0.550	-2.8	2090	5.1	2.5	
Se	82	1	No Gas	-0.735	-405.0	-278	-100.5	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	890283	1.44	1027100	86.68	70	120	
Ge	72	2	He	452039	0.41	500104	90.39	70	120	
Ge	72	1	No Gas	1429169	0.83	1550291	92.19	70	120	
In	115	1	No Gas	1719294	1.98	1849813	92.94	70	120	
Bi	209	1	No Gas	1859943	1.12	1902184	97.78	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-01
Data File Name	154SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:17:10-05:00
Sample Type	Sample
Dilution	20
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	2.883	57.664	6.26	76882	0.00	2000	
Be	9	1	No Gas	-0.006	-0.128	-19.99	22	-0.03	2000	
V	51	2	He	0.344	6.874	12.46	2374	0.01	2000	
Cr	52	2	He	18.158	363.154	1.86	67556	0.03	2000	
Fe	56	2	He	218.152	4363.050	0.14	809436	0.03	200000	
Se	78	2	He	-0.212	-4.234	-212.61	361	-0.06	2000	
As	75	2	He	0.078	1.567	25.53	139	0.06	2000	
Ca	44	2	He	11861.838	237236.754	0.55	260108	4.56	200000	
Na	23	2	He	28453.762	569075.232	0.78	19988229	0.14	200000	
Mg	24	2	He	5334.023	106680.456	1.65	2112393	0.25	200000	
K	39	2	He	68.126	1362.524	0.65	131896	0.05	200000	
Mn	55	2	He	254.392	5087.849	0.37	709540	0.04	2000	
Co	59	2	He	2.087	41.738	2.39	11448	0.02	2000	
Ni	60	2	He	131.428	2628.553	1.02	186624	0.07	2000	
Cu	63	2	He	0.317	6.338	5.09	3320	0.01	2000	
Zn	66	2	He	0.745	14.894	36.41	7749	0.01	2000	
Al	27	2	He	2.936	58.728	13.75	1057	0.28	2000	
B	11	1	No Gas	8.375	167.493	6.97	22092	0.04	2000	
Al	27	1	No Gas	3.032	60.636	1.84	40469	0.01	2000	
Si	28	1	No Gas	749.377	14987.546	0.96	2961631	0.03	2000	
Ag	107	1	No Gas	-0.085	-1.699	-4.39	310	-0.03	2000	
Cd	111	1	No Gas	0.017	0.339	87.41	40	0.04	2000	
Sr	88	1	No Gas	237.820	4756.395	0.95	3901053	0.01	2000	
Mo	95	1	No Gas	0.200	3.995	4.41	653	0.03	2000	
Sn	118	1	No Gas	-0.008	-0.158	-266.99	1090	0.00	2000	
Sb	121	1	No Gas	0.060	1.194	50.45	890	0.01	2000	
Ba	137	1	No Gas	4.327	86.536	2.85	11419	0.04	2000	
Tl	205	1	No Gas	-0.001	-0.013	-147.27	123	0.00	2000	
Tl	203	1	No Gas	-0.004	-0.078	-29.42	40	-0.01	2000	
Pb	208	1	No Gas	-0.046	-0.917	-4.64	737	-0.01	2000	
U	238	1	No Gas	0.295	5.890	6.14	8493	0.00	2000	
Ca	43	2	He	12116.386	242327.724	1.54	15579	77.77	200000	
Sb	121	2	He	0.040	0.792	39.62	397	0.01	2000	
Ti	47	2	He	-0.048	-0.954	0.00	0	#DIV/0!	2000	
Cu	63	1	No Gas	0.044	0.884	96.76	6192	0.00	2000	
Zn	66	1	No Gas	0.728	14.570	8.40	17959	0.00	2000	
Se	82	1	No Gas	-1.933	-38.666	-459.61	-393	0.49	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	911925	0.50	1027100	88.79	70	120	
Ge	72	2	He	465168	0.85	500104	93.01	70	120	
Ge	72	1	No Gas	1441658	0.13	1550291	92.99	70	120	
In	115	1	No Gas	1774376	0.98	1849813	95.92	70	120	
Bi	209	1	No Gas	1904154	0.68	1902184	100.10	70	120	

Sample Report

Sample Table

Sample Name	HS22060855-03SD
Data File Name	156SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:21:41-05:00
Sample Type	Sample
Dilution	25
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	-0.167	-4.177	-92.96	47324	0.00	2000	
Be	9	1	No Gas	-0.012	-0.294	-19.59	10	-0.12	2000	
V	51	2	He	0.481	12.013	6.51	2798	0.02	2000	
Cr	52	2	He	0.143	3.570	4.88	887	0.02	2000	
Fe	56	2	He	21.923	548.080	0.89	89466	0.02	200000	
Se	78	2	He	-0.020	-0.500	-2287.84	368	-0.01	2000	
As	75	2	He	0.099	2.470	81.22	149	0.07	2000	
Ca	44	2	He	450.879	11271.984	2.83	10247	4.40	200000	
Na	23	2	He	497.767	12444.169	0.14	521666	0.10	200000	
Mg	24	2	He	53.799	1344.982	4.83	21330	0.25	200000	
K	39	2	He	64.280	1607.006	6.15	128974	0.05	200000	
Mn	55	2	He	8.687	217.179	2.31	24462	0.04	2000	
Co	59	2	He	0.025	0.634	19.40	150	0.02	2000	
Ni	60	2	He	-0.002	-0.043	-2035.12	127	0.00	2000	
Cu	63	2	He	-0.284	-7.105	-11.33	1053	-0.03	2000	
Zn	66	2	He	0.455	11.382	61.33	7462	0.01	2000	
Al	27	2	He	5.232	130.791	9.81	1537	0.34	2000	
B	11	1	No Gas	2.735	68.369	13.68	16049	0.02	2000	
Al	27	1	No Gas	5.572	139.306	20.31	62054	0.01	2000	
Si	28	1	No Gas	99.203	2480.083	2.90	558713	0.02	2000	
Ag	107	1	No Gas	-0.095	-2.372	-5.32	220	-0.04	2000	
Cd	111	1	No Gas	0.000	0.007	2044.67	10	0.00	2000	
Sr	88	1	No Gas	1.595	39.863	3.10	26346	0.01	2000	
Mo	95	1	No Gas	0.018	0.457	53.28	73	0.02	2000	
Sn	118	1	No Gas	-0.009	-0.231	-66.55	1070	0.00	2000	
Sb	121	1	No Gas	0.016	0.397	64.71	557	0.00	2000	
Ba	137	1	No Gas	0.904	22.610	3.23	2480	0.04	2000	
Tl	205	1	No Gas	-0.002	-0.061	-24.26	87	0.00	2000	
Tl	203	1	No Gas	-0.002	-0.057	-130.29	53	0.00	2000	
Pb	208	1	No Gas	-0.047	-1.171	-4.83	703	-0.01	2000	
U	238	1	No Gas	0.000	0.009	99.87	40	0.00	2000	
Ca	43	2	He	456.844	11421.091	19.92	603	75.72	200000	
Sb	121	2	He	0.003	0.083	196.91	250	0.00	2000	
Ti	47	2	He	0.030	0.739	260.23	10	0.30	2000	
Cu	63	1	No Gas	-0.551	-13.772	-4.51	2104	-0.03	2000	
Zn	66	1	No Gas	0.267	6.668	95.45	17154	0.00	2000	
Se	82	1	No Gas	-4.124	-103.098	-97.50	-603	0.68	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	911443	2.62	1027100	88.74	70	120	
Ge	72	2	He	461190	0.77	500104	92.22	70	120	
Ge	72	1	No Gas	1444455	1.39	1550291	93.17	70	120	
In	115	1	No Gas	1752588	0.57	1849813	94.74	70	120	

Sample Report

Bi	209	1	No Gas	1886131	1.03	1902184	99.16	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	158_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:25:57-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	100.353	1.221	1008167	0.92	100	100.4	90	110	
Be	9	1	No Gas	102.491	1.335	220072	0.45	100	102.5	90	110	
V	51	2	He	102.440	0.746	337611	0.54	100	102.4	90	110	
Cr	52	2	He	102.628	1.072	380786	0.14	100	102.6	90	110	
Fe	56	2	He	10270.264	0.789	37717743	0.97	10000	102.7	90	110	
Se	78	2	He	103.307	1.237	5686	2.29	100	103.3	90	110	
As	75	2	He	105.725	2.478	59339	1.64	100	105.7	90	110	
Ca	44	2	He	9994.144	0.361	219621	0.93	10000	99.9	90	110	
Na	23	2	He	10097.792	0.191	7222462	1.03	10000	101.0	90	110	
Mg	24	2	He	10347.724	0.395	4105356	1.05	10000	103.5	90	110	
K	39	2	He	10149.482	1.389	4871140	1.42	10000	101.5	90	110	
Mn	55	2	He	102.079	0.443	285497	0.72	100	102.1	90	110	
Co	59	2	He	104.732	1.481	574847	1.11	100	104.7	90	110	
Ni	60	2	He	103.889	1.113	147809	0.43	100	103.9	90	110	
Cu	63	2	He	103.573	2.218	391794	1.36	100	103.6	90	110	
Zn	66	2	He	103.626	2.973	87172	1.60	100	103.6	90	110	
Al	27	2	He	111.452	0.855	24428	1.79	100	111.5	90	110	CCV Main CR1-2 Failed
B	11	1	No Gas	462.773	2.546	502311	1.84	500	92.6	90	110	
Al	27	1	No Gas	109.391	1.204	943442	1.05	100	109.4	90	110	
Si	28	1	No Gas	539.826	2.438	2192820	1.71	5000	10.8	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	101.477	0.305	872715	0.35	100	101.5	90	110	
Cd	111	1	No Gas	101.915	0.858	178829	0.63	100	101.9	90	110	
Sr	88	1	No Gas	99.896	1.938	1604798	1.77	100	99.9	90	110	
Mo	95	1	No Gas	96.303	0.919	300925	0.63	100	96.3	90	110	
Sn	118	1	No Gas	101.012	0.760	519524	0.72	100	101.0	90	110	
Sb	121	1	No Gas	97.222	0.819	745489	0.23	100	97.2	90	110	
Ba	137	1	No Gas	103.710	1.096	264512	1.02	100	103.7	90	110	
Tl	205	1	No Gas	106.569	3.280	2114425	2.27	100	106.6	90	110	
Tl	203	1	No Gas	95.765	1.175	807414	0.18	100	95.8	90	110	
Pb	208	1	No Gas	100.705	1.002	2703082	0.66	100	100.7	90	110	
U	238	1	No Gas	102.736	1.252	2877285	0.42	100	102.7	90	110	
Ca	43	2	He	10351.662	3.454	13337	3.45	10000	103.5	90	110	
Sb	121	2	He	104.922	0.881	418026	0.51	100	104.9	90	110	
Ti	47	2	He	99.483	4.098	13016	3.13	100	99.5	90	110	
Cu	63	1	No Gas	92.285	1.189	642265	0.27	100	92.3	90	110	
Se	82	1	No Gas	100.197	2.016	9243	3.05	100	100.2	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	901542	1.77	1027100	87.78	70	120	
Ge	72	2	He	466005	1.16	500104	93.18	70	120	
Ge	72	1	No Gas	1445753	1.01	1550291	93.26	70	120	
In	115	1	No Gas	1737436	0.29	1849813	93.92	70	120	
Bi	209	1	No Gas	1855891	1.04	1902184	97.57	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	159_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:27:59-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.182	-73.0	46192	1.1	0.5	
Be	9	1	No Gas	0.005	129.7	45	29.4	0.5	
V	51	2	He	0.114	25.4	1562	5.9	2.5	
Cr	52	2	He	0.228	10.7	1163	7.8	2.5	
Fe	56	2	He	1.240	15.0	13897	4.2	100	
Se	78	2	He	-0.102	-1269.4	353	18.2	2	
As	75	2	He	0.026	90.0	106	12.0	2.5	
Ca	44	2	He	-1.338	-122.1	420	8.6	100	
Na	23	2	He	-57.552	-1.8	134409	0.3	100	
Mg	24	2	He	0.388	61.6	353	25.4	100	
K	39	2	He	-15.079	-20.5	89426	1.6	100	
Mn	55	2	He	-0.053	-4.3	297	1.9	2.5	
Co	59	2	He	0.004	27.8	33	17.3	2.5	
Ni	60	2	He	0.001	3894.7	127	50.1	2.5	
Cu	63	2	He	-0.286	-9.1	1017	9.6	2	
Zn	66	2	He	1.027	62.0	7672	5.8	2.5	
Al	27	2	He	-0.706	-16.6	263	9.6	5	
B	11	1	No Gas	18.212	17.8	31870	8.7	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.589	-11.0	9563	3.6	5	
Si	28	1	No Gas	5.449	10.1	205744	1.2	10	
Ag	107	1	No Gas	-0.073	-6.7	403	9.4	2.5	
Cd	111	1	No Gas	0.000	2066.3	10	173.2	1	
Sr	88	1	No Gas	-0.003	-103.8	457	10.1	2.5	
Mo	95	1	No Gas	0.007	143.8	37	83.3	2.5	
Sn	118	1	No Gas	0.061	55.2	1410	10.4	5	
Sb	121	1	No Gas	0.082	18.9	1033	13.0	2.5	
Ba	137	1	No Gas	-0.026	-16.0	87	13.3	2.5	
Tl	205	1	No Gas	0.006	29.3	257	14.7	1	
Tl	203	1	No Gas	0.007	38.8	133	18.9	1	
Pb	208	1	No Gas	-0.035	-12.5	990	10.7	2.5	
U	238	1	No Gas	0.002	72.7	87	48.0	2.5	
Ca	43	2	He	15.382	138.3	40	66.1	100	
Sb	121	2	He	0.060	24.0	460	11.5	2.5	
Ti	47	2	He	-0.048	0.0	0	#DIV/0!	2.5	
Cu	63	1	No Gas	-0.580	-3.4	1847	5.6	2.5	
Se	82	1	No Gas	-1.161	-435.4	-318	-146.0	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	892254	1.99	1027100	86.87	70	120	
Ge	72	2	He	448004	0.55	500104	89.58	70	120	
Ge	72	1	No Gas	1405360	2.05	1550291	90.65	70	120	
In	115	1	No Gas	1725888	1.80	1849813	93.30	70	120	
Bi	209	1	No Gas	1845005	1.57	1902184	96.99	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05
Data File Name	162SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:34:51-05:00
Sample Type	Sample
Dilution	5
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	2.797	13.986	2.91	77143	0.00	2000	
Be	9	1	No Gas	-0.007	-0.036	-32.43	20	-0.04	2000	
V	51	2	He	0.420	2.102	6.55	2683	0.02	2000	
Cr	52	2	He	31.037	155.184	1.22	117734	0.03	2000	
Fe	56	2	He	402.521	2012.607	0.77	1517729	0.03	200000	
Se	78	2	He	-0.207	-1.036	-187.47	369	-0.06	2000	
As	75	2	He	0.104	0.520	29.64	157	0.07	2000	
Ca	44	2	He	6952.809	34764.044	0.61	155999	4.46	200000	
Na	23	2	He	36718.313	183591.567	0.71	26305530	0.14	200000	
Mg	24	2	He	4926.927	24634.636	1.26	1994039	0.25	200000	
K	39	2	He	109.478	547.390	4.48	154608	0.07	200000	
Mn	55	2	He	62.051	310.253	1.47	177205	0.04	2000	
Co	59	2	He	4.517	22.584	1.25	25304	0.02	2000	
Ni	60	2	He	271.811	1359.054	1.31	394296	0.07	2000	
Cu	63	2	He	4.399	21.995	0.95	19060	0.02	2000	
Zn	66	2	He	1.629	8.143	3.69	8616	0.02	2000	
Al	27	2	He	2.683	13.413	12.01	1023	0.26	2000	
B	11	1	No Gas	2.920	14.599	4.58	16491	0.02	2000	
Al	27	1	No Gas	2.840	14.198	5.40	40121	0.01	2000	
Si	28	1	No Gas	4531.092	22655.459	0.94	17504469	0.03	2000	>LDR
Ag	107	1	No Gas	-0.088	-0.438	-20.58	290	-0.03	2000	
Cd	111	1	No Gas	0.048	0.240	47.44	97	0.05	2000	
Sr	88	1	No Gas	128.696	643.479	2.20	2130405	0.01	2000	
Mo	95	1	No Gas	0.920	4.598	8.20	2977	0.03	2000	
Sn	118	1	No Gas	0.002	0.011	666.89	1153	0.00	2000	
Sb	121	1	No Gas	0.031	0.155	50.03	693	0.00	2000	
Ba	137	1	No Gas	60.837	304.187	0.68	159970	0.04	2000	
Tl	205	1	No Gas	-0.001	-0.005	-248.14	117	0.00	2000	
Tl	203	1	No Gas	-0.002	-0.009	-222.01	60	0.00	2000	
Pb	208	1	No Gas	-0.034	-0.168	-5.10	1097	0.00	2000	
U	238	1	No Gas	0.008	0.042	27.13	277	0.00	2000	
Ca	43	2	He	7208.636	36043.180	2.14	9480	76.04	200000	
Sb	121	2	He	0.040	0.200	33.63	407	0.01	2000	
Ti	47	2	He	0.027	0.137	273.33	10	0.27	2000	
Cu	63	1	No Gas	3.759	18.797	1.54	32790	0.01	2000	
Zn	66	1	No Gas	1.247	6.234	3.33	19521	0.01	2000	
Se	82	1	No Gas	-2.228	-11.139	-261.32	-437	0.51	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	925043	0.94	1027100	90.06	70	120	
Ge	72	2	He	475356	0.60	500104	95.05	70	120	
Ge	72	1	No Gas	1489446	0.84	1550291	96.08	70	120	
In	115	1	No Gas	1790434	0.65	1849813	96.79	70	120	

Sample Report

Bi	209	1	No Gas	1944582	1.20	1902184	102.23	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05SD
Data File Name	163SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:36:54-05:00
Sample Type	Sample
Dilution	25
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.422	10.559	28.66	53411	0.00	2000	
Be	9	1	No Gas	-0.002	-0.046	-327.88	32	-0.01	2000	
V	51	2	He	0.332	8.300	7.23	2354	0.01	2000	
Cr	52	2	He	6.657	166.432	1.73	25197	0.03	2000	
Fe	56	2	He	76.290	1907.250	0.70	291773	0.03	200000	
Se	78	2	He	-0.329	-8.218	-100.01	358	-0.09	2000	
As	75	2	He	0.039	0.972	84.24	118	0.03	2000	
Ca	44	2	He	1433.064	35826.610	2.56	32084	4.47	200000	
Na	23	2	He	7483.568	187089.190	0.20	5431943	0.14	200000	
Mg	24	2	He	971.034	24275.846	0.89	387777	0.25	200000	
K	39	2	He	3.935	98.366	66.98	102575	0.00	200000	
Mn	55	2	He	12.854	321.341	0.67	36569	0.04	2000	
Co	59	2	He	0.949	23.730	5.30	5254	0.02	2000	
Ni	60	2	He	56.651	1416.272	0.13	81154	0.07	2000	
Cu	63	2	He	0.707	17.684	4.52	4824	0.01	2000	
Zn	66	2	He	0.704	17.591	70.05	7779	0.01	2000	
Al	27	2	He	2.346	58.657	16.00	937	0.25	2000	
B	11	1	No Gas	-0.316	-7.891	-172.79	12873	0.00	2000	
Al	27	1	No Gas	2.147	53.668	3.67	33658	0.01	2000	
Si	28	1	No Gas	935.245	23381.129	1.37	3724337	0.03	2000	
Ag	107	1	No Gas	-0.089	-2.221	-2.88	273	-0.03	2000	
Cd	111	1	No Gas	0.008	0.190	106.82	23	0.03	2000	
Sr	88	1	No Gas	25.021	625.530	2.96	407720	0.01	2000	
Mo	95	1	No Gas	0.182	4.551	22.22	590	0.03	2000	
Sn	118	1	No Gas	-0.002	-0.060	-711.10	1110	0.00	2000	
Sb	121	1	No Gas	0.016	0.396	28.00	567	0.00	2000	
Ba	137	1	No Gas	12.786	319.655	4.00	33176	0.04	2000	
Tl	205	1	No Gas	-0.002	-0.051	-34.59	97	0.00	2000	
Tl	203	1	No Gas	-0.005	-0.118	-37.55	33	-0.01	2000	
Pb	208	1	No Gas	-0.044	-1.102	-5.58	793	-0.01	2000	
U	238	1	No Gas	0.001	0.020	110.32	53	0.00	2000	
Ca	43	2	He	1533.893	38347.329	3.56	2007	76.43	200000	
Sb	121	2	He	0.019	0.473	40.60	317	0.01	2000	
Ti	47	2	He	0.028	0.707	268.44	10	0.28	2000	
Cu	63	1	No Gas	0.283	7.072	5.38	7996	0.00	2000	
Zn	66	1	No Gas	0.509	12.731	77.87	17925	0.00	2000	
Se	82	1	No Gas	-6.676	-166.908	-93.42	-859	0.78	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	917842	1.87	1027100	89.36	70	120	
Ge	72	2	He	468824	0.09	500104	93.75	70	120	
Ge	72	1	No Gas	1471578	0.70	1550291	94.92	70	120	
In	115	1	No Gas	1761666	3.01	1849813	95.23	70	120	

Sample Report

Bi	209	1	No Gas	1922765	1.38	1902184	101.08	70	120	

Sample Report

Sample Table

Sample Name	HS22061146-05MS
Data File Name	164SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:38:59-05:00
Sample Type	Sample
Dilution	5
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	2.521	12.604	1.55	74595	0.00	2000	
Be	9	1	No Gas	117.309	586.547	1.02	259024	0.05	2000	
V	51	2	He	118.250	591.249	1.45	392782	0.03	2000	
Cr	52	2	He	147.891	739.457	1.13	553194	0.03	2000	
Fe	56	2	He	12246.257	61231.283	1.78	45346703	0.03	200000	
Se	78	2	He	115.008	575.041	3.26	6339	1.81	2000	
As	75	2	He	117.196	585.981	1.39	66324	0.18	2000	
Ca	44	2	He	17633.596	88167.982	0.72	390402	4.52	200000	
Na	23	2	He	44732.418	223662.090	1.09	31641097	0.14	200000	
Mg	24	2	He	16040.105	80200.527	2.06	6416337	0.25	200000	
K	39	2	He	11005.891	55029.456	1.16	5317980	0.21	200000	
Mn	55	2	He	173.567	867.837	1.63	489168	0.04	2000	
Co	59	2	He	124.272	621.360	1.13	687836	0.02	2000	
Ni	60	2	He	370.158	1850.792	1.48	530726	0.07	2000	
Cu	63	2	He	122.961	614.803	1.18	468678	0.03	2000	
Zn	66	2	He	119.542	597.712	2.34	100309	0.12	2000	
Al	27	2	He	118.587	592.935	0.73	26185	0.45	2000	
B	11	1	No Gas	0.849	4.244	18.02	14274	0.01	2000	
Al	27	1	No Gas	118.069	590.347	2.86	1025772	0.01	2000	
Si	28	1	No Gas	4213.136	21065.680	2.57	15946856	0.03	2000	>LDR
Ag	107	1	No Gas	110.934	554.668	0.84	972722	0.01	2000	
Cd	111	1	No Gas	117.203	586.015	0.82	209704	0.06	2000	
Sr	88	1	No Gas	119.197	595.985	0.69	1952500	0.01	2000	
Mo	95	1	No Gas	115.085	575.424	0.16	366712	0.03	2000	
Sn	118	1	No Gas	0.005	0.026	147.22	1157	0.00	2000	
Sb	121	1	No Gas	106.855	534.277	2.62	826290	0.01	2000	
Ba	137	1	No Gas	172.382	861.908	0.96	448205	0.04	2000	
Tl	205	1	No Gas	111.291	556.453	3.06	2243617	0.00	2000	
Tl	203	1	No Gas	99.544	497.719	2.61	852703	0.01	2000	
Pb	208	1	No Gas	112.235	561.174	2.10	3060651	0.00	2000	
U	238	1	No Gas	0.010	0.052	8.73	323	0.00	2000	
Ca	43	2	He	17894.488	89472.439	2.54	23230	77.03	200000	
Sb	121	2	He	115.357	576.786	1.04	463444	0.02	2000	
Ti	47	2	He	116.905	584.523	0.78	15429	0.76	2000	
Cu	63	1	No Gas	109.550	547.752	2.89	767783	0.01	2000	
Zn	66	1	No Gas	119.640	598.199	3.56	235186	0.05	2000	
Se	82	1	No Gas	105.732	528.660	5.73	9845	1.07	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	926984	0.73	1027100	90.25	70	120	
Ge	72	2	He	469943	1.44	500104	93.97	70	120	
Ge	72	1	No Gas	1458636	2.58	1550291	94.09	70	120	
In	115	1	No Gas	1771722	1.01	1849813	95.78	70	120	

Sample Report

Bi	209	1	No Gas	1886010	1.77	1902184	99.15	70	120	

Sample Report

Sample Table

Sample Name	HS22060855-03PDS
Data File Name	166SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T17:53:55-05:00
Sample Type	Sample
Dilution	5
Comment	DOD TW 180802
ISTD Ref FileName	010CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	-0.114	-0.568	-44.14	50261	0.00	2000	
Be	9	1	No Gas	96.765	483.825	0.25	220604	0.04	2000	
V	51	2	He	98.560	492.799	0.88	330342	0.03	2000	
Cr	52	2	He	98.303	491.517	1.45	370907	0.03	2000	
Fe	56	2	He	9969.154	49845.771	1.07	37228063	0.03	200000	
Se	78	2	He	99.591	497.953	0.67	5587	1.78	2000	
As	75	2	He	99.384	496.918	0.78	56731	0.18	2000	
Ca	44	2	He	11788.718	58943.591	0.86	263326	4.48	200000	
Na	23	2	He	12800.613	64003.066	0.51	9260482	0.14	200000	
Mg	24	2	He	10242.947	51214.737	1.71	4132048	0.25	200000	
K	39	2	He	10282.410	51412.050	0.94	5016641	0.20	200000	
Mn	55	2	He	140.233	701.167	1.24	398630	0.04	2000	
Co	59	2	He	100.039	500.197	0.35	558350	0.02	2000	
Ni	60	2	He	98.807	494.036	0.48	142957	0.07	2000	
Cu	63	2	He	99.063	495.317	0.78	381179	0.03	2000	
Zn	66	2	He	101.148	505.742	1.74	86709	0.12	2000	
Al	27	2	He	115.091	575.456	2.22	25634	0.45	2000	
B	11	1	No Gas	6.073	30.366	4.38	20602	0.03	2000	
Al	27	1	No Gas	117.981	589.907	6.22	1028224	0.01	2000	
Si	28	1	No Gas	534.664	2673.322	3.11	2197153	0.02	2000	
Ag	107	1	No Gas	95.440	477.202	1.15	834377	0.01	2000	
Cd	111	1	No Gas	96.592	482.959	1.40	172284	0.06	2000	
Sr	88	1	No Gas	7.907	39.535	2.13	129600	0.01	2000	
Mo	95	1	No Gas	94.510	472.548	0.95	300204	0.03	2000	
Sn	118	1	No Gas	-0.025	-0.125	-52.28	997	0.00	2000	
Sb	121	1	No Gas	88.536	442.681	1.65	686337	0.01	2000	
Ba	137	1	No Gas	100.530	502.648	0.34	260642	0.04	2000	
Tl	205	1	No Gas	96.023	480.114	1.56	1946525	0.00	2000	
Tl	203	1	No Gas	84.884	424.418	1.02	731141	0.01	2000	
Pb	208	1	No Gas	92.822	464.111	1.25	2545367	0.00	2000	
U	238	1	No Gas	0.008	0.041	25.24	267	0.00	2000	
Ca	43	2	He	11945.632	59728.162	2.94	15646	76.35	200000	
Sb	121	2	He	96.596	482.978	0.90	391356	0.02	2000	
Ti	47	2	He	96.684	483.422	4.57	12866	0.75	2000	
Cu	63	1	No Gas	89.337	446.687	1.40	628773	0.01	2000	
Zn	66	1	No Gas	99.392	496.958	1.46	198735	0.05	2000	
Se	82	1	No Gas	107.866	539.328	10.65	10068	1.07	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	957041	0.55	1027100	93.18	70	120	
Ge	72	2	He	473829	0.04	500104	94.75	70	120	
Ge	72	1	No Gas	1461785	2.08	1550291	94.29	70	120	
In	115	1	No Gas	1766134	0.76	1849813	95.48	70	120	

Sample Report

Bi	209	1	No Gas	1896024	1.62	1902184	99.68	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	168_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T18:03:22-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	101.881	3.636	1009135	2.47	100	101.9	90	110	
Be	9	1	No Gas	104.886	1.107	222253	0.35	100	104.9	90	110	
V	51	2	He	101.490	1.174	340196	0.64	100	101.5	90	110	
Cr	52	2	He	102.210	1.899	385704	1.47	100	102.2	90	110	
Fe	56	2	He	10165.912	0.853	37970699	0.12	10000	101.7	90	110	
Se	78	2	He	103.335	0.349	5784	1.24	100	103.3	90	110	
As	75	2	He	104.416	2.071	59607	1.28	100	104.4	90	110	
Ca	44	2	He	10032.054	1.017	224204	0.42	10000	100.3	90	110	
Na	23	2	He	10122.023	2.137	7361991	1.20	10000	101.2	90	110	
Mg	24	2	He	10196.544	1.441	4114241	1.25	10000	102.0	90	110	
K	39	2	He	10204.837	1.422	4980469	0.55	10000	102.0	90	110	
Mn	55	2	He	101.655	1.367	289150	0.65	100	101.7	90	110	
Co	59	2	He	103.935	0.678	580226	0.45	100	103.9	90	110	
Ni	60	2	He	103.342	1.710	149537	1.02	100	103.3	90	110	
Cu	63	2	He	102.400	0.641	394035	0.51	100	102.4	90	110	
Zn	66	2	He	103.124	0.621	88286	1.47	100	103.1	90	110	
Al	27	2	He	112.866	2.789	25153	2.75	100	112.9	90	110	CCV Main CR1-2 Failed
B	11	1	No Gas	467.846	2.521	501006	2.00	500	93.6	90	110	
Al	27	1	No Gas	106.808	2.183	930877	2.39	100	106.8	90	110	
Si	28	1	No Gas	516.928	2.361	2129138	1.08	5000	10.3	90	110	CCV Main CR1-2 Failed
Ag	107	1	No Gas	100.888	0.949	877778	0.54	100	100.9	90	110	
Cd	111	1	No Gas	101.807	1.597	180722	1.15	100	101.8	90	110	
Sr	88	1	No Gas	99.797	1.490	1621944	1.20	100	99.8	90	110	
Mo	95	1	No Gas	97.558	0.785	308409	0.36	100	97.6	90	110	
Sn	118	1	No Gas	100.187	1.282	521303	0.90	100	100.2	90	110	
Sb	121	1	No Gas	96.016	1.329	743663	0.21	100	96.0	90	110	
Ba	137	1	No Gas	102.872	0.556	265442	0.19	100	102.9	90	110	
Tl	205	1	No Gas	105.503	2.182	2092000	1.06	100	105.5	90	110	
Tl	203	1	No Gas	94.480	0.704	796079	0.46	100	94.5	90	110	
Pb	208	1	No Gas	99.799	1.347	2676997	1.13	100	99.8	90	110	
U	238	1	No Gas	102.563	1.053	2870549	0.17	100	102.6	90	110	
Ca	43	2	He	9970.579	1.636	13066	2.03	10000	99.7	90	110	
Sb	121	2	He	102.876	0.688	416879	0.28	100	102.9	90	110	
Ti	47	2	He	99.388	3.363	13227	2.43	100	99.4	90	110	
Cu	63	1	No Gas	92.065	1.207	647222	0.34	100	92.1	90	110	
Se	82	1	No Gas	105.694	5.064	9861	5.84	100	105.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	889620	1.16	1027100	86.61	70	120	
Ge	72	2	He	473954	0.94	500104	94.77	70	120	
Ge	72	1	No Gas	1460379	1.12	1550291	94.20	70	120	
In	115	1	No Gas	1757763	0.49	1849813	95.02	70	120	
Bi	209	1	No Gas	1854663	1.16	1902184	97.50	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	169_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq Date Time	2022-07-08T18:05:24-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	010CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.165	-30.2	46567	0.3	0.5	
Be	9	1	No Gas	0.004	29.9	43	6.7	0.5	
V	51	2	He	0.043	39.0	1373	3.8	2.5	
Cr	52	2	He	0.212	9.3	1137	5.9	2.5	
Fe	56	2	He	1.280	1.5	14425	0.6	100	
Se	78	2	He	0.051	403.4	371	2.2	2	
As	75	2	He	0.017	222.8	103	19.6	2.5	
Ca	44	2	He	0.460	734.2	470	14.9	100	
Na	23	2	He	-83.515	-1.5	120198	1.3	100	
Mg	24	2	He	0.295	68.8	327	23.8	100	
K	39	2	He	-18.116	-4.8	90455	0.6	100	
Mn	55	2	He	0.005	205.2	463	5.4	2.5	
Co	59	2	He	0.008	61.3	53	47.2	2.5	
Ni	60	2	He	-0.044	-64.5	67	60.6	2.5	
Cu	63	2	He	-0.296	-11.7	1007	13.3	2	
Zn	66	2	He	0.440	66.5	7436	2.9	2.5	
Al	27	2	He	-0.660	-20.0	280	9.4	5	
B	11	1	No Gas	16.697	17.0	30458	10.0	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	-0.608	-3.4	9570	1.9	5	
Si	28	1	No Gas	-1.035	-71.9	185444	1.4	10	
Ag	107	1	No Gas	-0.054	-19.2	567	16.4	2.5	
Cd	111	1	No Gas	0.000	2537.1	10	173.2	1	
Sr	88	1	No Gas	-0.006	-32.4	407	7.5	2.5	
Mo	95	1	No Gas	0.007	100.0	37	56.8	2.5	
Sn	118	1	No Gas	0.066	25.6	1433	4.6	5	
Sb	121	1	No Gas	0.107	13.8	1237	8.9	2.5	
Ba	137	1	No Gas	-0.032	-77.9	70	89.2	2.5	
Tl	205	1	No Gas	0.007	27.2	277	13.7	1	
Tl	203	1	No Gas	0.006	58.9	127	25.4	1	
Pb	208	1	No Gas	-0.027	-15.1	1233	9.0	2.5	
U	238	1	No Gas	0.003	64.6	107	46.2	2.5	
Ca	43	2	He	9.355	97.4	33	34.6	100	
Sb	121	2	He	0.076	13.8	537	7.1	2.5	
Ti	47	2	He	0.133	32.9	23	24.7	2.5	
Cu	63	1	No Gas	-0.544	-1.2	2127	2.2	2.5	
Se	82	1	No Gas	-4.842	-50.3	-661	-34.5	2	

QC ISTD Table

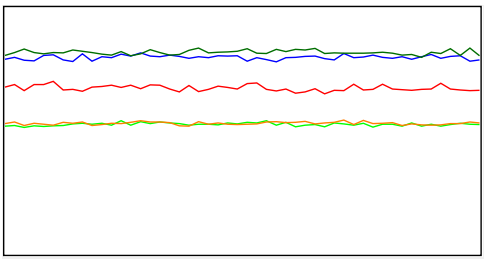
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	895981	0.90	1027100	87.23	70	120	
Ge	72	2	He	460223	0.65	500104	92.03	70	120	
Ge	72	1	No Gas	1428820	0.16	1550291	92.16	70	120	
In	115	1	No Gas	1722621	1.38	1849813	93.12	70	120	
Bi	209	1	No Gas	1876653	0.86	1902184	98.66	70	120	

Tune Check Report

Operator Name	ALSHS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\070822A.b
Acq. Date-Time	07/08/2022 10:49:31
Report Comment	---
Instrument Name	G8422A SG22121190

[No Gas]

Sensitivity



Sampling Period [sec]	0.514
Integration Time [sec]	0.1

Mass	Range	Count	Resp [cps/(ug/l)]	Resp (Required) [cps/(ug/l)]	Resp (Flag)
9	5000	3369	33685.38		
24	20000	10534	105335.88		
59	20000	15969	159686.97		
115	50000	26542	265422.13		
208	20000	16373	163731.64		

Mass	Resp Ratio	Resp Ratio (Required)	Resp Ratio (Flag)
9		-	
24		-	
59		-	
115		-	
208		-	

Mass	RSD%	RSD% (Required)	RSD% (Flag)
9	1.749	5.000	
24	1.217	5.000	
59	1.149	5.000	
115	1.094	5.000	
208	1.116	5.000	

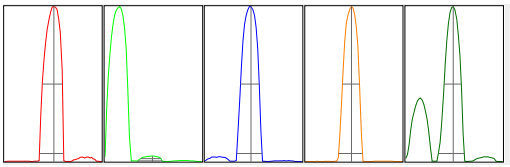
Mass	Background	Background (Required)	Background (Flag)
9	2.500		
24	0.200		
59	0.300		
115	0.700		
208	1.600		

Oxide/Doubly Charged Ratio

Oxide	156 / 140 0.500 %
Doubly Charged	70 / 140 0.961 %

Tune Check Report

Resolution/Axis



Integration Time [sec]	0.1
Acquisition Time [sec]	37.4
Y Axis	Linear

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	3407.98	9.05	8.90 - 9.10	
24	10375.43	24.00	23.90 - 24.10	
59	16374.11	58.95	58.90 - 59.10	
115	26431.76	114.95	114.90 - 115.10	
208	16163.77	208.00	207.90 - 208.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.61	0.738		
24	0.62	0.741		
59	0.57	0.775		
115	0.52	0.728		
208	0.53	0.792		

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.70 L/min	Dilution Gas	0.35 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	10.7 V	Deflect	13.6 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-45 V
Omega Bias	-75 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	123	Axis Gain	0.9992	QP Bias	-3.0 V
Mass Offset	126	Axis Offset	0.04		

Hardware Settings

Torch

Torch H	0.1 mm	Torch V	-0.1 mm

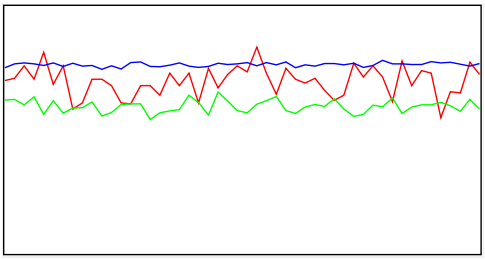
EM

Discriminator	4.4 mV	Analog HV	2102 V	Pulse HV	977 V

[He]

Tune Check Report

Sensitivity



Sampling Period [sec]	0.306
Integration Time [sec]	0.1

Mass	Range	Count	Resp [cps/(ug/l)]	Resp (Required) [cps/(ug/l)]	Resp (Flag)
9	200	139	1394.87		
24	1000	595	5953.26		
59	10000	7648	76477.02		

Mass	Resp Ratio	Resp Ratio (Required)	Resp Ratio (Flag)
9		-	
24		-	
59		-	

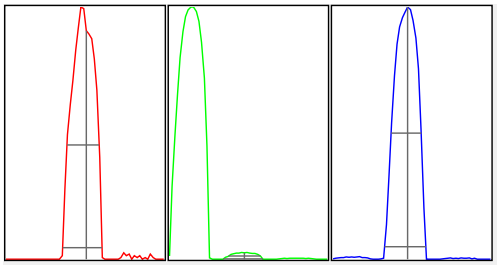
Mass	RSD%	RSD% (Required)	RSD% (Flag)
9	8.645	5.000	Fail
24	4.250	5.000	
59	1.038	5.000	

Mass	Background	Background (Required)	Background (Flag)
9	0.100		
24	0.200		
59	0.500		

Oxide/Doubly Charged Ratio

Oxide	156 / 140 0.312 %
Doubly Charged	70 / 140 0.883 %

Resolution/Axis



Integration Time [sec]	0.1
Acquisition Time [sec]	22.24
Y Axis	Linear

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	131.51	9.05	8.90 - 9.10	
24	560.13	23.95	23.90 - 24.10	
59	7761.71	58.95	58.90 - 59.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.60	0.739		
24	0.60	0.740		

Tune Check Report

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
59	0.56	0.770		

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.70 L/min	Dilution Gas	0.35 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	9.3 V	Deflect	0.0 V
Extract 2	-200.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-85 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	3.8 mL/min	OctP Bias	-18.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	123	Axis Gain	0.9992	QP Bias	-15.0 V
Mass Offset	126	Axis Offset	0.04		

Hardware Settings

Torch

Torch H	0.1 mm	Torch V	-0.1 mm

EM

Discriminator	4.4 mV	Analog HV	2102 V	Pulse HV	977 V

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WorkOrder: HS22061313

LHAAP 16 June 2022

Aptim Environmental & Infrastucture, Inc.

Vicki Graves
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Houston TX 77042

18-Jul-2022

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HS22061313 LHAAP 16 June 2022 Final

ALS WO# HS22061313

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July 31, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS22061313**

Laboratory Results for: **LHAAP 16 June 2022**

Dear Vicki Graves ,

ALS Environmental received 9 sample(s) on Jun 24, 2022 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: DANE.WACASEY
Dane J. Wacasey

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Work Order: HS22061313

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22061313-01	16WW58-220623	Groundwater		23-Jun-2022 07:00	24-Jun-2022 09:30	☐
HS22061313-02	16WW57-220623	Groundwater		23-Jun-2022 07:45	24-Jun-2022 09:30	☐
HS22061313-03	16IW10-220623	Groundwater		23-Jun-2022 08:40	24-Jun-2022 09:30	☐
HS22061313-04	16IW09-220623	Groundwater		23-Jun-2022 09:30	24-Jun-2022 09:30	☐
HS22061313-05	16IW20-220623	Groundwater		23-Jun-2022 10:25	24-Jun-2022 09:30	☐
HS22061313-06	16WW55-220623	Groundwater		23-Jun-2022 11:15	24-Jun-2022 09:30	☐
HS22061313-07	16EW04-220623	Groundwater		23-Jun-2022 12:05	24-Jun-2022 09:30	☐
HS22061313-08	16EW08-220623	Groundwater		23-Jun-2022 12:45	24-Jun-2022 09:30	☐
HS22061313-09	Trip Blank-220623	Water	CG-041822-555	23-Jun-2022 00:00	24-Jun-2022 09:30	☐

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 16 June 2022
Work Order: HS22061313

Work Order Comments

- The analysis for CO2 by RSK175 was subcontracted to Pace located in Baton Rouge, LA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Houston Specialty Lab. Final report attached.

Work Order Comments

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- The analysis for Perchlorate was subcontracted to ALS Houston Specialty Lab. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R412066

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260

Batch ID: R411964

Sample ID: HS22061605-02MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SM5310B

Batch ID: R412500,R412534,R412597

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R411539,R411555

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW58-220623
Collection Date: 23-Jun-2022 07:00

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	30-Jun-2022 15:39
1,1-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	30-Jun-2022 15:39
1,2-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	30-Jun-2022 15:39
cis-1,2-Dichloroethene	**95**		**2.0**	**5.0**	**10**	**ug/L**	10	30-Jun-2022 15:39
Methylene chloride	**13**	J	**4.0**	**20**	**20**	**ug/L**	10	30-Jun-2022 15:39
Trichloroethene	**2,600**		**20**	**50**	**100**	**ug/L**	100	30-Jun-2022 17:24
Vinyl chloride	5.0	U	2.0	5.0	10	ug/L	10	30-Jun-2022 15:39
Surr: 1,2-Dichloroethane-d4	*83.5*			**0**	*81-118*	*%REC*	*100*	*30-Jun-2022 17:24*
Surr: 1,2-Dichloroethane-d4	*83.8*			**0**	*81-118*	*%REC*	*10*	*30-Jun-2022 15:39*
Surr: 4-Bromofluorobenzene	*91.9*			**0**	*85-114*	*%REC*	*10*	*30-Jun-2022 15:39*
Surr: 4-Bromofluorobenzene	*93.8*			**0**	*85-114*	*%REC*	*100*	*30-Jun-2022 17:24*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*100*	*30-Jun-2022 17:24*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*10*	*30-Jun-2022 15:39*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*30-Jun-2022 15:39*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*100*	*30-Jun-2022 17:24*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PPM
Ethane	0.000500	U	0.000144	0.000500	0.00100	mg/L	1	01-Jul-2022 11:58
Ethene	**0.00164**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	01-Jul-2022 11:58
Methane	**0.00912**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	01-Jul-2022 11:58
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**5.58**		**0.500**	**1.00**	**1.00**	**mg/L**	1	08-Jul-2022 11:22
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Nitrogen, Nitrate (As N)	**0.106**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	24-Jun-2022 18:34
Sulfate	**473**		**2.00**	**5.00**	**5.00**	**mg/L**	10	25-Jun-2022 17:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jul-2022 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW57-220623
Collection Date: 23-Jun-2022 07:45

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	30-Jun-2022 14:15
1,1-Dichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:15
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 14:15
cis-1,2-Dichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:15
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	30-Jun-2022 14:15
Trichloroethene	**120**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:15
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 14:15
Surr: 1,2-Dichloroethane-d4	*83.7*			**0**	*81-118*	*%REC*	*1*	*30-Jun-2022 14:15*
Surr: 4-Bromofluorobenzene	*91.8*			**0**	*85-114*	*%REC*	*1*	*30-Jun-2022 14:15*
Surr: Dibromofluoromethane	*87.9*			**0**	*80-119*	*%REC*	*1*	*30-Jun-2022 14:15*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*30-Jun-2022 14:15*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PPM
Ethane	0.000500	U	0.000144	0.000500	0.00100	mg/L	1	01-Jul-2022 12:25
Ethene	**0.00136**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	01-Jul-2022 12:25
Methane	**0.00175**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	01-Jul-2022 12:25
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**17.9**		**0.500**	**1.00**	**1.00**	**mg/L**	1	09-Jul-2022 06:35
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Nitrogen, Nitrate (As N)	**0.238**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	24-Jun-2022 18:39
Sulfate	**2,540**		**10.0**	**25.0**	**25.0**	**mg/L**	50	25-Jun-2022 17:21
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jul-2022 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16IW10-220623
Collection Date: 23-Jun-2022 08:40

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	30-Jun-2022 14:36
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 14:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 14:36
cis-1,2-Dichloroethene	**2.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:36
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	30-Jun-2022 14:36
Trichloroethene	**2.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:36
Vinyl chloride	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:36
Surr: 1,2-Dichloroethane-d4	*83.1*			**0**	*81-118*	*%REC*	*1*	*30-Jun-2022 14:36*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*1*	*30-Jun-2022 14:36*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*30-Jun-2022 14:36*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*30-Jun-2022 14:36*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PPM
Ethane	0.000500	U	0.000144	0.000500	0.00100	mg/L	1	01-Jul-2022 12:34
Ethene	0.000500	U	0.000234	0.000500	0.00100	mg/L	1	01-Jul-2022 12:34
Methane	**4.24**		**0.0214**	**0.100**	**0.100**	**mg/L**	200	01-Jul-2022 13:09
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**139**		**5.00**	**10.0**	**10.0**	**mg/L**	10	09-Jul-2022 12:25
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Nitrogen, Nitrate (As N)	**0.147**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	24-Jun-2022 18:44
Sulfate	**1.73**		**0.400**	**1.00**	**1.00**	**mg/L**	2	24-Jun-2022 18:44
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jul-2022 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16IW09-220623
Collection Date: 23-Jun-2022 09:30

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	30-Jun-2022 13:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:12
cis-1,2-Dichloroethene	**3.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 13:12
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	30-Jun-2022 13:12
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:12
Surr: 1,2-Dichloroethane-d4	*82.2*			**0**	*81-118*	*%REC*	*1*	*30-Jun-2022 13:12*
Surr: 4-Bromofluorobenzene	*93.1*			**0**	*85-114*	*%REC*	*1*	*30-Jun-2022 13:12*
Surr: Dibromofluoromethane	*87.0*			**0**	*80-119*	*%REC*	*1*	*30-Jun-2022 13:12*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*30-Jun-2022 13:12*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PPM
Ethane	0.000500	U	0.000144	0.000500	0.00100	mg/L	1	01-Jul-2022 12:42
Ethene	0.000500	U	0.000234	0.000500	0.00100	mg/L	1	01-Jul-2022 12:42
Methane	**8.06**		**0.0428**	**0.200**	**0.200**	**mg/L**	400	01-Jul-2022 13:20
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**128**		**5.00**	**10.0**	**10.0**	**mg/L**	10	09-Jul-2022 12:37
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Nitrogen, Nitrate (As N)	**0.0620**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	24-Jun-2022 18:18
Sulfate	**2.70**		**0.200**	**0.500**	**0.500**	**mg/L**	1	24-Jun-2022 18:18
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jul-2022 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16IW20-220623
Collection Date: 23-Jun-2022 10:25

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	30-Jun-2022 14:57
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 14:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 14:57
cis-1,2-Dichloroethene	**0.52**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:57
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	30-Jun-2022 14:57
Trichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:57
Vinyl chloride	**3.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 14:57
Surr: 1,2-Dichloroethane-d4	*84.6*			**0**	*81-118*	*%REC*	*1*	*30-Jun-2022 14:57*
Surr: 4-Bromofluorobenzene	*93.1*			**0**	*85-114*	*%REC*	*1*	*30-Jun-2022 14:57*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*30-Jun-2022 14:57*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*30-Jun-2022 14:57*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PPM
Ethane	**0.00630**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	01-Jul-2022 12:54
Ethene	**0.0257**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	01-Jul-2022 12:54
Methane	**7.79**		**0.0428**	**0.200**	**0.200**	**mg/L**	400	01-Jul-2022 13:28
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**7.50**		**0.500**	**1.00**	**1.00**	**mg/L**	1	09-Jul-2022 07:18
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Nitrogen, Nitrate (As N)	**0.106**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	24-Jun-2022 18:50
Sulfate	**112**		**0.400**	**1.00**	**1.00**	**mg/L**	2	24-Jun-2022 18:50
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jul-2022 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16WW55-220623
Collection Date: 23-Jun-2022 11:15

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	30-Jun-2022 15:18
1,1-Dichloroethene	**6.9**		**1.0**	**2.5**	**5.0**	**ug/L**	5	30-Jun-2022 15:18
1,2-Dichloroethane	**5.0**		**1.0**	**2.5**	**5.0**	**ug/L**	5	30-Jun-2022 15:18
cis-1,2-Dichloroethene	**480**		**1.0**	**2.5**	**5.0**	**ug/L**	5	30-Jun-2022 15:18
Methylene chloride	10	U	2.0	10	10	ug/L	5	30-Jun-2022 15:18
Trichloroethene	**2,400**		**10**	**25**	**50**	**ug/L**	50	30-Jun-2022 17:03
Vinyl chloride	**44**		**1.0**	**2.5**	**5.0**	**ug/L**	5	30-Jun-2022 15:18
Surr: 1,2-Dichloroethane-d4	*83.0*			**0**	*81-118*	*%REC*	*5*	*30-Jun-2022 15:18*
Surr: 1,2-Dichloroethane-d4	*82.3*			**0**	*81-118*	*%REC*	*50*	*30-Jun-2022 17:03*
Surr: 4-Bromofluorobenzene	*90.9*			**0**	*85-114*	*%REC*	*5*	*30-Jun-2022 15:18*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*50*	*30-Jun-2022 17:03*
Surr: Dibromofluoromethane	*87.6*			**0**	*80-119*	*%REC*	*50*	*30-Jun-2022 17:03*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*5*	*30-Jun-2022 15:18*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*5*	*30-Jun-2022 15:18*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*50*	*30-Jun-2022 17:03*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PPM
Ethane	0.000500	U	0.000144	0.000500	0.00100	mg/L	1	01-Jul-2022 13:01
Ethene	**0.0126**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	01-Jul-2022 13:01
Methane	**0.460**		**0.00535**	**0.0250**	**0.0250**	**mg/L**	50	01-Jul-2022 13:35
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**5.27**		**0.500**	**1.00**	**1.00**	**mg/L**	1	09-Jul-2022 07:31
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Nitrogen, Nitrate (As N)	**0.151**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	24-Jun-2022 18:55
Sulfate	**694**		**4.00**	**10.0**	**10.0**	**mg/L**	20	25-Jun-2022 17:31
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jul-2022 09:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16EW04-220623
Collection Date: 23-Jun-2022 12:05

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	30-Jun-2022 16:00
1,1-Dichloroethene	**12**		**2.0**	**5.0**	**10**	**ug/L**	10	30-Jun-2022 16:00
1,2-Dichloroethane	**6.1**	J	**2.0**	**5.0**	**10**	**ug/L**	10	30-Jun-2022 16:00
cis-1,2-Dichloroethene	**2,700**		**20**	**50**	**100**	**ug/L**	100	30-Jun-2022 17:46
Methylene chloride	**12**	J	**4.0**	**20**	**20**	**ug/L**	10	30-Jun-2022 16:00
Trichloroethene	**9,800**		**20**	**50**	**100**	**ug/L**	100	30-Jun-2022 17:46
Vinyl chloride	**44**		**2.0**	**5.0**	**10**	**ug/L**	10	30-Jun-2022 16:00
Surr: 1,2-Dichloroethane-d4	*85.1*			**0**	*81-118*	*%REC*	*10*	*30-Jun-2022 16:00*
Surr: 1,2-Dichloroethane-d4	*84.1*			**0**	*81-118*	*%REC*	*100*	*30-Jun-2022 17:46*
Surr: 4-Bromofluorobenzene	*91.8*			**0**	*85-114*	*%REC*	*100*	*30-Jun-2022 17:46*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*10*	*30-Jun-2022 16:00*
Surr: Dibromofluoromethane	*88.6*			**0**	*80-119*	*%REC*	*100*	*30-Jun-2022 17:46*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*10*	*30-Jun-2022 16:00*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*100*	*30-Jun-2022 17:46*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*10*	*30-Jun-2022 16:00*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: 16EW08-220623
Collection Date: 23-Jun-2022 12:45

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	30-Jun-2022 13:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:33
cis-1,2-Dichloroethene	**4.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 13:33
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	30-Jun-2022 13:33
Trichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	30-Jun-2022 13:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 13:33
Surr: 1,2-Dichloroethane-d4	*83.5*			**0**	*81-118*	*%REC*	*1*	*30-Jun-2022 13:33*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*30-Jun-2022 13:33*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*30-Jun-2022 13:33*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*30-Jun-2022 13:33*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	11-Jul-2022 16:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Sample ID: Trip Blank-220623
Collection Date: 23-Jun-2022 00:00

ANALYTICAL REPORT
WorkOrder:HS22061313
Lab ID:HS22061313-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	30-Jun-2022 12:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 12:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 12:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 12:51
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	30-Jun-2022 12:51
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 12:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	30-Jun-2022 12:51
Surr: 1,2-Dichloroethane-d4	*82.7*			**0**	*81-118*	*%REC*	*1*	*30-Jun-2022 12:51*
Surr: 4-Bromofluorobenzene	*91.8*			**0**	*85-114*	*%REC*	*1*	*30-Jun-2022 12:51*
Surr: Dibromofluoromethane	*87.6*			**0**	*80-119*	*%REC*	*1*	*30-Jun-2022 12:51*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*30-Jun-2022 12:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R411539 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			24 Jun 2022 18:34	2
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			24 Jun 2022 18:39	5
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			24 Jun 2022 18:44	2
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			24 Jun 2022 18:18	1
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			24 Jun 2022 18:50	2
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			24 Jun 2022 18:55	2
Batch ID: R411555 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			25 Jun 2022 17:16	10
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			25 Jun 2022 17:21	50
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			25 Jun 2022 17:31	20
Batch ID: R411964 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS22061313-09	Trip Blank-220623	23 Jun 2022 00:00			30 Jun 2022 12:51	1
Batch ID: R411964 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			30 Jun 2022 17:24	100
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			30 Jun 2022 15:39	10
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			30 Jun 2022 14:15	1
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			30 Jun 2022 14:36	1
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			30 Jun 2022 13:12	1
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			30 Jun 2022 14:57	1
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			30 Jun 2022 17:03	50
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			30 Jun 2022 15:18	5
HS22061313-07	16EW04-220623	23 Jun 2022 12:05			30 Jun 2022 17:46	100
HS22061313-07	16EW04-220623	23 Jun 2022 12:05			30 Jun 2022 16:00	10
HS22061313-08	16EW08-220623	23 Jun 2022 12:45			30 Jun 2022 13:33	1
Batch ID: R412066 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			01 Jul 2022 11:58	1
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			01 Jul 2022 12:25	1
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			01 Jul 2022 13:09	200
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			01 Jul 2022 12:34	1
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			01 Jul 2022 13:20	400
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			01 Jul 2022 12:42	1
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			01 Jul 2022 13:28	400
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			01 Jul 2022 12:54	1
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			01 Jul 2022 13:35	50
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			01 Jul 2022 13:01	1
Batch ID: R412500 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B-2011				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			08 Jul 2022 11:22	1

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R412534 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B-2011				**Matrix:** Groundwater	
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			09 Jul 2022 06:35	1
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			09 Jul 2022 07:18	1
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			09 Jul 2022 07:31	1
Batch ID: R412597 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B-2011				**Matrix:** Groundwater	
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			09 Jul 2022 12:25	10
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			09 Jul 2022 12:37	10
Batch ID: R412658 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			11 Jul 2022 16:34	1
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			11 Jul 2022 16:34	1
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			11 Jul 2022 16:34	1
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			11 Jul 2022 16:34	1
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			11 Jul 2022 16:34	1
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			11 Jul 2022 16:34	1
HS22061313-07	16EW04-220623	23 Jun 2022 12:05			11 Jul 2022 16:34	1
HS22061313-08	16EW08-220623	23 Jun 2022 12:45			11 Jul 2022 16:34	1
Batch ID: R413091 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS22061313-01	16WW58-220623	23 Jun 2022 07:00			18 Jul 2022 09:12	1
HS22061313-02	16WW57-220623	23 Jun 2022 07:45			18 Jul 2022 09:12	1
HS22061313-03	16IW10-220623	23 Jun 2022 08:40			18 Jul 2022 09:12	1
HS22061313-04	16IW09-220623	23 Jun 2022 09:30			18 Jul 2022 09:12	1
HS22061313-05	16IW20-220623	23 Jun 2022 10:25			18 Jul 2022 09:12	1
HS22061313-06	16WW55-220623	23 Jun 2022 11:15			18 Jul 2022 09:12	1

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R412066 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-220701** Units: **mg/L** Analysis Date: **01-Jul-2022 09:03**
Client ID: Run ID: **FID-4_412066** SeqNo: **6726418** 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	0.000500	0.000500								U

LCS Sample ID: **LCS-220701** Units: **mg/L** Analysis Date: **01-Jul-2022 09:12**
Client ID: Run ID: **FID-4_412066** SeqNo: **6726419** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0224	0.00100	0.01804	0	124	75 - 125				
Ethene	0.0176	0.00100	0.0168	0	105	75 - 125				
Methane	0.00898	0.000500	0.009647	0	93.1	75 - 125				

LCSD Sample ID: **LCSD-220701** Units: **mg/L** Analysis Date: **01-Jul-2022 09:21**
Client ID: Run ID: **FID-4_412066** SeqNo: **6726420** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0199	0.00100	0.01804	0	110	75 - 125	0.02239	11.7	30	
Ethene	0.0176	0.00100	0.0168	0	105	75 - 125	0.01758	0.0971	30	
Methane	0.00981	0.000500	0.009647	0	102	75 - 125	0.008981	8.82	30	

DUP Sample ID: **HS22061313-01DUP** Units: **mg/L** Analysis Date: **01-Jul-2022 12:07**
Client ID: **16WW58-220623** Run ID: **FID-4_412066** SeqNo: **6726437** 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					0	0	30	U
Ethene	0.000500	0.00100					0.001635	0	30	U
Methane	0.00834	0.000500					0.009121	8.89	30	

The following samples were analyzed in this batch: HS22061313-01 HS22061313-02 HS22061313-03 HS22061313-04 HS22061313-05 HS22061313-06

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R411964 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-220630** Units: **ug/L** Analysis Date: **30-Jun-2022 12:30**
Client ID: Run ID: **VOA6_411964** SeqNo: **6724332** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	2.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*41.16*	*1.0*	*50*	*0*	*82.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.74*	*1.0*	*50*	*0*	*93.5*	*85 - 114*				
Surr: Dibromofluoromethane	*43.8*	*1.0*	*50*	*0*	*87.6*	*80 - 119*				
Surr: Toluene-d8	*51.33*	*1.0*	*50*	*0*	*103*	*89 - 112*				

LCS Sample ID: **VLCSW-220629** Units: **ug/L** Analysis Date: **30-Jun-2022 11:47**
Client ID: Run ID: **VOA6_411964** SeqNo: **6724331** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.4	1.0	20	0	97.0	80 - 119				
1,1-Dichloroethene	16.99	1.0	20	0	85.0	71 - 131				
1,2-Dichloroethane	19.92	1.0	20	0	99.6	73 - 128				
cis-1,2-Dichloroethene	19.56	1.0	20	0	97.8	78 - 123				
Methylene chloride	19.65	2.0	20	0	98.2	74 - 124				
Trichloroethene	20.62	1.0	20	0	103	79 - 123				
Vinyl chloride	15.29	1.0	20	0	76.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.83*	*1.0*	*50*	*0*	*95.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.52*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.47*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*50.06*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R411964 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS22061605-02MS** Units: **ug/L** Analysis Date: **30-Jun-2022 16:21**
Client ID: Run ID: **VOA6_411964** SeqNo: **6724343** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.97	1.0	20	0	99.9	80 - 119				
1,1-Dichloroethene	15.02	1.0	20	0	75.1	71 - 131				
1,2-Dichloroethane	19.59	1.0	20	0	98.0	73 - 128				
cis-1,2-Dichloroethene	18.89	1.0	20	0	94.4	78 - 123				
Methylene chloride	15.61	2.0	20	0	78.1	74 - 124				
Trichloroethene	23.4	1.0	20	0	117	79 - 123				
Vinyl chloride	7.062	1.0	20	0	35.3	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*42.38*	*1.0*	*50*	*0*	*84.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.22*	*1.0*	*50*	*0*	*96.4*	*85 - 114*				
Surr: Dibromofluoromethane	*44.13*	*1.0*	*50*	*0*	*88.3*	*80 - 119*				
Surr: Toluene-d8	*51.04*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS22061605-02MSD** Units: **ug/L** Analysis Date: **30-Jun-2022 16:42**
Client ID: Run ID: **VOA6_411964** SeqNo: **6724344** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.91	1.0	20	0	99.6	80 - 119	19.97	0.291	20	
1,1-Dichloroethene	14.22	1.0	20	0	71.1	71 - 131	15.02	5.42	20	
1,2-Dichloroethane	18.9	1.0	20	0	94.5	73 - 128	19.59	3.57	20	
cis-1,2-Dichloroethene	18.06	1.0	20	0	90.3	78 - 123	18.89	4.45	20	
Methylene chloride	15.35	2.0	20	0	76.7	74 - 124	15.61	1.7	20	
Trichloroethene	21.14	1.0	20	0	106	79 - 123	23.4	10.1	20	
Vinyl chloride	6.768	1.0	20	0	33.8	58 - 137	7.062	4.25	20	S
Surr: 1,2-Dichloroethane-d4	*41.55*	*1.0*	*50*	*0*	*83.1*	*81 - 118*	*42.38*	*1.99*	*20*	
Surr: 4-Bromofluorobenzene	*47.75*	*1.0*	*50*	*0*	*95.5*	*85 - 114*	*48.22*	*0.973*	*20*	
Surr: Dibromofluoromethane	*44.47*	*1.0*	*50*	*0*	*88.9*	*80 - 119*	*44.13*	*0.779*	*20*	
Surr: Toluene-d8	*50.6*	*1.0*	*50*	*0*	*101*	*89 - 112*	*51.04*	*0.869*	*20*	

The following samples were analyzed in this batch:

HS22061313-01	HS22061313-02	HS22061313-03	HS22061313-04
HS22061313-05	HS22061313-06	HS22061313-07	HS22061313-08
HS22061313-09			

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R411539 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **24-Jun-2022 18:07**
Client ID: Run ID: **ICS-Integrion_411539** SeqNo: **6713700** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **24-Jun-2022 18:12**
Client ID: Run ID: **ICS-Integrion_411539** SeqNo: **6713701** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.122	0.100	4	0	103	80 - 120				
Sulfate	19.61	0.500	20	0	98.0	80 - 120				

MS Sample ID: **HS22061313-04MS** Units: **mg/L** Analysis Date: **24-Jun-2022 18:23**
Client ID: **16IW09-220623** Run ID: **ICS-Integrion_411539** SeqNo: **6713703** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.066	0.100	2	0.062	100	80 - 120				
Sulfate	12.78	0.500	10	2.701	101	80 - 120				

MSD Sample ID: **HS22061313-04MSD** Units: **mg/L** Analysis Date: **24-Jun-2022 18:28**
Client ID: **16IW09-220623** Run ID: **ICS-Integrion_411539** SeqNo: **6713704** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.987	0.100	2	0.062	96.2	80 - 120	2.066	3.94	20	
Sulfate	12.48	0.500	10	2.701	97.7	80 - 120	12.78	2.39	20	

The following samples were analyzed in this batch: HS22061313-01 HS22061313-02 HS22061313-03 HS22061313-04 HS22061313-05 HS22061313-06

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R411555 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **25-Jun-2022 16:54**
Client ID: Run ID: **ICS-Integrion_411555** SeqNo: **6714059** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **25-Jun-2022 16:38**
Client ID: Run ID: **ICS-Integrion_411555** SeqNo: **6714056** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.56	0.500	20	0	97.8	80 - 120				

MS Sample ID: **HS22061091-04MS** Units: **mg/L** Analysis Date: **25-Jun-2022 17:05**
Client ID: Run ID: **ICS-Integrion_411555** SeqNo: **6714061** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	25.07	0.500	10	15.12	99.5	80 - 120				

MSD Sample ID: **HS22061091-04MSD** Units: **mg/L** Analysis Date: **25-Jun-2022 17:10**
Client ID: Run ID: **ICS-Integrion_411555** SeqNo: **6714062** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	25.08	0.500	10	15.12	99.6	80 - 120	25.07	0.0164	20	

The following samples were analyzed in this batch: HS22061313-01 HS22061313-02 HS22061313-06

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R412500 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON - SM5310B-2011

MBLK Sample ID: **MBLK-07082022** Units: **mg/L** Analysis Date: **08-Jul-2022 10:41**
Client ID: Run ID: **TOC_04_412500** SeqNo: **6736293** 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-07082022** Units: **mg/L** Analysis Date: **08-Jul-2022 10:55**
Client ID: Run ID: **TOC_04_412500** SeqNo: **6736294** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.372	1.00	10	0	93.7	85 - 115				

LCSD Sample ID: **LCSD-07082022** Units: **mg/L** Analysis Date: **08-Jul-2022 11:09**
Client ID: Run ID: **TOC_04_412500** SeqNo: **6736295** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.307	1.00	10	0	93.1	85 - 115	9.372	0.696	20	

MS Sample ID: **HS22061313-01MS** Units: **mg/L** Analysis Date: **08-Jul-2022 11:36**
Client ID: **16WW58-220623** Run ID: **TOC_04_412500** SeqNo: **6736297** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	14.65	1.00	10	5.581	90.7	80 - 120				

The following samples were analyzed in this batch: HS22061313-01

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R412534 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON - SM5310B-2011

MBLK Sample ID: **MBLK4-07082022** Units: **mg/L** Analysis Date: **09-Jul-2022 05:53**
Client ID: Run ID: **TOC_04_412534** SeqNo: **6737351** 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: **LCS4-07082022** Units: **mg/L** Analysis Date: **09-Jul-2022 06:07**
Client ID: Run ID: **TOC_04_412534** SeqNo: **6737352** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.133	1.00	10	0	91.3	85 - 115				

LCSD Sample ID: **LCSD4-07082022** Units: **mg/L** Analysis Date: **09-Jul-2022 06:21**
Client ID: Run ID: **TOC_04_412534** SeqNo: **6737353** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.117	1.00	10	0	91.2	85 - 115	9.133	0.175	20	

MS Sample ID: **HS22061333-01MS** Units: **mg/L** Analysis Date: **09-Jul-2022 08:00**
Client ID: Run ID: **TOC_04_412534** SeqNo: **6737360** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	37.45	1.00	10	28.72	87.3	80 - 120				

The following samples were analyzed in this batch: HS22061313-02 HS22061313-05 HS22061313-06

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: HS22061313

QC BATCH REPORT

Batch ID: R412597 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON - SM5310B-2011

MBLK Sample ID: **MBLK-07082022** Units: **mg/L** Analysis Date: **09-Jul-2022 11:47**
Client ID: Run ID: **TOC_04_412597** SeqNo: **6738879** 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-07092022** Units: **mg/L** Analysis Date: **09-Jul-2022 12:01**
Client ID: Run ID: **TOC_04_412597** SeqNo: **6738880** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.677	1.00	10	0	96.8	85 - 115				

LCSD Sample ID: **LCSD-07092022** Units: **mg/L** Analysis Date: **09-Jul-2022 12:14**
Client ID: Run ID: **TOC_04_412597** SeqNo: **6738881** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.724	1.00	10	0	97.2	85 - 115	9.677	0.485	20	

MS Sample ID: **HS22070074-01MS** Units: **mg/L** Analysis Date: **09-Jul-2022 13:00**
Client ID: Run ID: **TOC_04_412597** SeqNo: **6738885** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	16.54	1.00	10	6.697	98.4	80 - 120				

The following samples were analyzed in this batch: HS22061313-03 HS22061313-04

ALS Houston, US Date: 31-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
WorkOrder: **HS22061313**

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	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2022	31-Dec-2022
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2021-080	31-Aug-2022
Texas	T104704231-22-29	30-Apr-2023

ALS Houston, US Date: 31-Jul-22

Sample Receipt Checklist

Work Order ID: HS22061313 **Date/Time Received:** 24-Jun-2022 09:30

Client Name: CBI-Houston **Received by:** Paresh M. Giga

Completed By: /S/ Paresh M. Giga (eSignature) 24-Jun-2022 12:41 (Date/Time) **Reviewed by:** /S/ Dane J. Wacasey (eSignature) 29-Jun-2022 11:35 (Date/Time)

Matrices: GW/Water Carrier name: FedEx Priority Overnight

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:none
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.5C/2.0C U/C	IR31	
Cooler(s)/Kit(s):	Red		
Date/Time sample(s) sent to storage:	6/24/22 13:10		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	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) 575-2190 ATTN: Dane Wacasey

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 16 January 2022**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions sulfate and nitrate by SW9056	CO2 by RSK 175	Perchlorate by SW 6850					Remarks (Preservatives, etc.)	Lab I.D.#
16WW58-220623	WG	6/23/22 0700		13	X	X	X	X	X	X						
16WW57-220623	WG	6/23/22 0745		13	X	X	X	X	X	X						
16IW10-220623	WG	6/23/22 0840		13	X	X	X	X	X	X						
16IW09-220623	WG	6/23/22 0930		13	X	X	X	X	X	X						
16IW20-220623	WG	6/23/22 1025		13	X	X	X	X	X	X						
16WW55-220623	WG	6/23/22 1115		13	X	X	X	X	X	X						
16EW04-220623	WG	6/23/22 1205		4	X					X						
16EW08-220623	WG	6/23/22 1245		4	X					X						

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	6/23/22	1400		6/24/2022	09:30						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS22061313

Aptim Environmental & Infrastucture, Inc.
onghorn Army Ammunition Plant 16 January 2022

(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) 575-2190 ATTN: Dane Wacasey

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **LHAAP 16 January 2022**	
Prepared By: Scott Beesinger	P.O. Number

Field Sample I.D. / Time	Sample Matrix	Date	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions sulfate and nitrate by SW9056	CO2 by RSK 175	Perchlorate by SW 6850				Remarks (Preservatives, etc.)	Lab I.D.#
TRIP BLANK-220623	WG	6/23/22		2	X										

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com

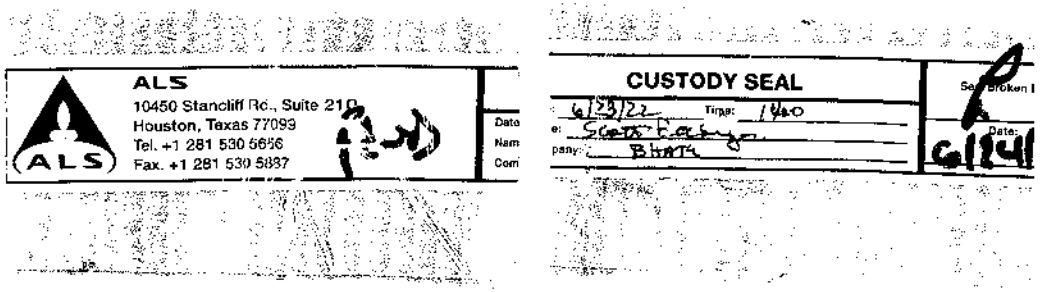
Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	6/23/22	1400		6/24/2022	07:30						

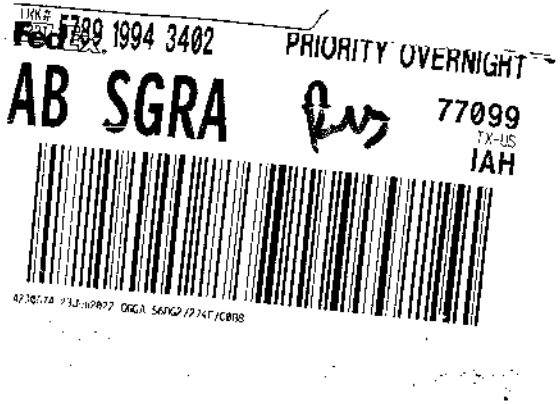
For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

(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
CUSTODY SEAL
6/23/22
Time: 1400
Date:
6124


5709 1994 3402
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

July 11, 2022 Service Request No:E2200604

Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS22061313

Dear Dane,

Enclosed are the results of the sample(s) submitted to our laboratory June 24, 2022
For your reference, these analyses have been assigned our service request number **E2200604.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS	**Service Request No.:**	E2200604
Project:	HS22061313	**Date Received:**	06/24/22
Sample Matrix:	GW		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 06/24/22.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2200262: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS-DLCS recoveries met acceptance criteria. The

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2200604
Project: HS22061313

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2200604-001	16WW58-220623	6/23/2022	0700
E2200604-002	16WW57-220623	6/23/2022	0745
E2200604-003	16IW10-220623	6/23/2022	0840
E2200604-004	16IW09-220623	6/23/2022	0930
E2200604-005	16IW20-220623	6/23/2022	1025
E2200604-006	16WW55-220623	6/23/2022	1115
E2200604-007	16EW04-220623	6/23/2022	1205
E2200604-008	16EW08-220623	6/23/2022	1245

Service Request Summary

Folder #: **E2200604**
Client Name: ALS Environmental - US
Project Name: HS22061313
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/24/22
Internal Due Date: 7/11/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061313
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2200604-001	16WW58-220623	Ground Water	06/23/22 0700	**IV**
E2200604-002	16WW57-220623	Ground Water	06/23/22 0745	**IV**
E2200604-003	16IW10-220623	Ground Water	06/23/22 0840	**IV**
E2200604-004	16IW09-220623	Ground Water	06/23/22 0930	**IV**
E2200604-005	16IW20-220623	Ground Water	06/23/22 1025	**IV**
E2200604-006	16WW55-220623	Ground Water	06/23/22 1115	**IV**
E2200604-007	16EW04-220623	Ground Water	06/23/22 1205	**IV**
E2200604-008	16EW08-220623	Ground Water	06/23/22 1245	**IV**

Service Request Summary

Folder #: **E2200604**
Client Name: ALS Environmental - US
Project Name: HS22061313
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/24/22
Internal Due Date: 7/11/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061313
EDD: EQUIS EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	8	IV due 7/18

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	(Auto) The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.

Data Qualifiers

Lab Standard

N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2023
California Department of Health Services	2919-2023	4/30/2023
Department of Defense	L22-90	3/31/2024
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Hawaii Department of Health	2022	4/30/2023
Illinois Environmental Protection Agency	2000322022-9	5/9/2023
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2022	6/30/2023
Louisiana Department of Health and Hospitals	LA028	12/31/2022
Maine Department of Health and Human Services	2022017	6/5/2024
Maryland Department of the Environment	343	6/30/2023
Michigan Depratment of Environmental Quality	9971-2022	4/30/2023
Minnesota Department of Health	2228443	12/31/2022
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2023
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209422	4/24/2023
New Jersey Department of Environmental Protection	TX008-2023	6/30/2023
New York Department of Health	11707	3/31/2023
Oklahoma Department of Environmental Quality	2021-080	8/31/2022
Oregon Environmental Laboratory Accreditation Program	TX200002	5/15/2023
Pennsylvania Department of Environmental Protection	68-03441-016	6/30/2023
Perry Johnson Laboratory Accreditation	L22-91	3/31/2024
Tennessee Department of Environment and Concervation	04016-2022	4/30/2023
Texas Commision on Environmental Quality	T104704231-22-29	4/30/2023
United States Department of Agriculture	P330-19-00299	10/10/2022
Utah Department of Health Environmental Laboratory Certification	TX026932021-12	7/31/2022
Washington Department of Health	C819-2022	11/14/2022

Chain of Custody

ALS Environmental - Houston HRMS
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Houston, TX 77099
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F: +1 281 530 5887
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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19037**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Dane J. Wacasey
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Dane.Wacasey@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS22061313
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS22061313-01**	**16WW58-220623**	**Groundwater**	**23 Jun 2022 07:00**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
2.	**HS22061313-02**	**16WW57-220623**	**Groundwater**	**23 Jun 2022 07:45**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
3.	**HS22061313-03**	**16IW10-220623**	**Groundwater**	**23 Jun 2022 08:40**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
4.	**HS22061313-04**	**16IW09-220623**	**Groundwater**	**23 Jun 2022 09:30**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
5.	**HS22061313-05**	**16IW20-220623**	**Groundwater**	**23 Jun 2022 10:25**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
6.	**HS22061313-06**	**16WW55-220623**	**Groundwater**	**23 Jun 2022 11:15**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
7.	**HS22061313-07**	**16EW04-220623**	**Groundwater**	**23 Jun 2022 12:05**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
8.	**HS22061313-08**	**16EW08-220623**	**Groundwater**	**23 Jun 2022 12:45**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 19037**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 6.24.22 1720

Cooler ID(s): _____ Temperature(s): _____

Cooler Receipt Form

ALS Environmental

Project Chemist CG

Client/Project ALS-H

Thermometer ID IR41

Date/Time Received: 6-24-22 Initials: CG

Date/Time Logged in: 6-24-22 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ⊗ Courier (ALS) ○ Client

2. Samples received in: ⊗ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ⊗ No
   Were they intact? ○ Yes ○ No ⊗ N/A
   Were they signed and dated? ○ Yes ○ No ⊗ N/A
   If yes, how many and where?

4. Packing Material: ○ Inserts ⊗ Baggies ○ Bubble Wrap ○ Gel Packs ⊗ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		6-24-22	1720	CG	2.1°C	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊗ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊗ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊗ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ⊗ Yes ○ No
10. Did sample labels and tags agree with custody documents? ⊗ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

HS-HRMSCoolerReceipt R1.0

ALS Environmental - Houston HRMS

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Preparation Information Benchsheet

Prep Run#: 401984 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 6/28/22 11:30

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2200604-001	16WW58-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2200604-002	16WW57-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2200604-003	16IW10-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2200604-004	16IW09-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2200604-005	16IW20-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2200604-006	16WW55-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2200604-007	16EW04-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2200604-008	16EW08-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
9	EQ2200262-01	MB		6850/ClO4 DOD			Liquid	10mL	
10	EQ2200262-02	LCS		6850/ClO4 DOD			Liquid	10mL	
11	EQ2200262-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 222798 Logbook Ref: Perchlorate (1st Source) Expires On: 10/29/2022

EQ2200262-02 1.00µL EQ2200262-03 1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 223118 Logbook Ref: Perchlorate Internal Standard Expires On: 10/31/2022

E2200604-001 100.00µL E2200604-002 100.00µL E2200604-003 100.00µL E2200604-004 100.00µL E2200604-005 100.00µL E2200604-006 100.00µL
E2200604-007 100.00µL E2200604-008 100.00µL EQ2200262-01 100.00µL EQ2200262-02 100.00µL EQ2200262-03 100.00µL

Preparation Materials

Water HPLC Grade	5/12/2022 Water (223055)	6850 Amber Glass screw vial	2mL Screw Top Vial (221894)	537M Glass Culture Tubes	537M Glass Tubes (218064)
6850 0.45um syringe filters	6850 Syringe Filters (219639)	6850 Pipette Tips 50-1000 uL	6850 Pipette Tips (221929)	6850 Luer-Lok Syringes	Luer-Lok Syringes (221305)

Preparation Steps

Step: Preparation
Started: 6/28/22 11:30
Finished: 6/28/22 11:45
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 6/28/22

Analytical Results

ALS Environmental - Houston HRMS
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0700
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16WW58-220623	**Units:**	µg/L
Lab Code:	E2200604-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/5/22 15:17	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0745
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16WW57-220623	**Units:**	µg/L
Lab Code:	E2200604-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.138**		0.100	0.0500	0.0250	1	6/28/22	7/5/22 15:56	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0840
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16IW10-220623	**Units:**	µg/L
Lab Code:	E2200604-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.108**		0.100	0.0500	0.0250	1	6/28/22	7/6/22 13:52	401984	769646	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0930
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16IW09-220623	**Units:**	µg/L
Lab Code:	E2200604-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.124**		0.100	0.0500	0.0250	1	6/28/22	7/5/22 16:39	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1025
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16IW20-220623	**Units:**	µg/L
Lab Code:	E2200604-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0415**	J	0.100	0.0500	0.0250	1	6/28/22	7/6/22 14:18	401984	769646	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1115
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16WW55-220623	**Units:**	µg/L
Lab Code:	E2200604-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**147**		1.00	0.500	0.250	10	6/28/22	7/5/22 17:03	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1205
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16EW04-220623	**Units:**	µg/L
Lab Code:	E2200604-007	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/6/22 12:56	401984	769646	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1245
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16EW08-220623	**Units:**	µg/L
Lab Code:	E2200604-008	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/5/22 17:19	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2200262-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/5/22 14:22	401984	769552	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313
Sample Matrix: Ground Water

Service Request: E2200604
Date Analyzed: 7/ 5/22

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 401984

	Lab Control Sample EQ2200262-02			Duplicate Lab Control Sample EQ2200262-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.101	0.100	101	0.0980	0.100	98	84 - 119	3	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200262-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.101**		0.100	0.0500	0.0250	1	6/28/22	7/5/22 14:37	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200262-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0980**	J	0.100	0.0500	0.0250	1	6/28/22	7/5/22 15:09	401984	769552	

Pace Analytical®

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 07/16/2022

Report # 222062838

Project HS22061313

Samples Collected 6/23/22

Deliver To	***Additional Recipients***
Dane Wacasey ALS 10450 Stancliff Rd., Ste 210 Houston, TX 770994338	Jumoke Lawal, ALS Houston

PJLA Testing DoD ELAP

ISO 17025

NELAP ACCREDITED TNI LABORATORY

Pace Analytical

Report#: 222062838
Project ID: HS22061313 **Report Date:** 07/16/2022

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

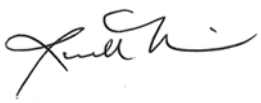
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (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 222062838

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:** 222062838

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.

This report was completed in accordance with DOD QSM 5.3 as specified in the contract.

VOLATILES GAS CHROMATOGRAPHY

In the EPA RSK-175 analysis for analytical batch 744842, the LCS/LCSD exhibited RPD failures.

Pace Analytical

Report#: 222062838
Project ID: HS22061313 **Report Date:** 07/16/2022

Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22206283801	16WW58-220623	Water	6/23/22 07:00	6/28/22 09:28
22206283802	16WW57-220623	Water	6/23/22 07:45	6/28/22 09:28
22206283803	16IW10-220623	Water	6/23/22 08:40	6/28/22 09:28
22206283804	16IW09-220623	Water	6/23/22 09:30	6/28/22 09:28
22206283805	16IW20-220623	Water	6/23/22 10:25	6/28/22 09:28
22206283806	16WW55-220623	Water	6/23/22 11:15	6/28/22 09:28

Pace Analytical

Report#: 222062838
Project ID: HS22061313 **Report Date:** 07/16/2022

Test Summary

EPA RSK-175

Lab ID	Client ID	Matrix	Batch	Instru	RunDate
22206283801	16WW58-220623	Water	744842	GCV8B	7/07/22 11:11
22206283802	16WW57-220623	Water	744842	GCV8B	7/07/22 11:28
22206283803	16IW10-220623	Water	744842	GCV8B	7/07/22 11:34
22206283804	16IW09-220623	Water	744842	GCV8B	7/07/22 11:41
22206283805	16IW20-220623	Water	744842	GCV8B	7/07/22 11:48
22206283806	16WW55-220623	Water	744842	GCV8B	7/07/22 12:00

Manual Integrations

Manual Integrations for LC and IC (if performed) are documented in the raw data.
No other manual integrations were performed by Pace Gulf Coast.

Q Flag Summary

Client Sample ID: **16WW58-220623** Lab Sample ID: **22206283801**

EPA RSK-175 Analysis Date: 7/7/2022 11:11:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16WW57-220623** Lab Sample ID: **22206283802**

EPA RSK-175 Analysis Date: 7/7/2022 11:28:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16IW10-220623** Lab Sample ID: **22206283803**

EPA RSK-175 Analysis Date: 7/7/2022 11:34:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16IW09-220623** Lab Sample ID: **22206283804**

EPA RSK-175 Analysis Date: 7/7/2022 11:41:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16IW20-220623** Lab Sample ID: **22206283805**

EPA RSK-175 Analysis Date: 7/7/2022 11:48:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16WW55-220623** Lab Sample ID: **22206283806**

EPA RSK-175 Analysis Date: 7/7/2022 12:00:00 PM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

CCV=Initial or Continuing CCV out of limits
LCS/D=LCS/LCSD out of limits
SURR=Surrogate out of limits
ISTD=Internal Standard out of limits
CLCCV=Closing CCV out of limits

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
22206283801	16WW58-220623	Carbon Dioxide	ug/L	167000Q	10	NA
22206283802	16WW57-220623	Carbon Dioxide	ug/L	327000Q	30	NA
22206283803	16IW10-220623	Carbon Dioxide	ug/L	312000Q	30	NA
22206283804	16IW09-220623	Carbon Dioxide	ug/L	200000Q	30	NA
22206283805	16IW20-220623	Carbon Dioxide	ug/L	144000Q	30	NA
22206283806	16WW55-220623	Carbon Dioxide	ug/L	135000Q	30	NA

Pace Analytical

Report#: 222062838
Project ID: HS22061313 **Report Date:** 07/16/2022

Sample Results

16WW58-220623

Collect Date 06/23/2022 07:00 **Lab ID** 22206283801
Receive Date 06/28/2022 09:28 **Matrix** Water

EPA RSK-175 *Results and limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	10	07/07/22 11:11	744842	BDP	NA

CAS#	Parameter	Result	DL	LOD	LOQ	Units
124-38-9	Carbon Dioxide	167000Q	1270	3860	9000	ug/L

16WW57-220623

Collect Date 06/23/2022 07:45 **Lab ID** 22206283802
Receive Date 06/28/2022 09:28 **Matrix** Water

EPA RSK-175 *Results and limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	30	07/07/22 11:28	744842	BDP	NA

CAS#	Parameter	Result	DL	LOD	LOQ	Units
124-38-9	Carbon Dioxide	327000Q	3810	11600	27000	ug/L

16IW10-220623

Collect Date 06/23/2022 08:40 **Lab ID** 22206283803
Receive Date 06/28/2022 09:28 **Matrix** Water

EPA RSK-175 *Results and limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	30	07/07/22 11:34	744842	BDP	NA

CAS#	Parameter	Result	DL	LOD	LOQ	Units
124-38-9	Carbon Dioxide	312000Q	3810	11600	27000	ug/L

16IW09-220623

Collect Date 06/23/2022 09:30 **Lab ID** 22206283804
Receive Date 06/28/2022 09:28 **Matrix** Water

EPA RSK-175 *Results and limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	30	07/07/22 11:41	744842	BDP	NA

CAS#	Parameter	Result	DL	LOD	LOQ	Units
124-38-9	Carbon Dioxide	200000Q	3810	11600	27000	ug/L

Pace Analytical

Report#: 222062838
Project ID: HS22061313 **Report Date:** 07/16/2022

Sample Results

16IW20-220623

Collect Date	06/23/2022 10:25	**Lab ID**	22206283805
Receive Date	06/28/2022 09:28	**Matrix**	Water

EPA RSK-175

*Results and limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	30	07/07/22 11:48	744842	BDP	NA

CAS#	Parameter	Result	DL	LOD	LOQ	Units
124-38-9	Carbon Dioxide	144000Q	3810	11600	27000	ug/L

16WW55-220623

Collect Date	06/23/2022 11:15	**Lab ID**	22206283806
Receive Date	06/28/2022 09:28	**Matrix**	Water

EPA RSK-175

*Results and limits are adjusted for dilution.

Prep Date	Prep Batch	Prep Method	Dilution	Run Date	Run Batch	Analyst	%Moisture
NA	NA	NA	30	07/07/22 12:00	744842	BDP	NA

CAS#	Parameter	Result	DL	LOD	LOQ	Units
124-38-9	Carbon Dioxide	135000Q	3810	11600	27000	ug/L

Pace Analytical

Report#: 222062838
Project ID: HS22061313 **Report Date:** 07/16/2022

GC Volatiles QC Summary

Analytical Batch 744842	Client ID	MB744842		LCS744842				LCSD744842				
	Lab ID	2367943		2367944				2367945				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	07/07/22 10:29		07/07/22 10:19				07/07/22 10:24				
	Matrix	Water		Water				Water				
EPA RSK-175		Units Result	ug/L LOD	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Carbon Dioxide	124-38-9	386U	386	8700	4210	48	38 - 147	8700	6380	73	**41***	40

Client ID: ALS Houston - ALS Environmental - Houston, TX

SDG: 222062838

PM: RWe

F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Dept of Defense **COC ID:** 19036

SUBCONTRACT TO:

Pace Analytical
7979 Innovation Park Drive
Baton Rouge, LA 70820

Phone: +1 225 769 4900

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Dane J. Wacasey
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Dane.Wacasey@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS22061313
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE	
	ANALYSIS REQUESTED			DUE DATE	
1.	**HS22061313-01**	**16WW58-220623**	**Groundwater**	**23 Jun 2022 07:00**	1
	SUB_RSK			11 Jul 2022	
2.	**HS22061313-02**	**16WW57-220623**	**Groundwater**	**23 Jun 2022 07:45**	2
	SUB_RSK			11 Jul 2022	
3.	**HS22061313-03**	**16IW10-220623**	**Groundwater**	**23 Jun 2022 08:40**	3
	SUB_RSK			11 Jul 2022	
4.	**HS22061313-04**	**16IW09-220623**	**Groundwater**	**23 Jun 2022 09:30**	4
	SUB_RSK			11 Jul 2022	
5.	**HS22061313-05**	**16IW20-220623**	**Groundwater**	**23 Jun 2022 10:25**	5
	SUB_RSK			11 Jul 2022	
6.	**HS22061313-06**	**16WW55-220623**	**Groundwater**	**23 Jun 2022 11:15**	6
	SUB_RSK			11 Jul 2022	

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19036**

Relinquished By: [illegible] Date/Time: 6.27.22 1800

Received By: Fedex Date/Time:

Fedex 4/28/22 0.8 Cooler ID(s): Tylisa Smith 4/28/22 Temperature(s): E42 0.8

5789 1994 8805

Client ID: ALS Houston - ALS Environmental - Houston, TX

SDG: 222062838

PM: RWe

Pace Analytical®

SAMPLE RECEIVING CHECKLIST

* 2 2 2 0 6 2 8 3 8 *

SAMPLE DELIVERY GROUP 222062838	
Client **PM** RWe ALS Houston - ALS Environmental - Houston, TX	**Transport Method** FEDEX
Profile Number 296429	**Received By** Perkins, Brennan
Line Item(s) 1 - CO2	**Receive Date(s)** 06/28/22

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: E42	Temp °C
		0.8

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

HS22061313-MSVOA-SW8260

ALS WO# HS22061313

right solutions.
right partner.

Form 1

Organic Analysis Data Sheet

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-01
16WW58-220623

Collected	Received	Matrix	Units
06/23/22 07:00	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	10	U	3.0	10	10	10	06/30/22 15:39	VOA6_411964	X063016
1,1-Dichloroethene	5	U	2.0	10	10	10	06/30/22 15:39	VOA6_411964	X063016
1,2-Dichloroethane	5	U	2.0	10	10	10	06/30/22 15:39	VOA6_411964	X063016
cis-1,2-Dichloroethene	95		2.0	10	10	10	06/30/22 15:39	VOA6_411964	X063016
Methylene chloride	13	J	4.0	20	20	10	06/30/22 15:39	VOA6_411964	X063016
Vinyl chloride	5	U	2.0	10	10	10	06/30/22 15:39	VOA6_411964	X063016
Trichloroethene	2600		20	100	100	100	06/30/22 17:24	VOA6_411964	X063021

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-02
16WW57-220623

Collected	Received	Matrix	Units
06/23/22 07:45	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 14:15	VOA6_411964	X063012
1,1-Dichloroethene	1.6		0.20	1.0	1.0	1	06/30/22 14:15	VOA6_411964	X063012
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 14:15	VOA6_411964	X063012
cis-1,2-Dichloroethene	1.6		0.20	1.0	1.0	1	06/30/22 14:15	VOA6_411964	X063012
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 14:15	VOA6_411964	X063012
Trichloroethene	120		0.20	1.0	1.0	1	06/30/22 14:15	VOA6_411964	X063012
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/30/22 14:15	VOA6_411964	X063012

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-03
16IW10-220623

Collected	Received	Matrix	Units
06/23/22 08:40	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 14:36	VOA6_411964	X063013
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 14:36	VOA6_411964	X063013
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 14:36	VOA6_411964	X063013
cis-1,2-Dichloroethene	2.7		0.20	1.0	1.0	1	06/30/22 14:36	VOA6_411964	X063013
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 14:36	VOA6_411964	X063013
Trichloroethene	2.1		0.20	1.0	1.0	1	06/30/22 14:36	VOA6_411964	X063013
Vinyl chloride	1.3		0.20	1.0	1.0	1	06/30/22 14:36	VOA6_411964	X063013

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-04
16IW09-220623

Collected	Received	Matrix	Units
06/23/22 09:30	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 13:12	VOA6_411964	X063009
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 13:12	VOA6_411964	X063009
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 13:12	VOA6_411964	X063009
cis-1,2-Dichloroethene	3.8		0.20	1.0	1.0	1	06/30/22 13:12	VOA6_411964	X063009
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 13:12	VOA6_411964	X063009
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 13:12	VOA6_411964	X063009
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/30/22 13:12	VOA6_411964	X063009

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-05
16IW20-220623

Collected	Received	Matrix	Units
06/23/22 10:25	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 14:57	VOA6_411964	X063014
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 14:57	VOA6_411964	X063014
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 14:57	VOA6_411964	X063014
cis-1,2-Dichloroethene	0.52	J	0.20	1.0	1.0	1	06/30/22 14:57	VOA6_411964	X063014
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 14:57	VOA6_411964	X063014
Trichloroethene	1.6		0.20	1.0	1.0	1	06/30/22 14:57	VOA6_411964	X063014
Vinyl chloride	3.7		0.20	1.0	1.0	1	06/30/22 14:57	VOA6_411964	X063014

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-06
16WW55-220623

Collected	Received	Matrix	Units
06/23/22 11:15	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	5	U	1.5	5.0	5.0	5	06/30/22 15:18	VOA6_411964	X063015
1,1-Dichloroethene	6.9		1.0	5.0	5.0	5	06/30/22 15:18	VOA6_411964	X063015
1,2-Dichloroethane	5		1.0	5.0	5.0	5	06/30/22 15:18	VOA6_411964	X063015
cis-1,2-Dichloroethene	480		1.0	5.0	5.0	5	06/30/22 15:18	VOA6_411964	X063015
Methylene chloride	10	U	2.0	10	10	5	06/30/22 15:18	VOA6_411964	X063015
Vinyl chloride	44		1.0	5.0	5.0	5	06/30/22 15:18	VOA6_411964	X063015
Trichloroethene	2400		10	50	50	50	06/30/22 17:03	VOA6_411964	X063020

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-07
16EW04-220623

Collected	Received	Matrix	Units
06/23/22 12:05	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	10	U	3.0	10	10	10	06/30/22 16:00	VOA6_411964	X063017
1,1-Dichloroethene	12		2.0	10	10	10	06/30/22 16:00	VOA6_411964	X063017
1,2-Dichloroethane	6.1	J	2.0	10	10	10	06/30/22 16:00	VOA6_411964	X063017
Methylene chloride	12	J	4.0	20	20	10	06/30/22 16:00	VOA6_411964	X063017
Vinyl chloride	44		2.0	10	10	10	06/30/22 16:00	VOA6_411964	X063017
cis-1,2-Dichloroethene	2700		20	100	100	100	06/30/22 17:46	VOA6_411964	X063022
Trichloroethene	9800		20	100	100	100	06/30/22 17:46	VOA6_411964	X063022

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-08
16EW08-220623

Collected	Received	Matrix	Units
06/23/22 12:45	06/24/22 09:30	Groundwater	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 13:33	VOA6_411964	X063010
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 13:33	VOA6_411964	X063010
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 13:33	VOA6_411964	X063010
cis-1,2-Dichloroethene	4.2		0.20	1.0	1.0	1	06/30/22 13:33	VOA6_411964	X063010
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 13:33	VOA6_411964	X063010
Trichloroethene	2.2		0.20	1.0	1.0	1	06/30/22 13:33	VOA6_411964	X063010
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/30/22 13:33	VOA6_411964	X063010

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

HS22061313-09
Trip Blank-220623

Collected	Received	Matrix	Units
06/23/22 00:00	06/24/22 09:30	Water	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 12:51	VOA6_411964	X063008
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 12:51	VOA6_411964	X063008
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 12:51	VOA6_411964	X063008
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 12:51	VOA6_411964	X063008
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 12:51	VOA6_411964	X063008
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 12:51	VOA6_411964	X063008
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/30/22 12:51	VOA6_411964	X063008

Form 1 - Organic Analysis Data Sheet

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

VBLKW-220630
VBLKW-220630

Collected	Received	Matrix	Units
NA	NA	Aqueous	ug/L

Analyte	Result	Q	DL	LOD	LOQ	DF	Analysis Date	Run ID	Data File
1,1,2-Trichloroethane	1	U	0.30	1.0	1.0	1	06/30/22 12:30	VOA6_411964	X063007
1,1-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 12:30	VOA6_411964	X063007
1,2-Dichloroethane	0.5	U	0.20	1.0	1.0	1	06/30/22 12:30	VOA6_411964	X063007
cis-1,2-Dichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 12:30	VOA6_411964	X063007
Methylene chloride	2	U	0.40	2.0	2.0	1	06/30/22 12:30	VOA6_411964	X063007
Trichloroethene	0.5	U	0.20	1.0	1.0	1	06/30/22 12:30	VOA6_411964	X063007
Vinyl chloride	0.5	U	0.20	1.0	1.0	1	06/30/22 12:30	VOA6_411964	X063007

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Form 2

System Monitoring Compound Recovery

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

VLCSW-220629 (6724331)	Analyzed 06/30/22 11:47		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
Dibromofluoromethane	50.47	50.00	101	80 - 119	
Toluene-d8	50.06	50.00	100	89 - 112	
4-Bromofluorobenzene	51.52	50.00	103	85 - 114	
1,2-Dichloroethane-d4	47.83	50.00	96	81 - 118	

VBLKW-220630 (6724332)	Analyzed 06/30/22 12:30		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	41.16	50.00	82	81 - 118	
Dibromofluoromethane	43.80	50.00	88	80 - 119	
Toluene-d8	51.33	50.00	103	89 - 112	
4-Bromofluorobenzene	46.74	50.00	94	85 - 114	

HS22061313-09 (6724333)	Analyzed 06/30/22 12:51		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	41.37	50.00	83	81 - 118	
Dibromofluoromethane	43.81	50.00	88	80 - 119	
Toluene-d8	51.31	50.00	103	89 - 112	
4-Bromofluorobenzene	45.91	50.00	92	85 - 114	

HS22061313-04 (6724334)	Analyzed 06/30/22 13:12		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	41.12	50.00	82	81 - 118	
Dibromofluoromethane	43.52	50.00	87	80 - 119	
Toluene-d8	50.46	50.00	101	89 - 112	
4-Bromofluorobenzene	46.54	50.00	93	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

HS22061313-08 (6724335)	Analyzed 06/30/22 13:33		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	41.74	50.00	84	81 - 118	
Dibromofluoromethane	44.11	50.00	88	80 - 119	
Toluene-d8	50.43	50.00	101	89 - 112	
4-Bromofluorobenzene	49.09	50.00	98	85 - 114	

HS22061313-02 (6724337)	Analyzed 06/30/22 14:15		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	41.87	50.00	84	81 - 118	
Dibromofluoromethane	43.94	50.00	88	80 - 119	
Toluene-d8	50.46	50.00	101	89 - 112	
4-Bromofluorobenzene	45.91	50.00	92	85 - 114	

HS22061313-03 (6724338)	Analyzed 06/30/22 14:36		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	41.53	50.00	83	81 - 118	
Dibromofluoromethane	44.17	50.00	88	80 - 119	
Toluene-d8	51.17	50.00	102	89 - 112	
4-Bromofluorobenzene	47.36	50.00	95	85 - 114	

HS22061313-05 (6724339)	Analyzed 06/30/22 14:57		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	42.31	50.00	85	81 - 118	
Dibromofluoromethane	44.41	50.00	89	80 - 119	
Toluene-d8	51.04	50.00	102	89 - 112	
4-Bromofluorobenzene	46.55	50.00	93	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

HS22061313-06 (6724340)	Analyzed 06/30/22 15:18		Conc Units µg/L		DF 5
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	207.6	250.0	83	81 - 118	
Dibromofluoromethane	219.2	250.0	88	80 - 119	
Toluene-d8	251.5	250.0	101	89 - 112	
4-Bromofluorobenzene	227.2	250.0	91	85 - 114	

HS22061313-01 (6724341)	Analyzed 06/30/22 15:39		Conc Units µg/L		DF 10
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	418.8	500.0	84	81 - 118	
Dibromofluoromethane	443.8	500.0	89	80 - 119	
Toluene-d8	517.8	500.0	104	89 - 112	
4-Bromofluorobenzene	459.7	500.0	92	85 - 114	

HS22061313-07 (6724342)	Analyzed 06/30/22 16:00		Conc Units µg/L		DF 10
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	425.3	500.0	85	81 - 118	
Dibromofluoromethane	441.3	500.0	88	80 - 119	
Toluene-d8	513.5	500.0	103	89 - 112	
4-Bromofluorobenzene	475.3	500.0	95	85 - 114	

ZZZZZZMS (6724343)	Analyzed 06/30/22 16:21		Conc Units µg/L		DF 1
Surrogate	Result Conc	Spike Conc	%Recovery	%Recovery Limits	#
1,2-Dichloroethane-d4	42.38	50.00	85	81 - 118	
Dibromofluoromethane	44.13	50.00	88	80 - 119	
Toluene-d8	51.04	50.00	102	89 - 112	
4-Bromofluorobenzene	48.22	50.00	96	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

Form 2 - System Monitoring Compound Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

ZZZZZZMSD (6724344)	Analyzed 06/30/22 16:42	Conc Units µg/L	DF 1	
Surrogate	**Result Conc**	**Spike Conc**	**%Recovery**	**%Recovery Limits**	**#**
1,2-Dichloroethane-d4	41.55	50.00	83	81 - 118	
Dibromofluoromethane	44.47	50.00	89	80 - 119	
Toluene-d8	50.60	50.00	101	89 - 112	
4-Bromofluorobenzene	47.75	50.00	96	85 - 114	

HS22061313-06 (6724345)	Analyzed 06/30/22 17:03	Conc Units µg/L	DF 50	
Surrogate	**Result Conc**	**Spike Conc**	**%Recovery**	**%Recovery Limits**	**#**
1,2-Dichloroethane-d4	2058	2500	82	81 - 118	
Dibromofluoromethane	2191	2500	88	80 - 119	
Toluene-d8	2544	2500	102	89 - 112	
4-Bromofluorobenzene	2363	2500	95	85 - 114	

HS22061313-01 (6724346)	Analyzed 06/30/22 17:24	Conc Units µg/L	DF 100	
Surrogate	**Result Conc**	**Spike Conc**	**%Recovery**	**%Recovery Limits**	**#**
1,2-Dichloroethane-d4	4177	5000	84	81 - 118	
Dibromofluoromethane	4366	5000	87	80 - 119	
Toluene-d8	5010	5000	100	89 - 112	
4-Bromofluorobenzene	4690	5000	94	85 - 114	

HS22061313-07 (6724347)	Analyzed 06/30/22 17:46	Conc Units µg/L	DF 100	
Surrogate	**Result Conc**	**Spike Conc**	**%Recovery**	**%Recovery Limits**	**#**
1,2-Dichloroethane-d4	4204	5000	84	81 - 118	
Dibromofluoromethane	4431	5000	89	80 - 119	
Toluene-d8	5071	5000	101	89 - 112	
4-Bromofluorobenzene	4590	5000	92	85 - 114	

- Surrogate %Recovery Flag * - %Recovery / RPD Outside Limits

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Form 3A

Matrix Spike/Spike Duplicate Recovery

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 3A - Matrix Spike/Spike Duplicate Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

		HS22061605-02		HS22061605-02MS				HS22061605-02MSD						
Sample Matrix Aqueous **Units** µg/L		**Run Date** 06/30/22 **Run Time** 13:54 **Data File** X063011.D		06/30/22 16:21 X063018.D				06/30/22 16:42 X063019.D						
Analyte	%R Limits	DF	Result	MS Result	Spike Added	%R	#	MSD Result	Spike Added	%R	#	RPD Limit	RPD	#
1,1,2-Trichloroethane	80-119	1	0	19.97	20.00	100		19.91	20.00	100		20	0	
1,1-Dichloroethene	71-131	1	0	15.02	20.00	75		14.22	20.00	71		20	5	
1,2-Dichloroethane	73-128	1	0	19.59	20.00	98		18.9	20.00	95		20	4	
cis-1,2-Dichloroethene	78-123	1	0	18.89	20.00	94		18.06	20.00	90		20	4	
Methylene chloride	74-124	1	0	15.61	20.00	78		15.35	20.00	77		20	2	
Trichloroethene	79-123	1	0	23.40	20.00	117		21.14	20.00	106		20	10	
Vinyl chloride	58-137	1	0	7.062	20.00	35	*	6.768	20.00	34	*	20	4	

- %Recovery / RPD Flag * - %Recovery / RPD Outside Limits OL - Outside Limits

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Form 3B

Laboratory Control Sample Recovery

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 3B - Laboratory Control Sample Recovery

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

Batch QC			LCS			
QC Matrix: Aqueous	Units: ug/L	Run Date / Run Time	06/30/22 11:47			
Analyte	%R Limits	Spike Added	LCS Result	%R	#	
1,1,2-Trichloroethane	80-119	20	19.4	97		
1,1-Dichloroethene	71-131	20	16.99	85		
1,2-Dichloroethane	73-128	20	19.92	100		
1,2-Dichloroethane-d4	81-118	50	47.83	96		
4-Bromofluorobenzene	85-114	50	51.52	103		
cis-1,2-Dichloroethene	78-123	20	19.56	98		
Dibromofluoromethane	80-119	50	50.47	101		
Methylene chloride	74-124	20	19.65	98		
Toluene-d8	89-112	50	50.06	100		
Trichloroethene	79-123	20	20.62	103		
Vinyl chloride	58-137	20	15.29	76		

- %Recovery / RPD Flag * - %Recovery / RPD Outside Limits

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Form 4

Method Blank Summary

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 4 - Method Blank Summary

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

BatchID
R411964

Volatiles Organics by Method 8260C

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Run ID
METHOD BLANK	VBLKW-220630	X063007.D	06/30/22 12:30	VOA6_411964
VLCSW-220629	VLCSW-220629	X063005.D	06/30/22 11:47	VOA6_411964
Trip Blank-220623	HS22061313-09	X063008.D	06/30/22 12:51	VOA6_411964
16IW09-220623	HS22061313-04	X063009.D	06/30/22 13:12	VOA6_411964
16EW08-220623	HS22061313-08	X063010.D	06/30/22 13:33	VOA6_411964
ZZZZZZ	HS22061605-02	X063011.D	06/30/22 13:54	VOA6_411964
16WW57-220623	HS22061313-02	X063012.D	06/30/22 14:15	VOA6_411964
16IW10-220623	HS22061313-03	X063013.D	06/30/22 14:36	VOA6_411964
16IW20-220623	HS22061313-05	X063014.D	06/30/22 14:57	VOA6_411964
16WW55-220623	HS22061313-06	X063015.D	06/30/22 15:18	VOA6_411964
16WW58-220623	HS22061313-01	X063016.D	06/30/22 15:39	VOA6_411964
16EW04-220623	HS22061313-07	X063017.D	06/30/22 16:00	VOA6_411964
ZZZZZZMS	HS22061605-02MS	X063018.D	06/30/22 16:21	VOA6_411964
ZZZZZZMSD	HS22061605-02MSD	X063019.D	06/30/22 16:42	VOA6_411964
16WW55-220623	HS22061313-06	X063020.D	06/30/22 17:03	VOA6_411964
16WW58-220623	HS22061313-01	X063021.D	06/30/22 17:24	VOA6_411964
16EW04-220623	HS22061313-07	X063022.D	06/30/22 17:46	VOA6_411964
ZZZZZZ	HS22061605-09	X063024.D	06/30/22 18:28	VOA6_411964
ZZZZZZ	HS22061605-01	X063025.D	06/30/22 18:49	VOA6_411964
ZZZZZZ	HS22061605-03	X063026.D	06/30/22 19:10	VOA6_411964
ZZZZZZ	HS22061605-04	X063027.D	06/30/22 19:31	VOA6_411964
ZZZZZZ	HS22061605-05	X063028.D	06/30/22 19:52	VOA6_411964
ZZZZZZ	HS22061605-06	X063029.D	06/30/22 20:13	VOA6_411964
ZZZZZZ	HS22061605-06	X063030.D	06/30/22 20:34	VOA6_411964

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Form 5

Instrument Performance Check

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 5 - Instrument Performance Check

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_409368

Volatiles Organics by Method 8260C

Tune File X052401.D 05/24/22 11:07

m / e	Ion Abundance Criterion	%RA
50	15.0 - 40.0% of mass 95	20.3 (20.3)
75	30.0 - 60.0% of mass 95	51.1 (51.1)
95	Base peak, 100% RA	100 (100)
96	5.0 - 9.0% of mass 95	6.5 (6.46)
173	Less than 2.0% of mass 174	0.6 (0.703) 1
174	50.0 - 120.0% of mass 95	80.9 (80.9)
175	4.0 - 9.0% of mass 174	6.5 (8.04) 1
176	93.0 - 101.0% of mass 174	77.4 (95.7) 1
177	5.0 - 9.0% of mass 176	5.6 (7.26) 2

Value is % of mass 1) 174 2) 176 RA - Relative Abundance

This check applies to the following analyses

	Type	Date Analyzed	Lab File ID	Sample ID
1	ICAL1	05/24/22 11:28	X052402	VSTD000.25
2	ICAL2	05/24/22 12:10	X052403	VSTD000.5
3	ICAL3	05/24/22 12:30	X052404	VSTD001
4	ICAL4	05/24/22 12:51	X052405	VSTD002
5	ICAL5	05/24/22 13:12	X052406	VSTD005
6	ICAL6	05/24/22 13:33	X052407	VSTD020
7	ICAL7	05/24/22 13:54	X052408	VSTD050
8	ICAL8	05/24/22 14:15	X052409	VSTD100
9	ICAL9	05/24/22 14:36	X052410	VSTD150
10	ICAL	05/24/22 14:57	X052411	VSTD200
11	ICV	05/24/22 15:39	X052413	CCV

Form 5 - Instrument Performance Check

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

Tune File X063001.D 06/30/22 10:23

m / e	Ion Abundance Criterion	%RA
50	15.0 - 40.0% of mass 95	17.9 (17.9)
75	30.0 - 60.0% of mass 95	47.8 (47.8)
95	Base peak, 100% RA	100 (100)
96	5.0 - 9.0% of mass 95	6.8 (6.82)
173	Less than 2.0% of mass 174	0.5 (0.657) 1
174	50.0 - 120.0% of mass 95	83.4 (83.4)
175	4.0 - 9.0% of mass 174	6.8 (8.21) 1
176	93.0 - 101.0% of mass 174	83.4 (99.9) 1
177	5.0 - 9.0% of mass 176	5.6 (6.67) 2

Value is % of mass 1) 174 2) 176 RA - Relative Abundance

This check applies to the following analyses

	Type	Date Analyzed	Lab File ID	Sample ID
1	CCV	06/30/22 10:44	X063002	CCV
2	CCB	06/30/22 11:26	X063004	CCB
3	LCS	06/30/22 11:47	X063005	VLCSW-220629
4	MBLK	06/30/22 12:30	X063007	VBLKW-220630
5	SAMP	06/30/22 12:51	X063008	Trip Blank-220623
6	SAMP	06/30/22 13:12	X063009	16IW09-220623
7	SAMP	06/30/22 13:33	X063010	16EW08-220623
8	SAMP	06/30/22 14:15	X063012	16WW57-220623
9	SAMP	06/30/22 14:36	X063013	16IW10-220623
10	SAMP	06/30/22 14:57	X063014	16IW20-220623
11	SAMP	06/30/22 15:18	X063015	16WW55-220623
12	SAMP	06/30/22 15:39	X063016	16WW58-220623
13	SAMP	06/30/22 16:00	X063017	16EW04-220623
14	MS	06/30/22 16:21	X063018	ZZZZZZMS
15	MSD	06/30/22 16:42	X063019	ZZZZZZMSD
16	SAMP	06/30/22 17:03	X063020	16WW55-220623
17	SAMP	06/30/22 17:24	X063021	16WW58-220623
18	SAMP	06/30/22 17:46	X063022	16EW04-220623
19	CCV_EN	06/30/22 20:55	X063031	CCV-END

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Form 6

Initial Calibration Data

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128
ICAL End Date 24-MAY-2022 1457

Calibration Files

Level 1 ..voa6.i\X220524.b\X052402.D
Level 2 ..voa6.i\X220524.b\X052403.D
Level 3 ..voa6.i\X220524.b\X052404.D
Level 4 ..voa6.i\X220524.b\X052405.D
Level 5 ..voa6.i\X220524.b\X052406.D
Level 6 ..voa6.i\X220524.b\X052407.D
Level 7 ..voa6.i\X220524.b\X052408.D
Level 8 ..voa6.i\X220524.b\X052409.D
Level 9 ..voa6.i\X220524.b\X052410.D
Level 10 ..voa6.i\X220524.b\X052411.D

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Dichlorodifluoromethane	NE 332006	3450 665027	5034 1000362	13713 1365363	34533	125156	LINR	0.00278	0.61868		0.99997	
Chloromethane	NE 324529	3635 662612	6589 1037005	15712 1434289	36891	129154	LINR	0.01703	0.64496		0.99913	
Propionitrile	NE 0.07131	0.08070 0.07520	0.08393 0.07626	0.08013 0.07507	0.07790	0.07379	AVRG		0.07714		5.06828	
Vinyl Chloride	NE 0.69582	0.75626 0.69769	0.60990 0.71180	0.74482 0.70609	0.72981	0.69181	AVRG		0.70489		5.98377	
Bromomethane	NE 0.43033	0.49091 0.42348	0.49949 0.41671	0.54181 0.40568	0.52436	0.48439	AVRG		0.46857		10.75616	
Chloroethane	NE 0.40987	0.40449 0.41537	0.36304 0.41880	0.43959 0.41469	0.47978	0.41733	AVRG		0.41811		7.35808	
Trichlorofluoromethane	NE 0.93126	1.01827 0.94822	0.77911 0.95418	1.00583 0.93929	1.04145	0.93757	AVRG		0.95058		7.97545	
Acrolein	NE 0.02580	0.02724 0.02377	0.02508 0.02309	0.02786 0.02263	0.02792	0.02763	AVRG		0.02567		8.27466	
Acetone	NE 188828	2602 358294	4838 513634	9378 678759	21828	76672	LINR	-0.09611	0.15527		0.99867	
1,1-Dichloroethene	NE 0.50922	0.58341 0.51096	0.44029 0.51511	0.57754 0.50480	0.54096	0.51040	AVRG		0.52141		8.20774	

NE - Not Evaluated, AVRG - Averaged, LINR - Linear Regression, WLIN - Weighted Linear, QUAD - Quadratic, * - Curve Fit Outside Limits

Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Isobutyl Alcohol	NE 0.07563	0.06692 0.07741	0.06388 0.07851	0.06608 0.07937	0.08067	0.07906	AVRG		0.07417		8.89925	
Acetonitrile	NE 0.07139	0.06986 0.07280	0.06089 0.07394	0.07455 0.07337	0.07456	0.07253	AVRG		0.07154		5.97087	
Allyl Chloride	NE 1.33329	1.44589 1.36784	1.26025 1.39521	1.31229 1.38862	1.36660	1.34001	AVRG		1.35667		3.93337	
Iodomethane	NE 757764	5250 1607140	9364 2488480	21676 3421513	59050	261012	QUAD	0.04032	1.39217	-0.01869	0.99981	
Acrylonitrile	NE 0.20315	0.19568 0.21030	0.18651 0.21431	0.21382 0.21274	0.18418	0.20024	AVRG		0.20233		5.73302	
Methylene Chloride	NE 0.56245	0.70335 0.56214	0.74077 0.57440	0.63510 0.56465	0.74422	0.59486	AVRG		0.63133		12.32967	
Methyl tert-butyl ether	NE 1.60060	1.85175 1.63245	1.61598 1.66782	1.65015 1.65819	1.68577	1.62981	AVRG		1.66584		4.47328	
Carbon Disulfide	NE 1.50431	1.77630 1.52768	1.33309 1.56349	1.60933 1.53903	1.58297	1.50618	AVRG		1.54915		7.48877	
trans-1,2-Dichloroethene	NE 0.52369	0.54657 0.53175	0.49757 0.54815	0.52981 0.54558	0.56734	0.53134	AVRG		0.53575		3.63835	
Vinyl Acetate	NE 1.52956	1.58238 1.57476	1.40391 1.61073	1.57574 1.60356	1.59281	1.58296	AVRG		1.56182		4.06863	
1,1-Dichloroethane	NE 0.97008	1.06119 0.98603	0.86050 1.00508	1.02098 0.99480	1.03882	0.99054	AVRG		0.99200		5.72555	
Chloroprene	NE 0.25647	0.29592 0.25487	0.26627 0.26376	0.26387 0.26217	0.26979	0.25375	AVRG		0.26521		4.79370	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
2-Butanone	NE	0.19587	0.17133	0.16535	0.15302	0.17704						
	0.19403	0.20948	0.20750	0.20649			AVRG		0.18668		11.04476	
Methacrylonitrile	NE	0.48248	0.45202	0.48253	0.47581	0.50071						
	0.49973	0.50437	0.52029	0.51469			AVRG		0.49251		4.33239	
2,2-Dichloropropane	NE	4708	7932	17805	48295	176994						
	457611	926722	1411178	1904611			LINR	0.00402	0.86594		0.99992	
cis-1,2-Dichloroethene	NE	0.60752	0.51784	0.60982	0.63913	0.61007						
	0.59123	0.60760	0.62272	0.62130			AVRG		0.60302		5.73184	
Chloroform	NE	1.11763	0.99628	1.13159	1.10188	1.02729						
	0.99511	1.01809	1.04187	1.03048			AVRG		1.05114		4.96513	
Bromochloromethane	NE	0.32708	0.31067	0.34062	0.31585	0.32014						
	0.30615	0.31381	0.31832	0.31978			AVRG		0.31916		3.14581	
1,1,1-Trichloroethane	NE	0.95948	0.73520	0.89660	0.91764	0.84082						
	0.83937	0.85506	0.88139	0.87711			AVRG		0.86696		7.21079	
1,1-Dichloropropene	NE	0.50663	0.44289	0.47718	0.51814	0.46263						
	0.47227	0.48105	0.49024	0.48409			AVRG		0.48168		4.64649	
1,2-Dichloroethane	NE	0.54314	0.43707	0.46874	0.53657	0.50832						
	0.49039	0.49166	0.51109	0.50506			AVRG		0.49912		6.53390	
Carbon Tetrachloride	NE	0.53312	0.47776	0.47412	0.46839	0.43886						
	0.44812	0.45753	0.46627	0.46435			AVRG		0.46984		5.68832	
Benzene	NE	1.41365	1.19785	1.40871	1.40129	1.34875						
	1.32148	1.34027	1.35202	1.34128			AVRG		1.34726		4.85313	
Trichloroethene	NE	0.37451	0.33780	0.39159	0.40149	0.36925						
	0.37073	0.37550	0.38237	0.37750			AVRG		0.37564		4.67714	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Bromodichloromethane	NE 0.47624	0.55046 0.48915	0.45772 0.49633	0.50737 0.49342	0.50526	0.48567	AVRG		0.49574		5.14155	
Methyl Methacrylate	NE 0.48752	0.51168 0.51394	0.48949 0.52852	0.49052 0.52080	0.48793	0.49064	AVRG		0.50234		3.23824	
2-Chloroethylvinyl ether	NE 0.11949	0.12083 0.12928	0.10839 0.13395	0.11212 0.13456	0.10220	0.10954	AVRG		0.11893		9.88911	
1,2-Dichloropropane	NE 0.35950	0.38464 0.36600	0.30269 0.36873	0.33957 0.36800	0.39090	0.36756	AVRG		0.36084		7.26018	
2-Nitropropane	NE 0.18720	0.20224 0.19269	0.20698 0.19907	0.18968 0.19871	0.17074	0.17955	AVRG		0.19187		5.99987	
Dibromomethane	NE 0.23187	0.23860 0.23570	0.22396 0.23788	0.23493 0.23777	0.25182	0.23821	AVRG		0.23675		3.08483	
4-Methyl-2-Pentanone	NE 0.33364	0.36386 0.33930	0.31398 0.34279	0.33547 0.33935	0.36574	0.34595	AVRG		0.34223		4.58488	
cis-1,3-Dichloropropene	NE 0.60830	0.64327 0.62799	0.53597 0.63760	0.59977 0.63317	0.62742	0.60767	AVRG		0.61346		5.31919	
Ethyl Methacrylate	NE 0.51579	0.52873 0.52887	0.46912 0.53771	0.50039 0.53878	0.48640	0.51516	AVRG		0.51344		4.65893	
Toluene	NE 1.52687	1.70653 1.53986	1.32800 1.55688	1.59907 1.52112	1.66548	1.54406	AVRG		1.55421		6.85946	
trans-1,3-Dichloropropene	NE 0.51529	0.51884 0.54194	0.46997 0.54995	0.47648 0.54807	0.51130	0.51074	AVRG		0.51584		5.56471	
2-Hexanone	NE 0.22636	0.20498 0.22916	0.20013 0.23066	0.20088 0.22704	0.23609	0.23080	AVRG		0.22068		6.49787	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
1,1,2-Trichloroethane	NE	0.34247	0.30166	0.31178	0.33543	0.30369						
	0.29272	0.29730	0.29993	0.29754			AVRG		0.30917		5.74478	
1,3-Dichloropropane	NE	0.69776	0.58936	0.64823	0.65806	0.61128						
	0.60481	0.61076	0.61712	0.60946			AVRG		0.62743		5.41842	
Dibromochloromethane	NE	0.44641	0.34381	0.42230	0.40615	0.40093						
	0.39510	0.40801	0.41694	0.41395			AVRG		0.40596		6.80052	
Tetrachloroethene	NE	0.37311	0.28300	0.34571	0.35601	0.31507						
	0.32205	0.32771	0.32858	0.32355			AVRG		0.33053		7.80435	
1,2-Dibromoethane	NE	0.39862	0.33388	0.38591	0.39795	0.37355						
	0.36556	0.37442	0.37633	0.37118			AVRG		0.37527		5.16199	
1-Chlorohexane	NE	0.35094	0.30404	0.34433	0.34231	0.32591						
	0.34100	0.34773	0.34993	0.34682			AVRG		0.33922		4.46535	
Chlorobenzene	NE	1.11879	0.92606	1.05257	1.09528	1.01747						
	1.00382	1.02353	1.03392	1.01441			AVRG		1.03176		5.37175	
1,1,1,2-Tetrachloroethane	NE	0.37621	0.34422	0.38399	0.39357	0.36778						
	0.36855	0.37813	0.38445	0.38008			AVRG		0.37522		3.76043	
Ethylbenzene	NE	0.55035	0.46551	0.52422	0.56151	0.51273						
	0.52062	0.52875	0.53899	0.52600			AVRG		0.52541		5.16598	
m,p-Xylenes	NE	0.71234	0.57422	0.66371	0.69885	0.64781						
	0.66111	0.67122	0.67806	0.66044			AVRG		0.66308		5.87415	
o-Xylene	NE	0.61137	0.53834	0.66629	0.66232	0.61746						
	0.62820	0.63557	0.64617	0.63234			AVRG		0.62645		6.04041	
Styrene	NE	1.08518	0.89081	1.00821	1.10186	1.06309						
	1.07978	1.10982	1.11666	1.09251			AVRG		1.06088		6.73448	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Bromoform	NE 0.25159	0.23785 0.26126	0.19627 0.26787	0.23469 0.26475	0.24302	0.24319	AVRG		0.24450		8.86448	
Isopropylbenzene	NE 1.61559	2.17427 1.62708	1.38942 1.63571	1.66689 1.59706	1.70349	1.55616	AVRG		1.66285		12.72064	
1,1,2,2-Tetrachloroethane	NE 0.84289	0.92545 0.84763	0.83560 0.86008	0.91896 0.85120	0.90864	0.85646	AVRG		0.87188		4.05253	
1,2,3-Trichloropropane	NE 0.70356	0.72127 0.71578	0.60852 0.71640	0.69361 0.64767	0.73764	0.68582	AVRG		0.69225		5.86971	
trans-1,4-Dichloro-2-butene	NE 0.11570	0.11123 0.12304	0.09223 0.12620	0.10372 0.12606	0.11526	0.11576	AVRG		0.11436		9.62800	
n-Propylbenzene	NE 3.98693	4.33940 3.93631	3.22628 3.95850	3.96871 3.87479	4.18219	3.81743	AVRG		3.92117		7.79313	
Bromobenzene	NE 0.88801	0.94401 0.90403	0.80778 0.90600	0.97069 0.89588	0.97190	0.89824	AVRG		0.90962		5.49562	
1,3,5-Trimethylbenzene	NE 2.73238	3.05331 2.74888	2.35771 2.76793	2.81235 2.72427	2.90186	2.61214	AVRG		2.74565		6.96973	
2-Chlorotoluene	NE 2.35855	2.80317 2.33251	2.40437 2.34541	2.69420 2.30354	2.58656	2.32759	AVRG		2.46177		7.50920	
4-Chlorotoluene	NE 2.70976	2.89981 2.71468	2.29546 2.74972	2.91926 2.70173	2.89446	2.68738	AVRG		2.73025		6.90304	
tert-Butylbenzene	NE 2.29972	2.21330 2.28183	1.95213 2.30022	2.39714 2.26447	2.50360	2.18951	AVRG		2.26688		6.67827	
1,2,4-Trimethylbenzene	NE 2.70050	2.90187 2.71822	2.29090 2.74062	2.78157 2.68090	2.85278	2.63088	AVRG		2.69980		6.48503	

NE - Not Evaluated, AVRG - Averaged, LINR - Linear Regression, WLIN - Weighted Linear, QUAD - Quadratic, * - Curve Fit Outside Limits

Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
sec-Butylbenzene	NE 3.28334	3.63492 3.27181	2.65881 3.27446	3.39413 3.23222	3.43391	3.07955	AVRG		3.25146		8.30824	
p-Isopropyltoluene	NE 2.81643	2.64995 2.82393	2.19863 2.83241	2.63917 2.78816	2.88832	2.61137	AVRG		2.69426		7.81665	
1,3-Dichlorobenzene	NE 1.51192	1.66734 1.52121	1.34611 1.54484	1.51183 1.52444	1.60098	1.48864	AVRG		1.52415		5.68701	
1,4-Dichlorobenzene	NE 1.54921	1.70447 1.56755	1.32227 1.58230	1.68582 1.55055	1.67499	1.54629	AVRG		1.57594		7.27316	
Benzyl Chloride	NE 0.53256	0.51890 0.59244	0.45343 0.63364	0.47144 0.63806	0.47945	0.50321	AVRG		0.53590		12.97820	
n-Butylbenzene	NE 2.54014	2.72597 2.55944	1.79599 2.58646	2.36702 2.56298	2.47558	2.28679	AVRG		2.43337		11.13245	
1,2-Dichlorobenzene	NE 1.39318	1.39363 1.39822	1.24221 1.42180	1.48119 1.39033	1.45449	1.36727	AVRG		1.39359		4.80151	
1,2-Dibromo-3-Chloropropane	NE 27976	222 61475	535 96010	875 127389	2471	10643	LINR	0.01766	0.07804		0.99938	
1,2,4-Trichlorobenzene	NE 0.55412	0.63965 0.58167	0.47151 0.60698	0.48611 0.60241	0.50960	0.52225	AVRG		0.55270		10.63276	
Hexachlorobutadiene	NE 0.44465	0.46464 0.44900	0.39411 0.45999	0.42410 0.45861	0.43931	0.39509	AVRG		0.43661		6.12903	
Naphthalene	NE 0.67716	0.71449 0.75721	0.66915 0.80355	0.71470 0.78258	0.67343	0.66440	AVRG		0.71741		7.30314	
1,2,3-Trichlorobenzene	NE 0.32807	0.35150 0.34401	0.28741 0.36485	0.31719 0.35808	0.31077	0.30497	AVRG		0.32965		8.05334	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.
Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Ethyl Acetate	NE	0.57146	0.46883	0.61594	0.66218	0.55577						
	0.52543	0.51830	0.53450	0.52283			AVRG		0.55281		10.41760	
Methyl Acrylate	NE	0.58204	0.48488	0.57685	0.62572	0.60479						
	0.59964	0.62735	0.63673	0.63417			AVRG		0.59691		7.94101	
n-Butanol	NE	1300	2286	3851	7855	40387						
	111581	259689	392479	520732			LINR	0.70812	0.01202		0.99875	
Ethyl Acrylate	NE	1.36769	1.32924	1.16713	1.30772	1.33160						
	1.36474	1.42726	1.43407	1.45664			AVRG		1.35401		6.43812	
Cyclohexanone	NE	2100	4203	7696	18156	72217						
	169096	365656	558496	722919			LINR	-0.31921	0.02226		0.99884	
1,4-Dioxane	0.00525	0.00451	0.00519	0.00532	0.00526	0.00546						
	0.00506	0.00500	0.00555	0.00541			AVRG		0.00520		5.73240	
n-Hexane	NE	0.66337	0.49814	0.62616	0.67396	0.59364						
	0.64445	0.65147	0.64704	0.65256			AVRG		0.62787		8.57642	
Freon TF	NE	0.60771	0.40407	0.58588	0.57916	0.51007						
	0.53502	0.53240	0.53677	0.52660			AVRG		0.53530		10.98678	
Methyl Acetate	NE	0.35314	0.27290	0.28016	0.30932	0.31947						
	0.31811	0.32846	0.34330	0.34062			AVRG		0.31839		8.62899	
Methylcyclohexane	NE	0.68918	0.67922	0.75919	0.83616	0.80289						
	0.85529	0.89157	0.88787	0.89833			AVRG		0.81108		10.45961	
Isopropyl alcohol	NE	0.02236	0.02471	0.02599	0.02701	0.02771						
	0.02491	0.02688	0.02663	0.02565			AVRG		0.02576		6.25906	
Amyl alcohol	NE	0.00645	0.00707	0.00712	0.00655	0.00758						
	0.00764	0.00860	0.00886	0.00855			AVRG		0.00760		11.79446	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.
Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Allyl alcohol	NE 0.03222	0.02705 0.03257	0.02491 0.03235	0.03131 0.03263	0.03370	0.02968	AVRG		0.03071		9.59767	
4-Methyl-2-pentanol	NE 1069553	11774 2227480	41622 3458756	55112 4625807	118250	432005	LINR	-0.01309	0.06499		0.99964	
Tert-butyl alcohol	NE 0.04357	0.04487 0.04627	0.04115 0.04705	0.04608 0.04592	0.04679	0.04742	AVRG		0.04546		4.38868	
Diethyl ether	NE 0.43691	0.52070 0.43826	0.44077 0.44272	0.48268 0.43888	0.49044	0.45208	AVRG		0.46038		6.56466	
1,3-Butadiene	NE 0.58075	0.67042 0.59428	0.54532 0.60351	0.61856 0.59731	0.62918	0.57215	AVRG		0.60128		5.97594	
Cyclohexane	NE 0.85580	0.97379 0.85738	0.68485 0.85848	0.86501 0.86236	0.87884	0.83707	AVRG		0.85262		8.70544	
alpha-Methylstyrene	NE 1.33168	1.52238 1.34707	1.04648 1.38692	1.23586 1.35493	1.33405	1.29823	AVRG		1.31751		9.67672	
Diisopropyl ether	NE 1.74752	1.95091 1.78382	1.70861 1.82274	1.83189 1.81207	1.87192	1.76431	AVRG		1.81042		3.96821	
Dichlorofluoromethane	NE 1.05396	1.21817 1.07000	1.13485 1.07268	1.14961 1.07133	1.12912	1.06071	AVRG		1.10672		4.97086	
Propylene oxide	NE 0.05963	0.07104 0.05461	0.06270 0.05299	0.06723 0.05231	0.06493	0.05553	AVRG		0.06011		11.20947	
3-Methyl-1-butanol	NE 0.00720	0.00717 0.00786	0.00712 0.00815	0.00711 0.00790	0.00669	0.00771	AVRG		0.00743		6.51702	
Butyl acrylate	NE 0.74011	0.81790 0.79785	0.74287 0.83198	0.60968 0.82943	0.65669	0.66644	AVRG		0.74366		11.15935	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
1,2,3-Trimethylbenzene	NE 2.66044	2.36445 2.68045	2.91782 2.70641	2.61345 2.66895	2.75519	2.64020	AVRG		2.66749		5.42594	
Ethanol	NE 39409	578 80850	1098 115543	2162 152784	4813	18151	LINR	-0.84645	0.00349		0.99880	
tert-Butyl formate	NE 369835	1592 785007	3474 1202853	15607 1647789	36837	149666	LINR	0.04158	0.37331		0.99956	
3,3-Dimethyl-1-butanol	NE 480396	6115 1019411	19154 1557577	24821 2063208	51946	203028	LINR	-0.25339	0.03083		0.99942	
tert-Amyl methyl ether	NE 1.81726	1.82078 1.87468	1.83353 1.93246	1.73080 1.93241	1.87491	1.82490	AVRG		1.84908		3.41218	
tert-Butyl ethyl ether	NE 1.77828	1.93386 1.82038	1.85727 1.85676	1.89216 1.85193	1.91658	1.80567	AVRG		1.85699		2.75195	
tert-Amyl alcohol	NE 0.03404	0.02806 0.03628	0.02886 0.03711	0.03302 0.03740	0.03425	0.03616	AVRG		0.03391		10.09706	
Epichlorohydrin	NE 0.02764	0.02518 0.02966	0.02947 0.03025	0.02435 0.02975	0.02405	0.02833	AVRG		0.02763		8.95313	
Isoprene	NE 0.21826	0.22439 0.21537	0.21726 0.21266	0.22187 0.20848	0.22693	0.21154	AVRG		0.21742		2.82092	
n-Amyl acetate	NE 0.55124	0.66293 0.58283	0.57795 0.60567	0.53900 0.60712	0.56672	0.53559	AVRG		0.58100		6.92011	
Isopropyl acetate	NE 0.95298	0.95415 0.96782	0.96041 0.97210	0.96840 0.97919	1.02251	0.96458	AVRG		0.97135		2.15320	
n-Butyl acetate	NE 0.52647	0.46612 0.54510	0.38959 0.55886	0.44883 0.55828	0.50785	0.52350	AVRG		0.50273		11.36128	

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Initial Calibration Data

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

ICAL Start Date 24-MAY-2022 1128 **ICAL End Date** 24-MAY-2022 1457

Compound	Level 1 0.250 Level 7 50.0	Level 2 0.500 Level 8 100.0	Level 3 1.00 Level 9 150.0	Level 4 2.00 Level 10 200.0	Level 5 5.00	Level 6 20.00	Curve	b	m1	m2	%RSD or R^2	Q
Acetaldehyde	NE 80429	NE 151535	NE 241125	4607 324749	9177	35371	LINR	-0.07520	0.03653		0.99899	
Methyl Amyl Ketone	NE 0.71727	0.73380 0.73457	0.72247 0.75386	0.59189 0.74333	0.61599	0.67261	AVRG		0.69842		8.37826	
Dimethyl Disulfide	NE 0.79848	0.83477 0.82985	0.74562 0.84730	0.71785 0.84146	0.76743	0.78049	AVRG		0.79592		5.80141	
1,2-Dichloroethylene (total)	NE 0.55746	0.57704 0.56967	0.50770 0.58544	0.56982 0.58344	0.60323	0.57070	AVRG		0.56939		4.65013	
Xylenes (total)	NE 0.60540	0.61392 0.61860	0.51325 0.62767	0.60798 0.61617	0.62451	0.59658	AVRG		0.60268		5.78745	
Dibromofluoromethane	NE 273214	3406 573971	4587 857897	11150 1152135	29413	112071	LINR	-0.00047	0.52536		0.99982	
1,2-Dichloroethane-d4	NE 325873	4171 671007	6545 1000304	13694 1343168	36258	132108	LINR	-0.00670	0.61187		0.99988	
Toluene-d8	NE 1.23616	1.53577 1.27149	1.22268 1.24797	1.34360 1.22388	1.50485	1.29745	AVRG		1.32043		9.08291	
4-Bromofluorobenzene	NE 368870	4188 768821	9115 1156873	17686 1557639	48914	154990	LINR	-0.01762	0.46256		0.99973	

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Form 6I

Initial Calibration Verification (ICV)

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Initial Calibration Verification (ICV)

Client Aptim Environmental & Infrastucture, Inc.
Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X052413.D
Lab Smp Id ICV
Analysis Type VOA
ICAL Date 24-MAY-2022
ICAL Time 1354
Client Smp ID ICV
Level LOW

Compound	Amount Added	Amount Recovered	% Recovered	Limits	Q
1,1,1,2-Tetrachlor	50.00	49.81	99.64	80-120	
1,1,1-Trichloroeth	50.00	48.35	96.70	80-120	
1,1,2,2-Tetrachlor	50.00	49.40	98.82	80-120	
Freon TF	50.00	48.78	97.57	80-120	
Methyl Acetate	50.00	52.34	104.69	80-120	
Cyclohexane	50.00	49.39	98.79	80-120	
Methylcyclohexane	50.00	55.51	111.03	80-120	
Carbon Disulfide	100.00	98.56	98.57	80-120	
2-Hexanone	100.00	107.18	107.19	80-120	
1,1,2-Trichloroeth	50.00	48.04	96.10	80-120	
1,1-Dichloroethane	50.00	49.09	98.19	80-120	
1,1-Dichloroethene	50.00	47.58	95.17	80-120	
1,1-Dichloropropen	50.00	49.71	99.44	80-120	
1,2,3-Trichloroben	50.00	58.91	117.82	80-120	
1,2,3-Trichloropro	50.00	50.03	100.06	80-120	
1,2,4-Trichloroben	50.00	55.12	110.26	80-120	
1,2,4-Trimethylben	50.00	49.61	99.24	80-120	
1,2-Dibromo-3-Chlo	50.00	48.21	96.43	80-120	
1,2-Dibromoethane	50.00	49.74	99.50	80-120	
1,2-Dichlorobenzen	50.00	49.98	99.98	80-120	
1,2-Dichloroethane	50.00	49.96	99.93	80-120	
1,2-Dichloropropan	50.00	50.56	101.13	80-120	
1,3,5-Trimethylben	50.00	48.91	97.82	80-120	
1,3-Dichlorobenzen	50.00	49.61	99.22	80-120	
1,3-Dichloropropan	50.00	49.03	98.07	80-120	
1,4-Dichlorobenzen	50.00	49.69	99.40	80-120	
1-Chlorohexane	50.00	49.61	99.22	80-120	
2,2-Dichloropropan	50.00	50.68	101.37	80-120	
2-Butanone	100.00	113.09	113.09	80-120	
2-Chlorotoluene	50.00	47.14	94.29	80-120	
4-Chlorotoluene	50.00	49.16	98.33	80-120	
p-Isopropyltoluene	50.00	51.15	102.31	80-120	
4-Methyl-2-Pentano	100.00	99.60	99.61	80-120	
Acetone	100.00	119.78	119.79	80-120	

Initial Calibration Verification (ICV)

Client Aptim Environmental & Infrastucture, Inc.
Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X052413.D
Lab Smp Id ICV
Analysis Type VOA
ICAL Date 24-MAY-2022
ICAL Time 1354
Client Smp ID ICV
Level LOW

Compound	Amount Added	Amount Recovered	% Recovered	Limits	Q
Acetonitrile	500.00	509.76	101.95	80-120	
Benzene	50.00	49.76	99.54	80-120	
Bromobenzene	50.00	49.50	99.01	80-120	
Bromochloromethane	50.00	48.42	96.85	80-120	
Bromodichlorometha	50.00	48.85	97.70	80-120	
Bromoform	50.00	52.72	105.44	80-120	
Bromomethane	50.00	46.98	93.97	80-120	
Carbon Tetrachlori	50.00	46.93	93.88	80-120	
Chlorobenzene	50.00	49.60	99.21	80-120	
Chloroethane	50.00	49.34	98.70	80-120	
Chloroform	50.00	48.18	96.38	80-120	
Chloromethane	50.00	51.71	103.43	80-120	
cis-1,2-Dichloroet	50.00	49.80	99.62	80-120	
cis-1,3-Dichloropr	50.00	50.94	101.90	80-120	
Dibromochlorometha	50.00	49.84	99.70	80-120	
Dibromomethane	50.00	50.08	100.17	80-120	
Dichlorodifluorome	50.00	50.28	100.57	80-120	
Ethylbenzene	50.00	49.88	99.78	80-120	
Hexachlorobutadien	50.00	52.60	105.22	80-120	
Isopropylbenzene	50.00	47.78	95.58	80-120	
m,p-Xylenes	100.00	99.17	99.18	80-120	
Methyl tert-butyl	50.00	50.51	101.03	80-120	
Methylene Chloride	50.00	45.70	91.41	80-120	
n-Butylbenzene	50.00	51.65	103.31	80-120	
n-Propylbenzene	50.00	49.47	98.96	80-120	
Naphthalene	50.00	58.17	116.35	80-120	
o-Xylene	50.00	50.14	100.28	80-120	
sec-Butylbenzene	50.00	49.26	98.53	80-120	
Styrene	50.00	51.21	102.43	80-120	
tert-Butylbenzene	50.00	49.10	98.21	80-120	
Tetrachloroethene	50.00	48.42	96.86	80-120	
Toluene	50.00	49.45	98.92	80-120	
trans-1,2-Dichloro	50.00	49.19	98.39	80-120	
trans-1,3-Dichloro	50.00	51.74	103.49	80-120	

Initial Calibration Verification (ICV)

Client	Aptim Environmental & Infrastucture, Inc.	**Workorder**	
Project	Longhorn Army Ammunition Plant 16 January 2022	**HS22061313**	

RunID VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID	voa6.i	**ICAL Date**	24-MAY-2022
Lab File ID	X052413.D	**ICAL Time**	1354
Lab Smp Id	ICV	**Client Smp ID**	ICV
Analysis Type	VOA	**Level**	LOW

Compound	Amount Added	Amount Recovered	% Recovered	Limits	Q
Trichloroethene	50.00	49.48	98.97	80-120	
Trichlorofluoromet	50.00	48.80	97.61	80-120	
Vinyl Chloride	50.00	48.88	97.76	80-120	
1,2-Dichloroethyle	100.00	99.00	99.00	80-120	
Xylenes (total)	150.00	149.31	99.54	80-120	
Tert-butyl alcohol	1000.00	1036.32	103.63	80-120	
Dibromofluorometha	50.00	49.48	98.97	80-120	
1,2-Dichloroethane	50.00	50.23	100.46	80-120	
Toluene-d8	50.00	47.20	94.40	80-120	
4-Bromofluorobenze	50.00	50.21	100.43	80-120	
1,2-Dichloroethane	50.00	50.23	100.46	0-130	
4-Bromofluorobenze	50.00	50.21	100.43	0-130	
Dibromofluorometha	10.00	49.48	98.97	74-125	
Toluene-d8	50.00	47.20	94.40	78-123	

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Form 7

Continuing Calibration Verification (CCV)

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Continuing Calibration Verification (CCV)

Client Aptim Environmental & Infrastucture, Inc.
Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_411964

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X063002.D
Analysis Type WATER
Lab Sample ID CCV

Injection Date 30-JUN-2022 1044
ICAL Date(s) 24-MAY-2022 24-MAY-2022
ICAL Times 1128 1457
Quant Type ISTD

Compound	$\overline{RRF}$ / Amount	RF50	CCV RRF50	Min RRF	%D / %Drift	Max %D / %Drift	Curve Type	Q
1,2-Dichloroethane-d4	50.0	45.51900	0.56113	0.100	8.96200	20.0	Linear	
4-Bromofluorobenzene	50.0	48.37237	0.45566	0.100	3.25526	20.0	Linear	
Dibromofluoromethane	50.0	47.25220	0.49674	0.100	5.49561	20.0	Linear	
Toluene-d8	1.32043	1.18299	1.18299	0.100	10.40893	20.0	Averaged	
1,1,2-Trichloroethane	0.30917	0.31775	0.31775	0.100	-2.77691	20.0	Averaged	
1,1-Dichloroethene	0.52141	0.46338	0.46338	0.100	11.12914	20.0	Averaged	
1,2-Dichloroethane	0.49912	0.51994	0.51994	0.100	-4.17209	20.0	Averaged	
cis-1,2-Dichloroethene	0.60302	0.63493	0.63493	0.100	-5.29002	20.0	Averaged	
Methylene Chloride	0.63133	0.59377	0.59377	0.100	5.94857	20.0	Averaged	
Trichloroethene	0.37564	0.41285	0.41285	0.200	-9.90567	20.0	Averaged	
Vinyl Chloride	0.70489	0.56707	0.56707	0.100	19.55174	20.0	Averaged	

Continuing Calibration Verification (CCV)

Client Aptim Environmental & Infrastucture, Inc.
Project Longhorn Army Ammunition Plant 16 January 2022

Workorder HS22061313

RunID VOA6_411964

Volatiles Organics by Method 8260C

Instrument ID voa6.i
Lab File ID X063031.D
Analysis Type WATER
Lab Sample ID CCV-END

Injection Date 30-JUN-2022 2055
ICAL Date(s) 24-MAY-2022 24-MAY-2022
ICAL Times 1128 1457
Quant Type ISTD

Compound	$\overline{RRF}$ / Amount	RF50	CCV RRF50	Min RRF	%D / %Drift	Max %D / %Drift	Curve Type	Q
1,2-Dichloroethane-d4	50.0	45.33469	0.55888	0.100	9.33062	50.0	Linear	
4-Bromofluorobenzene	50.0	48.08113	0.45296	0.100	3.83774	50.0	Linear	
Dibromofluoromethane	50.0	48.17523	0.50644	0.100	3.64955	50.0	Linear	
Toluene-d8	1.32043	1.21474	1.21474	0.100	8.00439	50.0	Averaged	
1,1,2-Trichloroethane	0.30917	0.26448	0.26448	0.100	14.45424	50.0	Averaged	
1,1-Dichloroethene	0.52141	0.41739	0.41739	0.100	19.94910	50.0	Averaged	
1,2-Dichloroethane	0.49912	0.43813	0.43813	0.100	12.21957	50.0	Averaged	
cis-1,2-Dichloroethene	0.60302	0.53985	0.53985	0.100	10.47667	50.0	Averaged	
Methylene Chloride	0.63133	0.52576	0.52576	0.100	16.72124	50.0	Averaged	
Trichloroethene	0.37564	0.34687	0.34687	0.200	7.65929	50.0	Averaged	
Vinyl Chloride	0.70489	0.50457	0.50457	0.100	28.41854	50.0	Averaged	

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Form 8

Internal Standard Area and RT Summary

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 8 - Internal Standard Area and RT Summary

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_411964

Volatiles Organics by Method 8260C

		IS1		IS2		IS3		IS4	
Sample ID	File ID	Area	RT	Area	RT	Area	RT	Area	RT
12-HOUR STD (CCV)	X063002	435138 #	4.19 #	671776 #	4.97 #	631995 #	7.67 #	307952 #	9.67 #
CCB	X063004	558318	4.18	810819	4.97	696282	7.67	291430	9.67
VLCSW-220629	X063005	465046	4.19	713425	4.97	655497	7.67	324905	9.67
VBLKW-220630	X063007	549873	4.19	792346	4.97	683211	7.67	297164	9.67
HS22061313-09	X063008	545076	4.19	788339	4.97	678867	7.67	286769	9.67
HS22061313-04	X063009	548928	4.19	785483	4.97	698220	7.67	325807	9.67
HS22061313-08	X063010	553026	4.19	803604	4.97	708563	7.67	341783	9.66
HS22061313-02	X063012	550104	4.18	797698	4.97	699963	7.67	303623	9.67
HS22061313-03	X063013	554753	4.19	814699	4.97	706178	7.67	321510	9.67
HS22061313-05	X063014	554695	4.18	816368	4.97	705948	7.67	310973	9.67
HS22061313-06	X063015	549314	4.19	804832	4.97	699069	7.67	296656	9.67
HS22061313-01	X063016	538814	4.19	793306	4.97	673149	7.67	284305	9.67
HS22061313-07	X063017	538037	4.19	783321	4.97	667540	7.67	299254	9.67
ZZZZZZMS	X063018	554187	4.19	797230	4.97	700109	7.67	330506	9.67
ZZZZZZMSD	X063019	558427	4.19	813172	4.97	712430	7.67	326188	9.67
HS22061313-06	X063020	554966	4.19	805046	4.97	704658	7.67	313982	9.67
HS22061313-01	X063021	560617	4.19	812576	4.97	713356	7.67	322206	9.67
HS22061313-07	X063022	550995	4.19	805785	4.97	698714	7.67	313598	9.67
CCV-END	X063031	494241	4.19	772533	4.97	729762	7.67	355335	9.67

IS1 - Pentafluorobenzene IS2 - 1,4-Difluorobenzene IS3 - Chlorobenzene-d5 IS4 - 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of 12H STD IS Area
AREA LOWER LIMIT = - 50% of 12H STD IS Area
RT - Retention Time IS - Internal Standard

RT UPPER LIMIT = + 0.50 of 12H STD IS RT
RT LOWER LIMIT = - 0.50 of 12H STD IS RT
CCV - Continuing Calibration Verification

- Area or RT Limit Flag
* - Value Outside Area or RT limits
H - Hour STD - Standard

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Analysis Run Log

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Form 13 - Analysis Run Log

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

RunID
VOA6_409368

Volatiles Organics by Method 8260C

Instrument ID VOA6 **Matrix** R409368 **Start Date** 05/24/2022 **EndDate** 05/24/2022

Client Sample ID	Type	Lab Sample ID	DF	Analysis Date	File ID
BFB	TUNE	BFB	1	05/24/22 11:07	X052401.D
VSTD000.25	ICAL1	VSTD000.25	1	05/24/22 11:28	X052402.D
VSTD000.5	ICAL2	VSTD000.5	1	05/24/22 12:10	X052403.D
VSTD001	ICAL3	VSTD001	1	05/24/22 12:30	X052404.D
VSTD002	ICAL4	VSTD002	1	05/24/22 12:51	X052405.D
VSTD005	ICAL5	VSTD005	1	05/24/22 13:12	X052406.D
VSTD020	ICAL6	VSTD020	1	05/24/22 13:33	X052407.D
VSTD050	ICAL7	VSTD050	1	05/24/22 13:54	X052408.D
VSTD100	ICAL8	VSTD100	1	05/24/22 14:15	X052409.D
VSTD150	ICAL9	VSTD150	1	05/24/22 14:36	X052410.D
VSTD200	ICAL	VSTD200	1	05/24/22 14:57	X052411.D
CCV	ICV	CCV	1	05/24/22 15:39	X052413.D

Form 13 - Analysis Run Log

Client Aptim Environmental & Infrastucture, Inc.

Project Longhorn Army Ammunition Plant 16 January 2022

Workorder
HS22061313

Volatiles Organics by Method 8260C

RunID
VOA6_411964

Instrument ID VOA6 **Matrix** R411964 **Start Date** 06/30/2022 **EndDate** 06/30/2022

Client Sample ID	Type	Lab Sample ID	DF	Analysis Date	File ID
BFB	TUNE	BFB	1	06/30/22 10:23	X063001.D
CCV	CCV	CCV	1	06/30/22 10:44	X063002.D
CCB	CCB	CCB	1	06/30/22 11:26	X063004.D
VLCSW-220629	LCS	VLCSW-220629	1	06/30/22 11:47	X063005.D
VBLKW-220630	MBLK	VBLKW-220630	1	06/30/22 12:30	X063007.D
Trip Blank-220623	SAMP	HS22061313-09	1	06/30/22 12:51	X063008.D
16IW09-220623	SAMP	HS22061313-04	1	06/30/22 13:12	X063009.D
16EW08-220623	SAMP	HS22061313-08	1	06/30/22 13:33	X063010.D
ZZZZZZZZZZ	SAMP	HS22061605-02	1	06/30/22 13:54	X063011.D
16WW57-220623	SAMP	HS22061313-02	1	06/30/22 14:15	X063012.D
16IW10-220623	SAMP	HS22061313-03	1	06/30/22 14:36	X063013.D
16IW20-220623	SAMP	HS22061313-05	1	06/30/22 14:57	X063014.D
16WW55-220623	SAMP	HS22061313-06	5	06/30/22 15:18	X063015.D
16WW58-220623	SAMP	HS22061313-01	10	06/30/22 15:39	X063016.D
16EW04-220623	SAMP	HS22061313-07	10	06/30/22 16:00	X063017.D
ZZZZZZMS	MS	HS22061605-02MS	1	06/30/22 16:21	X063018.D
ZZZZZZMSD	MSD	HS22061605-02MSD	1	06/30/22 16:42	X063019.D
16WW55-220623	SAMP	HS22061313-06	50	06/30/22 17:03	X063020.D
16WW58-220623	SAMP	HS22061313-01	100	06/30/22 17:24	X063021.D
16EW04-220623	SAMP	HS22061313-07	100	06/30/22 17:46	X063022.D
ZZZZZZZZZZ	SAMP	HS22061605-09	1	06/30/22 18:28	X063024.D
ZZZZZZZZZZ	SAMP	HS22061605-01	1	06/30/22 18:49	X063025.D
ZZZZZZZZZZ	SAMP	HS22061605-03	1	06/30/22 19:10	X063026.D
ZZZZZZZZZZ	SAMP	HS22061605-04	1	06/30/22 19:31	X063027.D
ZZZZZZZZZZ	SAMP	HS22061605-05	1	06/30/22 19:52	X063028.D
ZZZZZZZZZZ	SAMP	HS22061605-06	5	06/30/22 20:13	X063029.D
ZZZZZZZZZZ	SAMP	HS22061605-06	25	06/30/22 20:34	X063030.D
CCV-END	CCV_END	CCV-END	1	06/30/22 20:55	X063031.D

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Raw Data VOA6 409368

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D Page 1
Report Date: 24-May-2022 11:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 24-MAY-2022 11:07
Operator : PC Inst ID: voa6.i
Smp Info : BFB;BFB;3;;BFB
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\voa6.i\X220524.b\bfb.m
Meth Date : 13-Apr-2022 10:36 Linh.Pham Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 1 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: NAHSTW7051

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
Vi	2.000	Injection Volume
Cpnd Variable		Local Compound Variable

					CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/l)		
RT	EXP RT	REL RT	MASS	RESPONSE			TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
8.695	8.889	(0.000)	95	86704			0.00- 100.00	100.00
8.695	8.889	(0.000)	50	17624			15.00- 40.00	20.33
8.695	8.889	(0.000)	75	44304			30.00- 60.00	51.10
8.695	8.889	(0.000)	96	5605			5.00- 9.00	6.46
8.695	8.889	(0.000)	173	493			0.00- 2.00	0.70
8.695	8.889	(0.000)	174	70104			50.00- 0.00	80.85
8.695	8.889	(0.000)	175	5634			5.00- 9.00	8.04
8.695	8.889	(0.000)	176	67104			95.00- 101.00	95.72
8.695	8.889	(0.000)	177	4869			5.00- 9.00	7.26

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.33
75	30.00 - 60.00% of mass 95	51.10
96	5.00 - 9.00% of mass 95	6.46
173	Less than 2.00% of mass 174	0.57 (0.70)
174	Greater than 50.00% of mass 95	80.85
175	5.00 - 9.00% of mass 174	6.50 (8.04)
176	95.00 - 101.00% of mass 174	77.39 (95.72)
177	5.00 - 9.00% of mass 176	5.62 (7.26)

Data File: X052401.D
Spectrum: Scan 2161 (8.69)
Location of Maximum: 95.00
Number of points: 102

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1011	64.90	137	96.10	5605	142.80	593
37.00	4691	66.10	88	97.00	194	143.90	62
38.00	4174	66.70	295	102.10	50	145.70	180
39.00	2059	68.00	8604	102.80	125	147.80	195
40.00	843	69.00	9240	103.80	445	148.70	76
40.80	90	70.00	773	104.70	107	149.90	142
42.10	73	72.00	431	105.80	381	151.80	60
42.90	146	73.00	3463	106.70	170	152.70	80
44.00	1265	74.00	14977	108.90	80	153.80	62
45.10	816	75.00	44304	109.90	81	155.00	133
46.10	88	76.10	4203	110.80	72	157.00	138
47.00	860	77.00	1092	112.70	90	158.60	64
47.90	633	78.10	629	114.90	171	161.00	72
49.10	3992	78.90	2797	115.80	293	168.90	157
50.00	17624	79.80	675	116.90	581	169.90	175
51.00	5692	80.90	3163	117.80	312	171.20	99
52.00	357	81.90	627	118.80	416	172.80	493
55.00	653	82.90	89	127.90	419	173.90	70104
56.00	1506	85.90	72	128.80	147	174.90	5634
57.00	2345	87.00	3355	129.90	222	175.90	67104
57.90	94	87.90	3416	130.80	109	176.90	4869
60.10	629	91.00	420	134.90	164	177.90	112
61.00	3621	92.00	2386	136.60	104	185.90	396
62.00	4245	93.00	3366	139.90	68	262.00	122
63.00	3268	94.00	9669	141.00	574		
64.00	456	95.00	86704	141.90	122		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D

Date : 24-MAY-2022 11:07

Client ID: BFB

Instrument: voa6.i

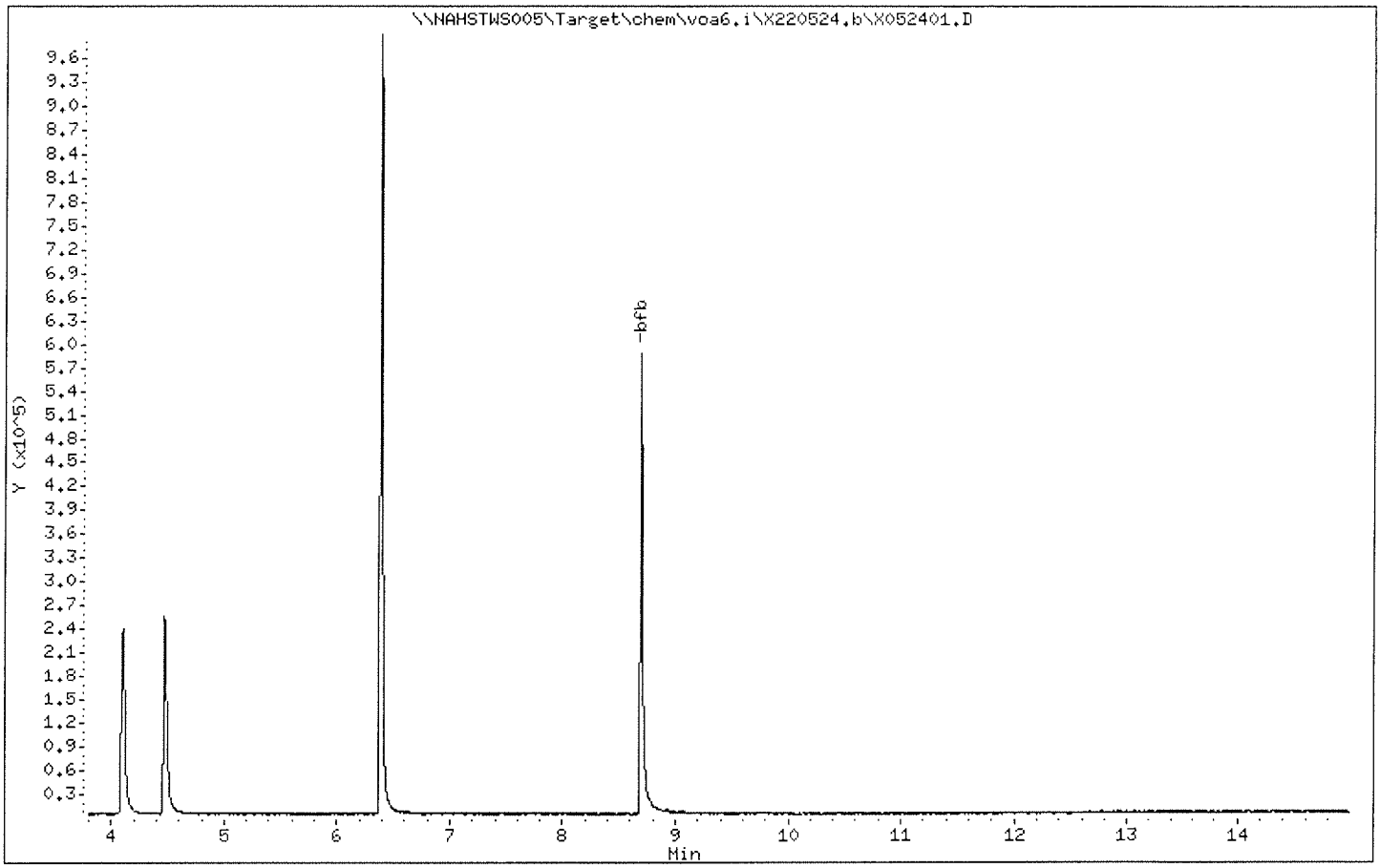
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D Page 2

Date : 24-MAY-2022 11:07

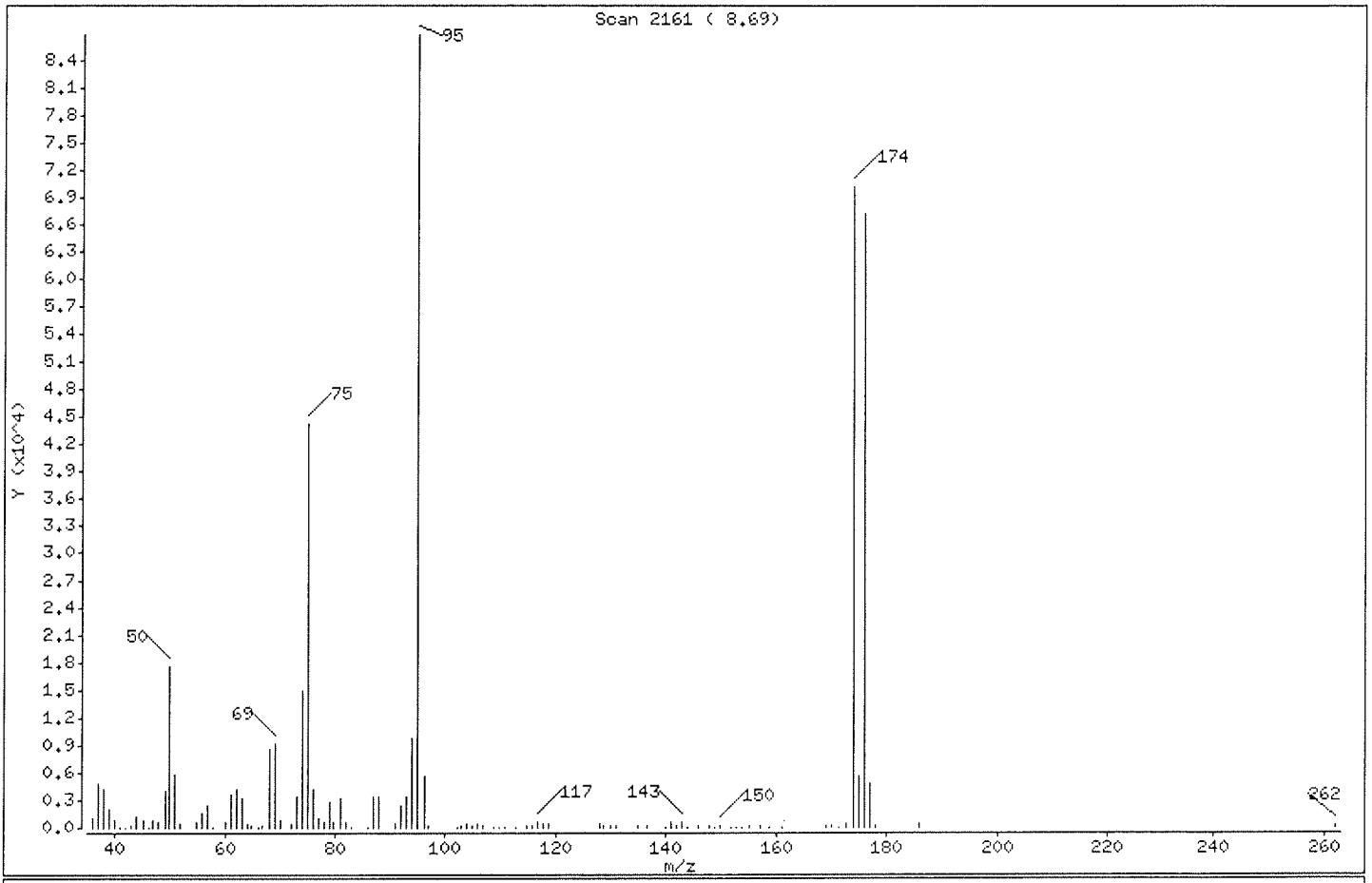
Client ID: BFB Instrument: voa6.i

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	20.33
75	30.00 - 60.00% of mass 95	51.10
96	5.00 - 9.00% of mass 95	6.46
173	Less than 2.00% of mass 174	0.57 (0.70)
174	Greater than 50.00% of mass 95	80.85
175	5.00 - 9.00% of mass 174	6.50 (8.04)
176	95.00 - 101.00% of mass 174	77.39 (95.72)
177	5.00 - 9.00% of mass 176	5.62 (7.26)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D

Date : 24-MAY-2022 11:07

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X052401.D
Spectrum: Scan 2161 (8.69)
Location of Maximum: 95.00
Number of points: 102

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1011	64.90	137	96.10	5605	142.80	593
37.00	4691	66.10	88	97.00	194	143.90	62
38.00	4174	66.70	295	102.10	50	145.70	180
39.00	2059	68.00	8604	102.80	125	147.80	195
40.00	843	69.00	9240	103.80	445	148.70	76
40.80	90	70.00	773	104.70	107	149.90	142
42.10	73	72.00	431	105.80	381	151.80	60
42.90	146	73.00	3463	106.70	170	152.70	80
44.00	1265	74.00	14977	108.90	80	153.80	62
45.10	816	75.00	44304	109.90	81	155.00	133
46.10	88	76.10	4203	110.80	72	157.00	138
47.00	860	77.00	1092	112.70	90	158.60	64
47.90	633	78.10	629	114.90	171	161.00	72
49.10	3992	78.90	2797	115.80	293	168.90	157
50.00	17624	79.80	675	116.90	581	169.90	175
51.00	5692	80.90	3163	117.80	312	171.20	99
52.00	357	81.90	627	118.80	416	172.80	493
55.00	653	82.90	89	127.90	419	173.90	70104
56.00	1506	85.90	72	128.80	147	174.90	5634
57.00	2345	87.00	3355	129.90	222	175.90	67104
57.90	94	87.90	3416	130.80	109	176.90	4869
60.10	629	91.00	420	134.90	164	177.90	112
61.00	3621	92.00	2386	136.60	104	185.90	396
62.00	4245	93.00	3366	139.90	68	262.00	122
63.00	3268	94.00	9669	141.00	574		
64.00	456	95.00	86704	141.90	122		

Data File : \\NAHSTWS005\Target\chem\voa6.i\X220524.b\X052401.D
Inj Date : 24-MAY-2022 11:07
InstruID : voa6.i
LabSampID : BFB

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 24-MAY-2022 11:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:57 Cal File: X052411.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

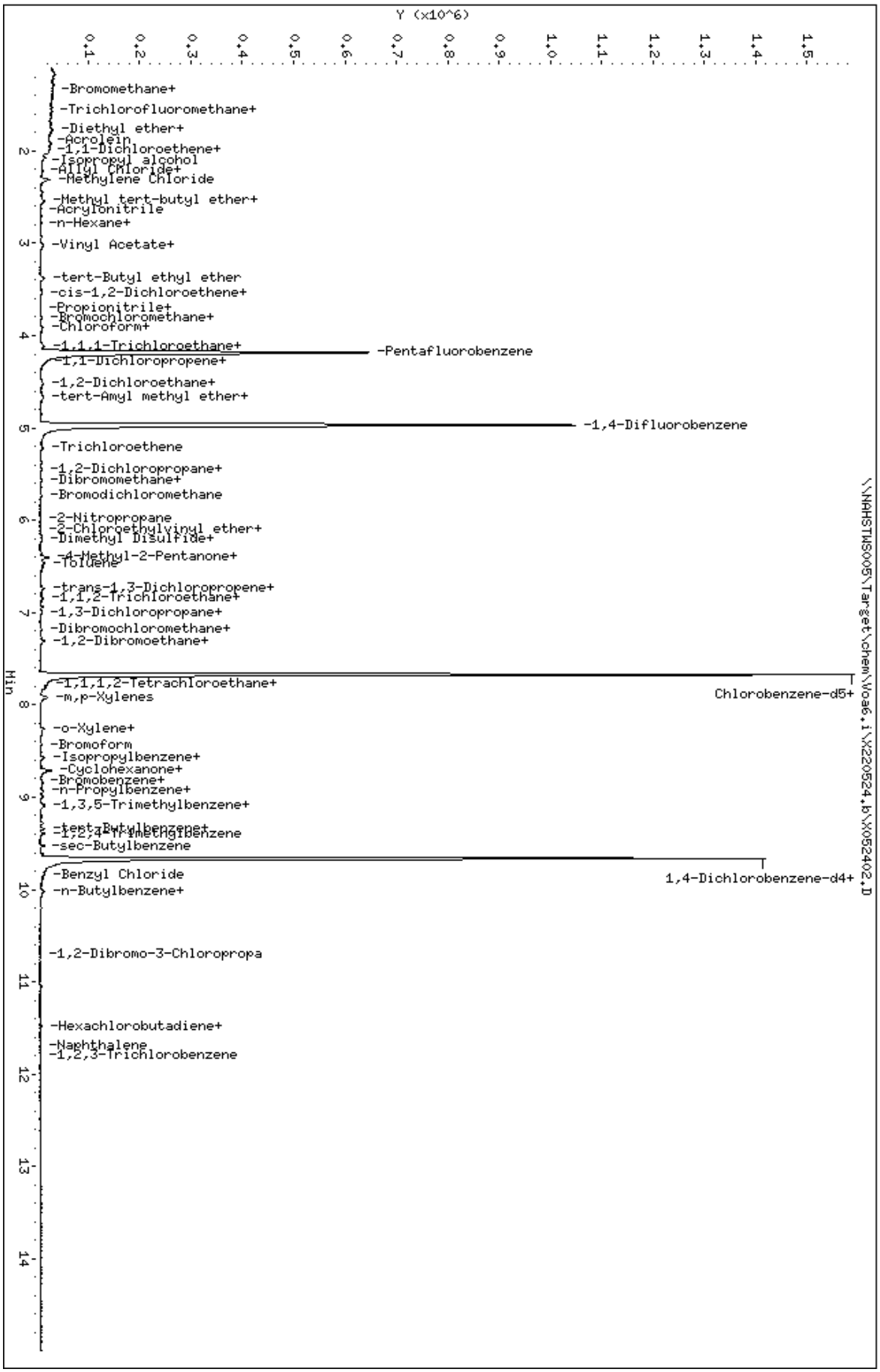
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	552023	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	881331	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	806273	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	358416	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.496	4.496	(1.074)	1963	0.25000	(TaM)
$ 69 4-Bromofluorobenzene	95	8.702	8.702	(1.134)	2868	0.25000	(aM)
$ 30 Dibromofluoromethane	113	4.106	4.106	(0.981)	1578	0.25000	0.24(M)
$ 48 Toluene-d8	98	6.401	6.401	(0.834)	8867	0.25000	0.41(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1051	0.25000	0.21(a)
11 1,1-Dichloroethene	96	1.917	1.917	(0.458)	1128	0.25000	0.19(a)
33 1,2-Dichloroethane	62	4.575	4.575	(0.921)	2125	0.25000	0.24(a)
27 cis-1,2-Dichloroethene	96	3.540	3.540	(0.846)	1621	0.25000	0.24(a)
17 Methylene Chloride	84	2.303	2.303	(0.550)	1599	0.25000	0.22(aM)
38 Trichloroethene	130	5.227	5.227	(1.052)	1339	0.25000	0.20(a)
5 Vinyl Chloride	62	1.141	1.141	(0.273)	1375	0.25000	0.17(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.



Data File: \\NAHSTWS005\Target\chem\Woa6.i\X220524.b\X052402.D
Date : 24-MAY-2022 11:28
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

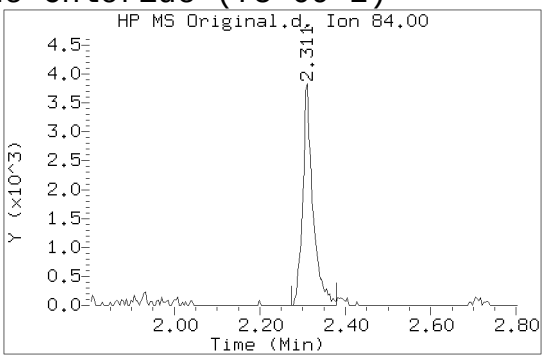
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Inj Date : 24-MAY-2022 11:28
InstruID : voa6.i
LabSampID : VSTD000.25

Methylene Chloride (75-09-2)

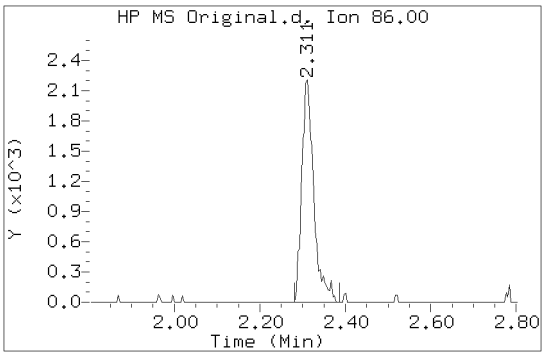
BEFORE

MASS
62
AREA
1102
HEIGHT
1180
24-May-2022
11:44
ALSHS
Server



BEFORE

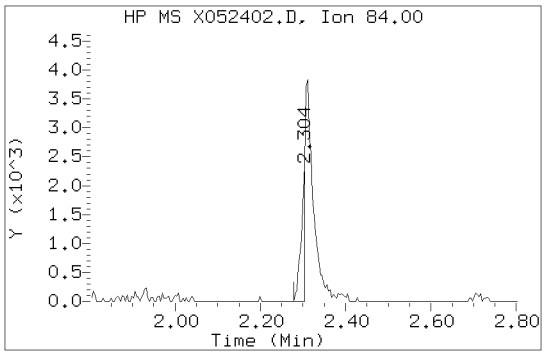
MASS
64
AREA
1290
HEIGHT
847
24-May-2022
11:44
ALSHS
Server



Reason Code:

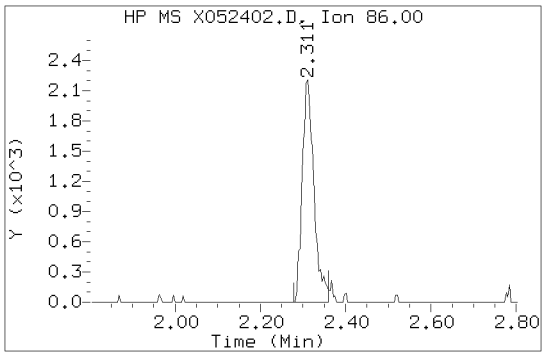
AFTER

MASS
84
AREA
1599
HEIGHT
2345
15-Jul-2022
12:20
ALSHS
Ser



AFTER

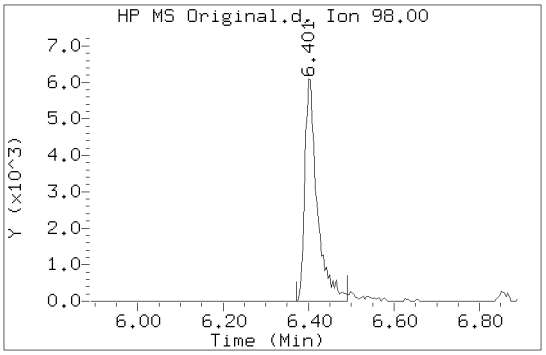
MASS
86
AREA
4289
HEIGHT
2208
15-Jul-2022
12:20
ALSHS
Ser



Toluene-d8 (2037-26-5)

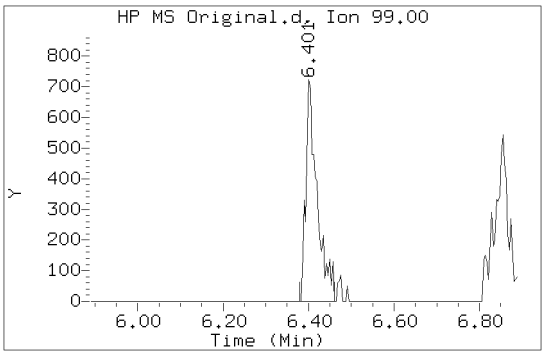
BEFORE

MASS
96
AREA
1128
HEIGHT
787
24-May-2022
11:44
ALSHS
Server



BEFORE

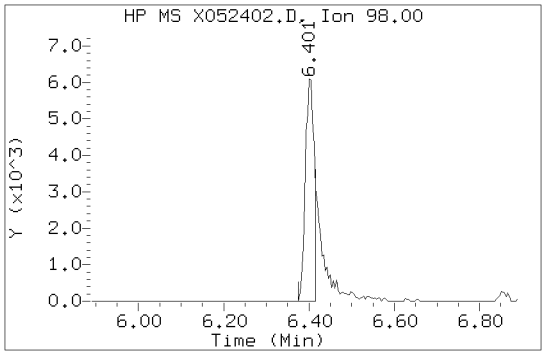
MASS
61
AREA
2063
HEIGHT
1198
24-May-2022
11:44
ALSHS
Server



Reason Code:

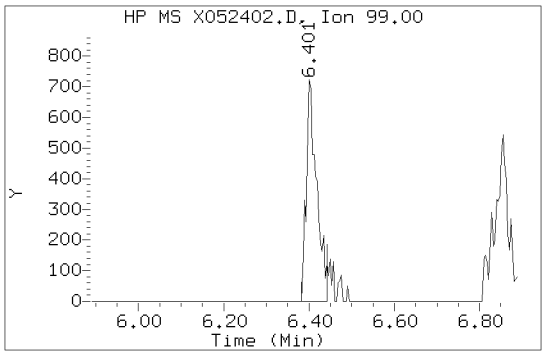
AFTER

MASS
98
AREA
8867
HEIGHT
6095
15-Jul-2022
12:20
ALSHS
Ser



AFTER

MASS
99
AREA
1238
HEIGHT
723
15-Jul-2022
12:20
ALSHS
Ser



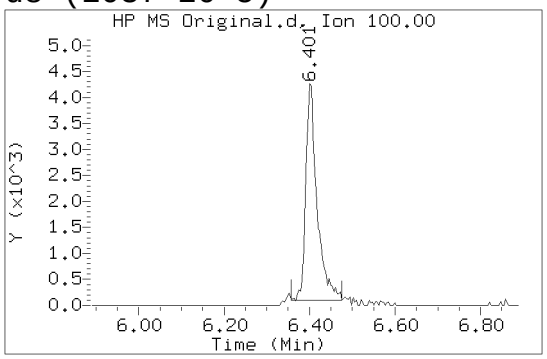
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Inj Date : 24-MAY-2022 11:28
InstruID : voa6.i
LabSampID : VSTD000.25

Toluene-d8 (2037-26-5)

Reason Code:

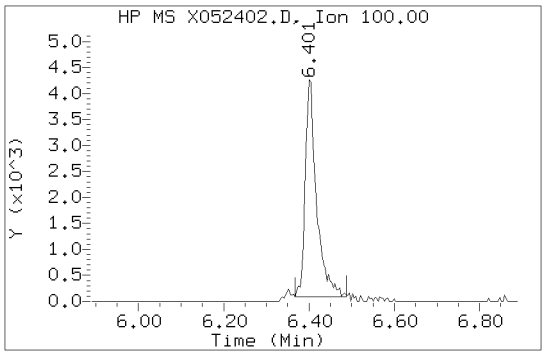
BEFORE

MASS
63
AREA
1005
HEIGHT
571
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
100
AREA
7849
HEIGHT
4184
15-Jul-2022
12:20
ALSHS
Ser

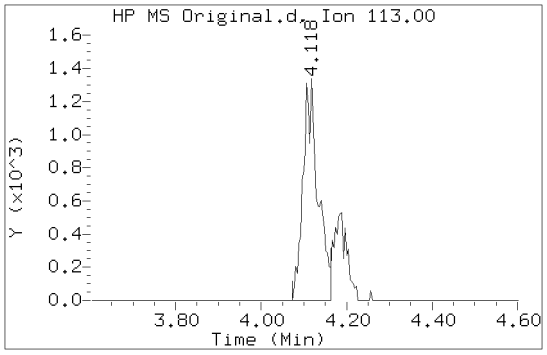


Dibromofluoromethane (1868-53-7)

Reason Code:

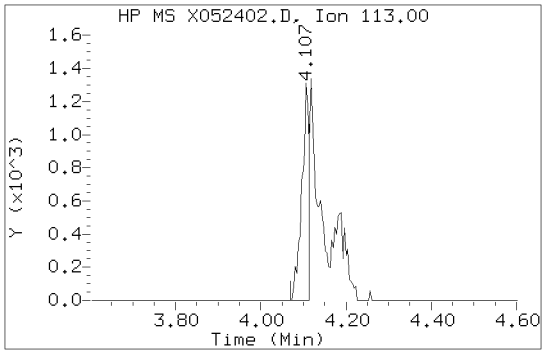
BEFORE

MASS
142
AREA
2751
HEIGHT
1263
24-May-2022
11:44
ALSHS
Server



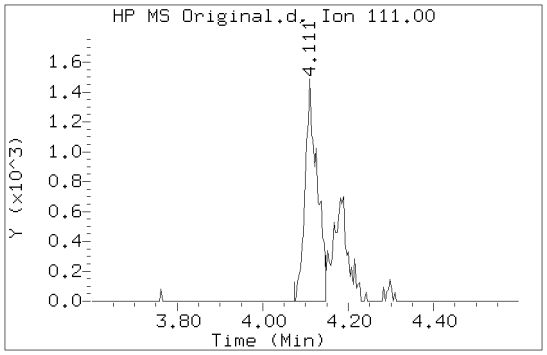
AFTER

MASS
113
AREA
1578
HEIGHT
1310
15-Jul-2022
12:20
ALSHS
Ser



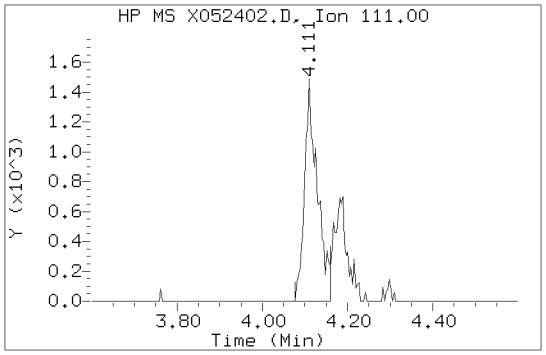
BEFORE

MASS
127
AREA
1070
HEIGHT
674
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
111
AREA
3108
HEIGHT
1488
15-Jul-2022
12:20
ALSHS
Ser

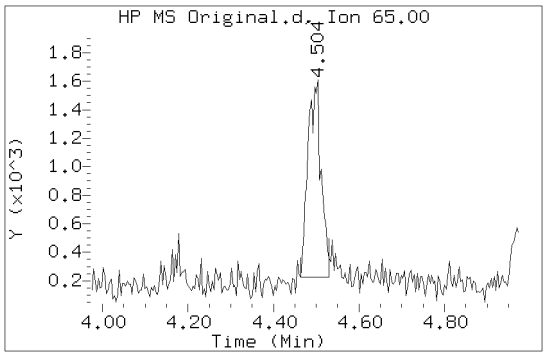


1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

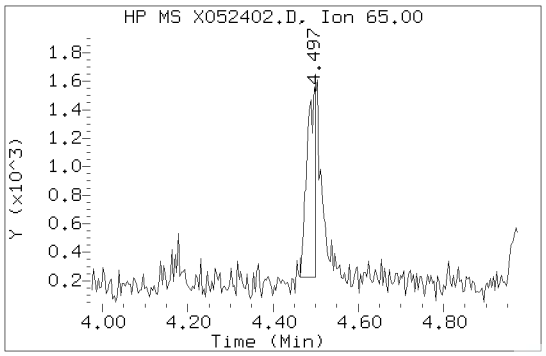
BEFORE

MASS
53
AREA
0
HEIGHT
0
24-May-2022
11:44
ALSHS
Server



AFTER

MASS
65
AREA
1963
HEIGHT
1335
15-Jul-2022
12:20
ALSHS
Ser

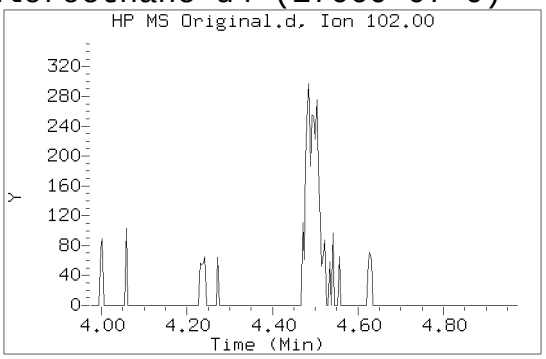


Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052402.D
Inj Date : 24-MAY-2022 11:28
InstruID : voa6.i
LabSampID : VSTD000.25

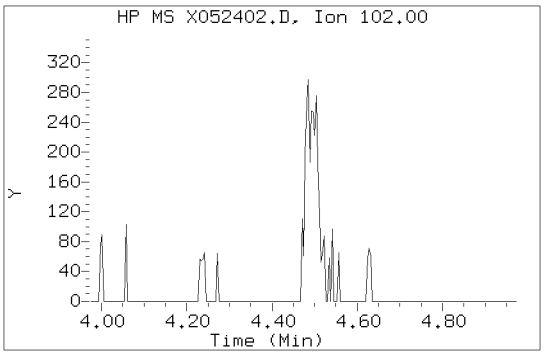
1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

BEFORE
MASS
52
AREA
0
HEIGHT
0
24-May-2022
11:44
ALSHS
Server



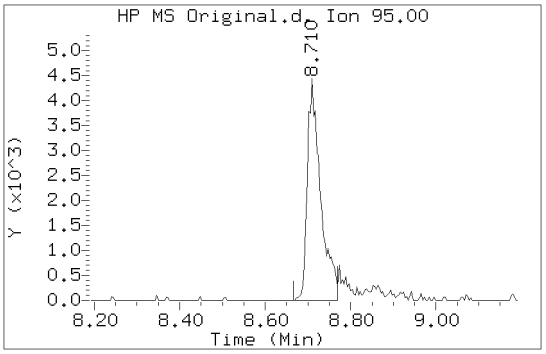
AFTER
MASS
102
AREA
0
HEIGHT
0
15-Jul-2022
12:20
ALSHS
Ser



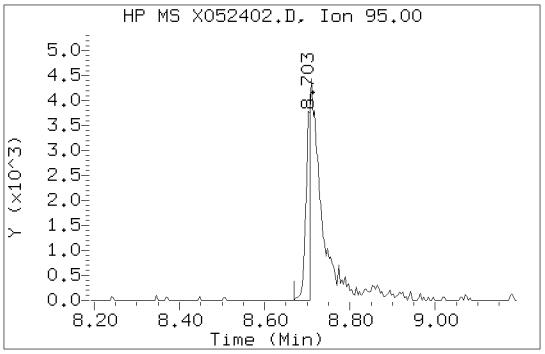
4-Bromofluorobenzene (460-00-4)

Reason Code:

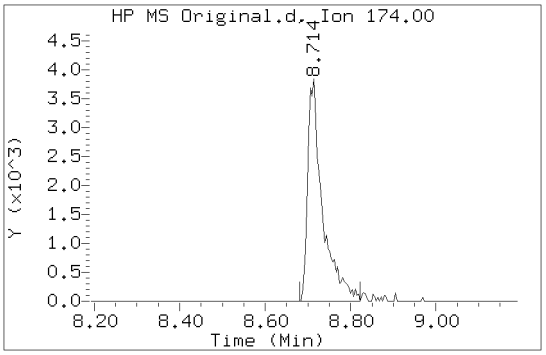
BEFORE
MASS
84
AREA
6441
HEIGHT
3833
24-May-2022
11:44
ALSHS
Server



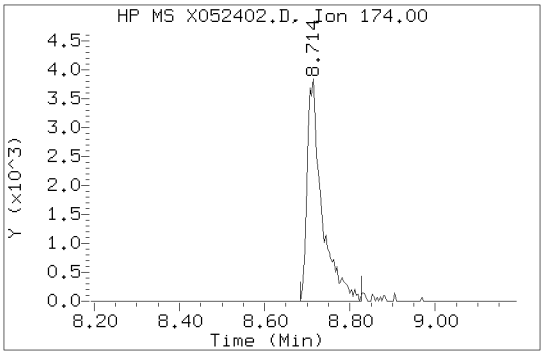
AFTER
MASS
95
AREA
2868
HEIGHT
3782
15-Jul-2022
12:20
ALSHS
Ser



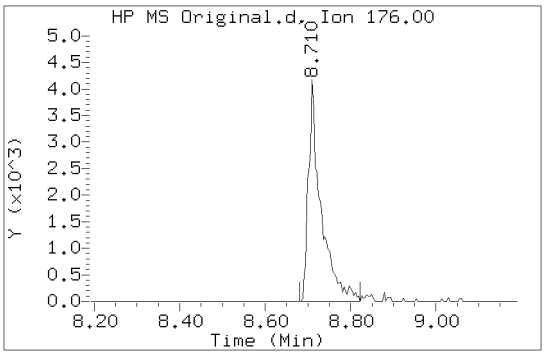
BEFORE
MASS
86
AREA
4390
HEIGHT
2208
24-May-2022
11:44
ALSHS
Server



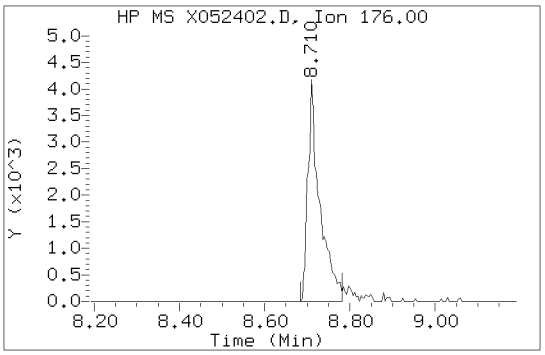
AFTER
MASS
174
AREA
9262
HEIGHT
3838
15-Jul-2022
12:20
ALSHS
Ser



BEFORE
MASS
49
AREA
8039
HEIGHT
4374
24-May-2022
11:44
ALSHS
Server



AFTER
MASS
176
AREA
8113
HEIGHT
4173
15-Jul-2022
12:20
ALSHS
Ser



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 24-MAY-2022 12:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 11:28 Cal File: X052402.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

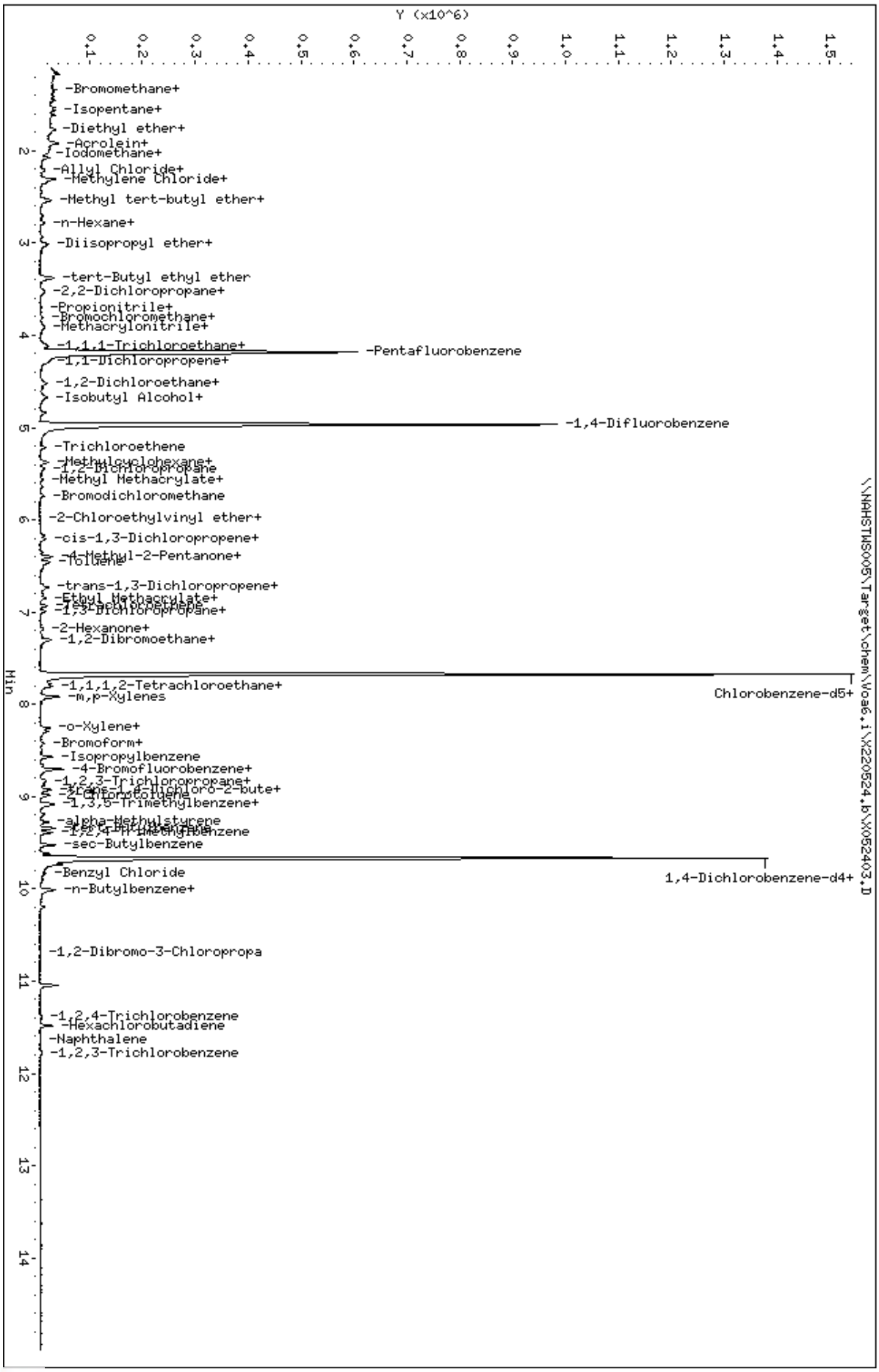
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.181	4.181	(1.000)	510275	50.0000	
*	36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	818945	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	740800	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	339402	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.485	4.485	(1.073)	4171	0.50000	0.33(aM)
$	69 4-Bromofluorobenzene	95	8.698	8.698	(1.134)	4188	0.50000	(aM)
$	30 Dibromofluoromethane	113	4.110	4.110	(0.983)	3406	0.50000	0.61(M)
$	48 Toluene-d8	98	6.401	6.401	(0.834)	11377	0.50000	0.58(aM)
	53 1,1,2-Trichloroethane	83	6.850	6.850	(0.893)	2537	0.50000	0.55(aM)
	11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	2977	0.50000	0.55(aM)
	33 1,2-Dichloroethane	62	4.567	4.567	(0.919)	4448	0.50000	0.54(a)
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	3100	0.50000	0.50(aM)
	17 Methylene Chloride	84	2.307	2.307	(0.552)	3589	0.50000	0.55(aM)
	38 Trichloroethene	130	5.216	5.216	(1.050)	3067	0.50000	0.49(aM)
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	3859	0.50000	0.53(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\Woa6.i\X220524.b\X052403.D
Date : 24-MAY-2022 12:10
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6.i
Operator: PC
Column diameter: 0.18

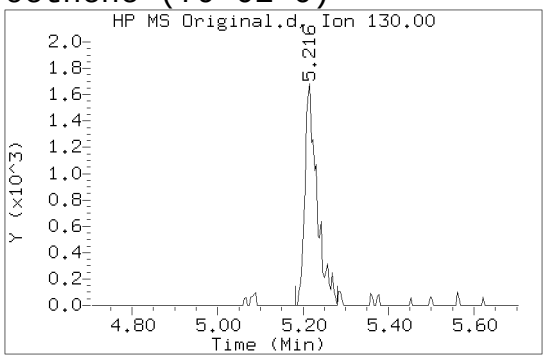
Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

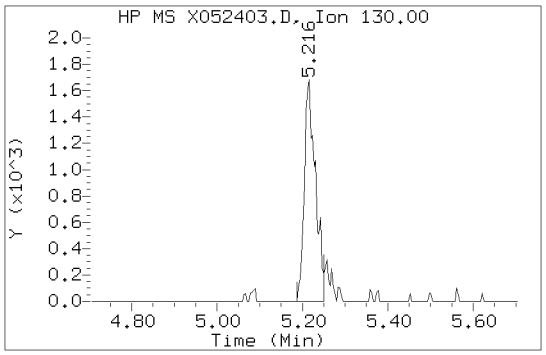
Trichloroethene (79-01-6)

Reason Code:

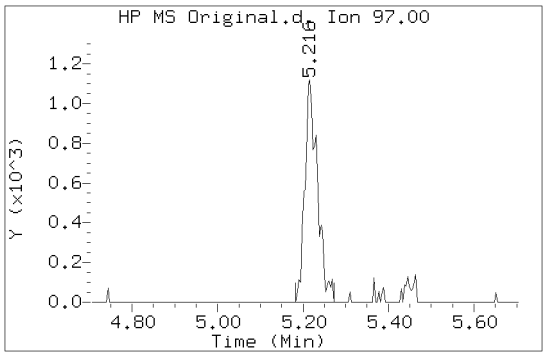
BEFORE
MASS
75
AREA
4730
HEIGHT
1690
09-Jun-2022
16:42
linh
pham



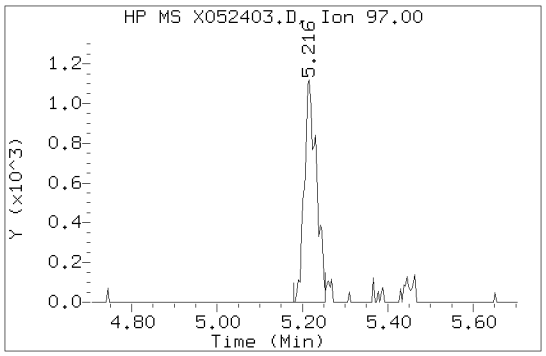
AFTER
MASS
130
AREA
3067
HEIGHT
1683
15-Jul-2022
12:20
linh
pham



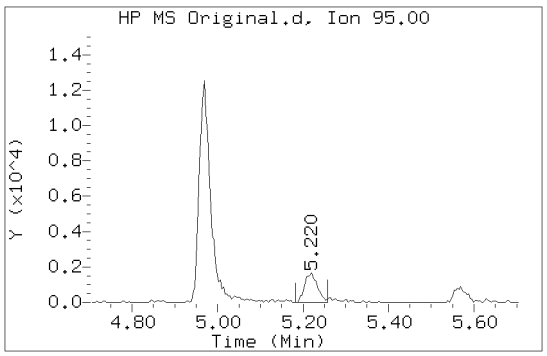
BEFORE
MASS
110
AREA
1935
HEIGHT
885
09-Jun-2022
16:42
linh
pham



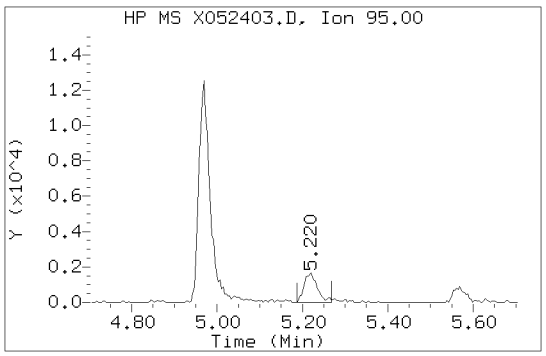
AFTER
MASS
97
AREA
2228
HEIGHT
1119
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
77
AREA
1630
HEIGHT
737
09-Jun-2022
16:42
linh
pham



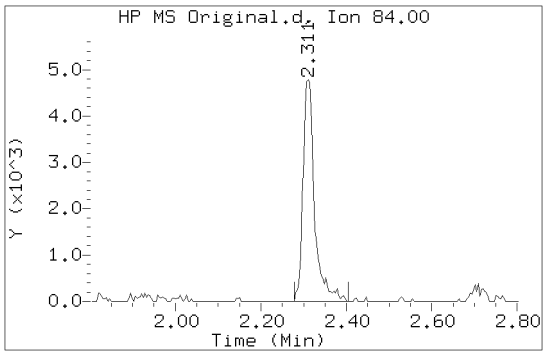
AFTER
MASS
95
AREA
3641
HEIGHT
1660
15-Jul-2022
12:20
linh
pham



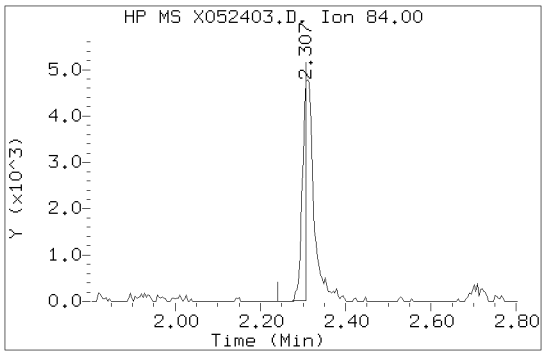
Methylene Chloride (75-09-2)

Reason Code:

BEFORE
MASS
93
AREA
2341
HEIGHT
1251
09-Jun-2022
16:42
linh
pham



AFTER
MASS
84
AREA
3589
HEIGHT
4733
15-Jul-2022
12:20
linh
pham



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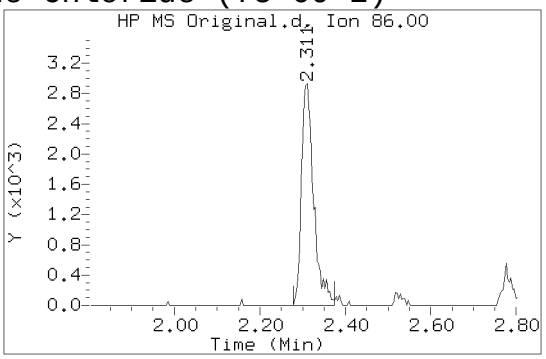
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

Methylene Chloride (75-09-2)

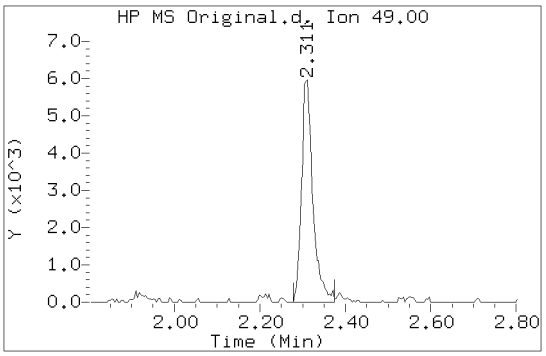
BEFORE

MASS
95
AREA
1750
HEIGHT
902
09-Jun-2022
16:42
linh
pham



BEFORE

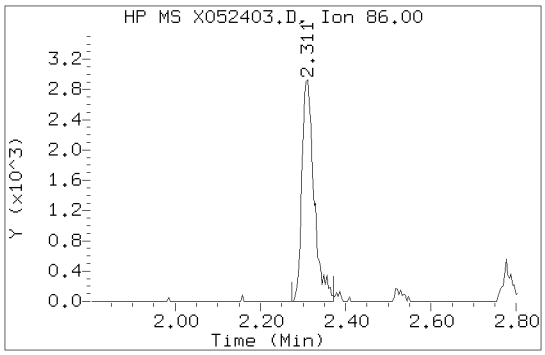
MASS
174
AREA
2070
HEIGHT
1242
09-Jun-2022
16:42
linh
pham



Reason Code:

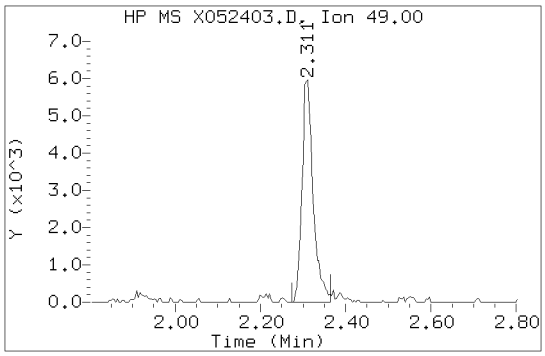
AFTER

MASS
86
AREA
5901
HEIGHT
2929
15-Jul-2022
12:20
linh
pham



AFTER

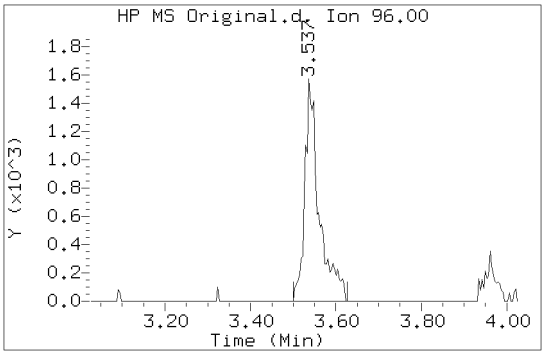
MASS
49
AREA
11128
HEIGHT
5962
15-Jul-2022
12:20
linh
pham



cis-1,2-Dichloroethene (156-59-2)

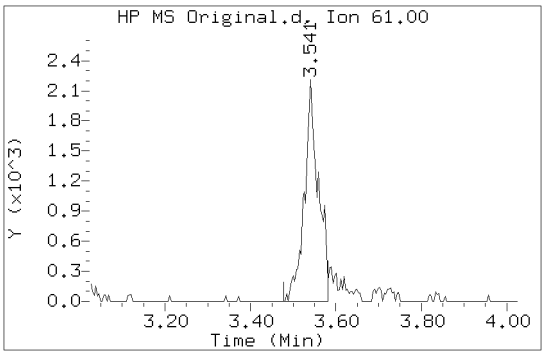
BEFORE

MASS
107
AREA
3297
HEIGHT
1738
09-Jun-2022
16:42
linh
pham



BEFORE

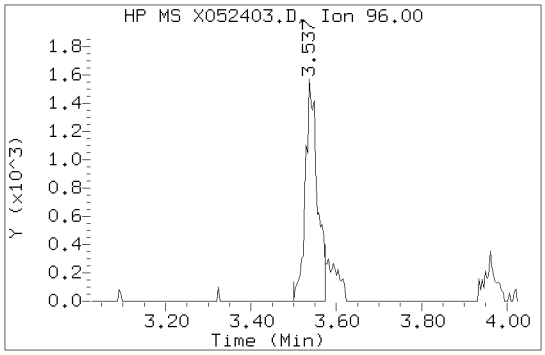
MASS
109
AREA
2941
HEIGHT
1369
09-Jun-2022
16:42
linh
pham



Reason Code:

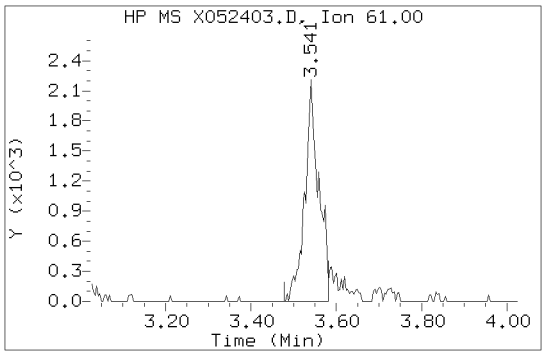
AFTER

MASS
96
AREA
3100
HEIGHT
1571
15-Jul-2022
12:20
linh
pham



AFTER

MASS
61
AREA
5064
HEIGHT
2211
15-Jul-2022
12:20
linh
pham



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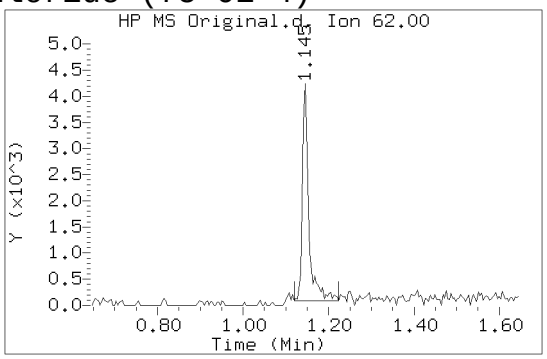
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

Vinyl Chloride (75-01-4)

Reason Code:

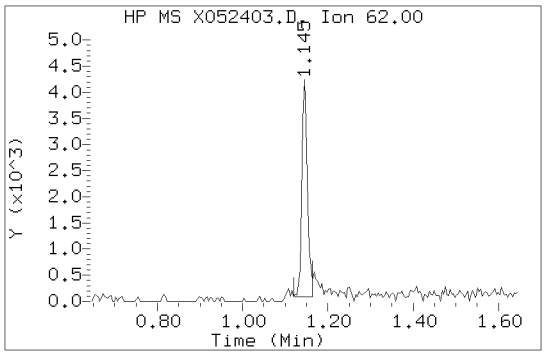
BEFORE

MASS
96
AREA
3022
HEIGHT
1557
09-Jun-2022
16:42
linh
pham



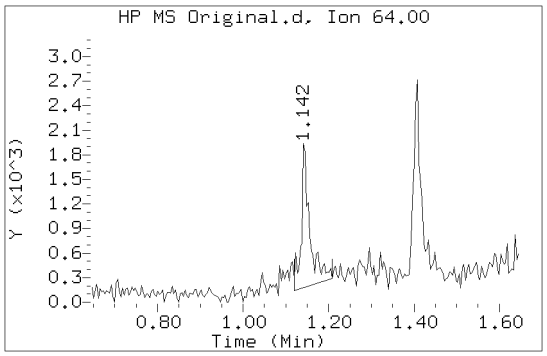
AFTER

MASS
62
AREA
3859
HEIGHT
4161
15-Jul-2022
12:20
linh
pham



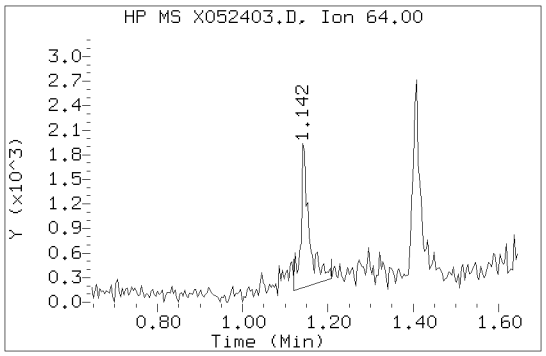
BEFORE

MASS
61
AREA
4246
HEIGHT
2020
09-Jun-2022
16:42
linh
pham



AFTER

MASS
64
AREA
2454
HEIGHT
1764
15-Jul-2022
12:20
linh
pham

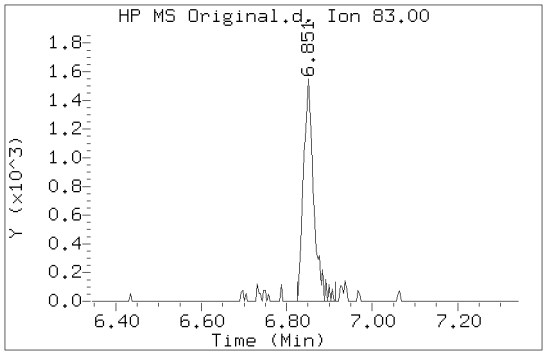


1,1,2-Trichloroethane (79-00-5)

Reason Code:

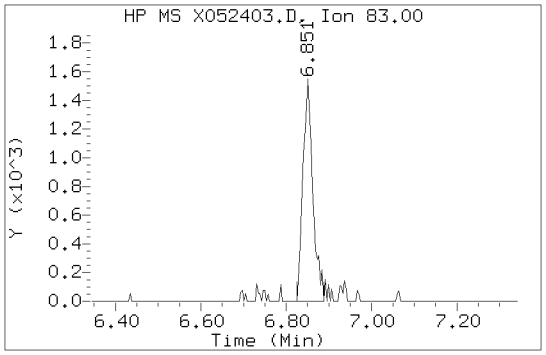
BEFORE

MASS
131
AREA
3246
HEIGHT
2441
09-Jun-2022
16:42
linh
pham



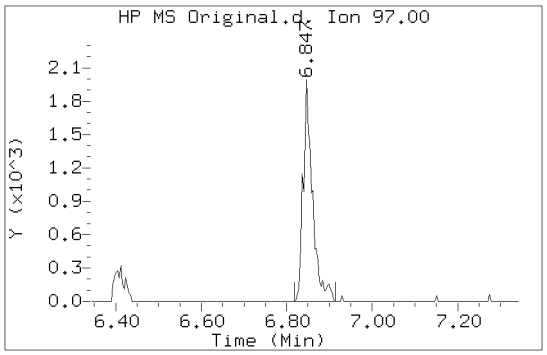
AFTER

MASS
83
AREA
2537
HEIGHT
1550
15-Jul-2022
12:20
linh
pham



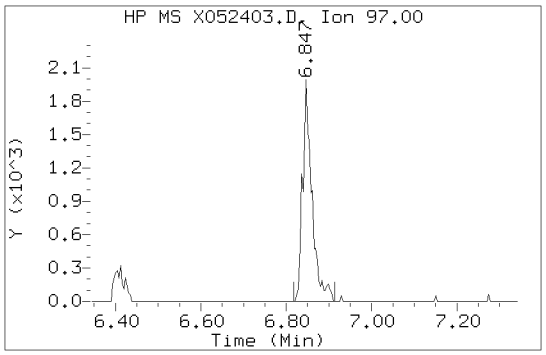
BEFORE

MASS
133
AREA
3041
HEIGHT
1996
09-Jun-2022
16:42
linh
pham



AFTER

MASS
97
AREA
3082
HEIGHT
1993
15-Jul-2022
12:20
linh
pham



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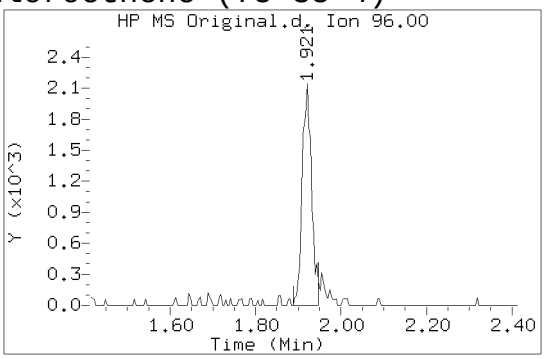
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

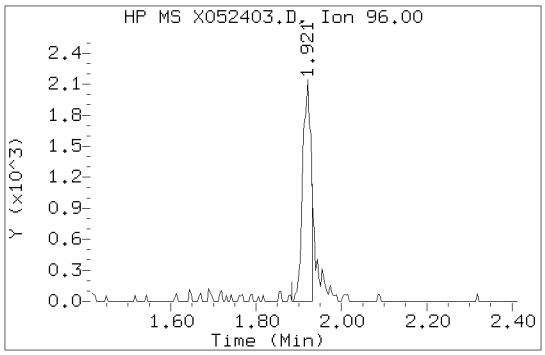
1,1-Dichloroethene (75-35-4)

Reason Code:

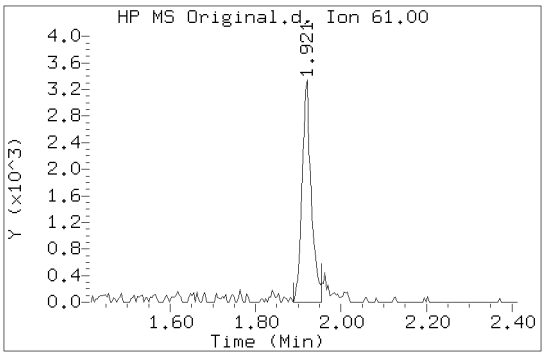
BEFORE
MASS
97
AREA
4955
HEIGHT
1941
09-Jun-2022
16:42
linh
pham



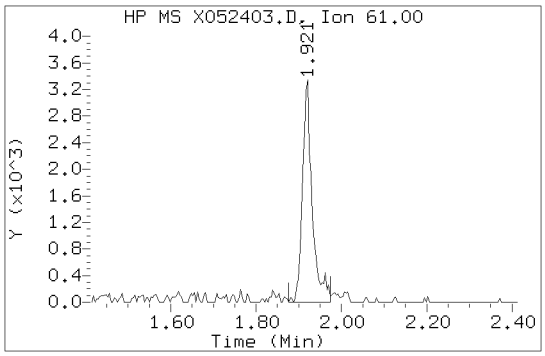
AFTER
MASS
96
AREA
2977
HEIGHT
2143
15-Jul-2022
12:20
linh
pham



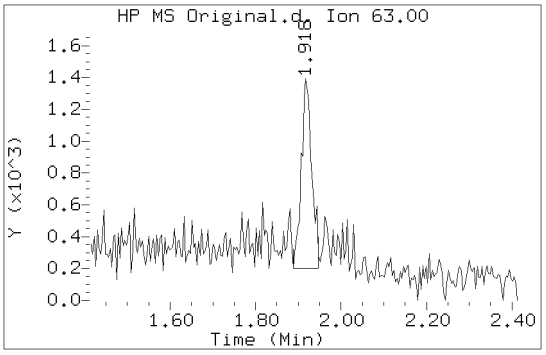
BEFORE
MASS
99
AREA
3158
HEIGHT
1349
09-Jun-2022
16:42
linh
pham



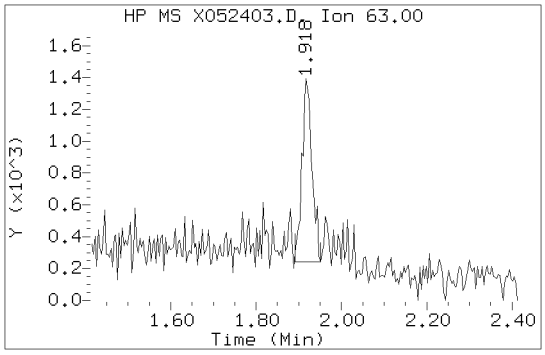
AFTER
MASS
61
AREA
5399
HEIGHT
3344
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
61
AREA
1234
HEIGHT
988
09-Jun-2022
16:42
linh
pham



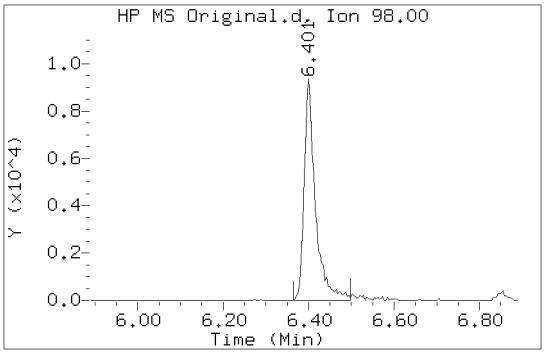
AFTER
MASS
63
AREA
1917
HEIGHT
1152
15-Jul-2022
12:20
linh
pham



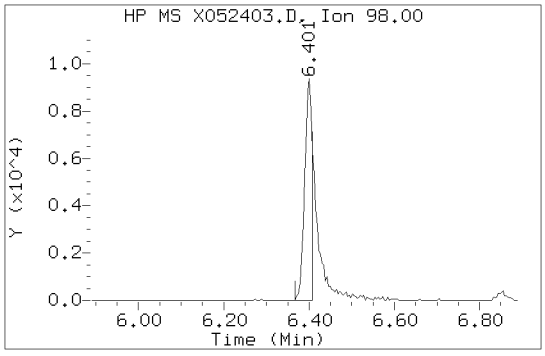
Toluene-d8 (2037-26-5)

Reason Code:

BEFORE
MASS
83
AREA
2617
HEIGHT
1550
09-Jun-2022
16:42
linh
pham



AFTER
MASS
98
AREA
11377
HEIGHT
9370
15-Jul-2022
12:20
linh
pham



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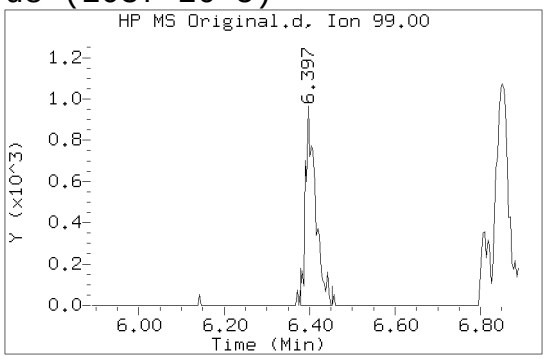
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

Toluene-d8 (2037-26-5)

Reason Code:

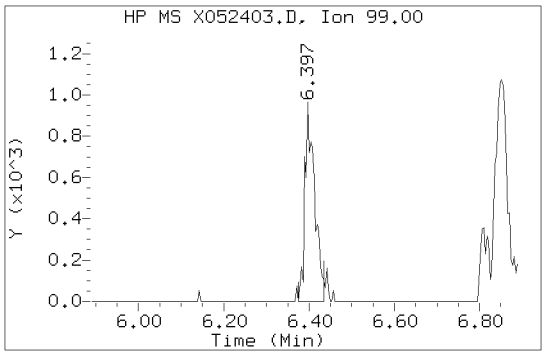
BEFORE

MASS
97
AREA
3082
HEIGHT
1993
09-Jun-2022
16:42
linh
pham



AFTER

MASS
99
AREA
1551
HEIGHT
966
15-Jul-2022
12:20
linh
pham

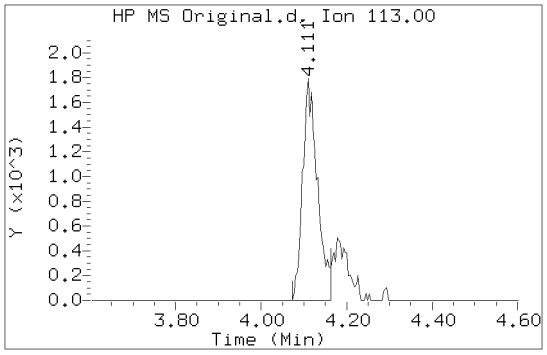


Dibromofluoromethane (1868-53-7)

Reason Code:

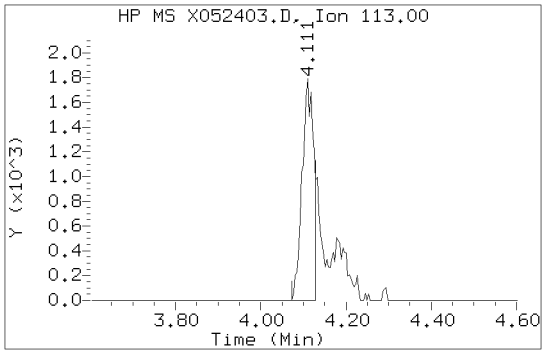
BEFORE

MASS
63
AREA
6402
HEIGHT
2679
09-Jun-2022
16:42
linh
pham



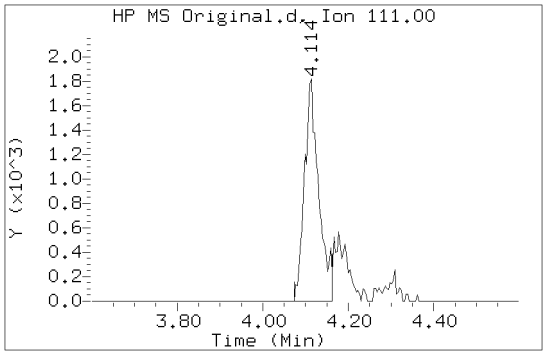
AFTER

MASS
113
AREA
3406
HEIGHT
1791
15-Jul-2022
12:20
linh
pham



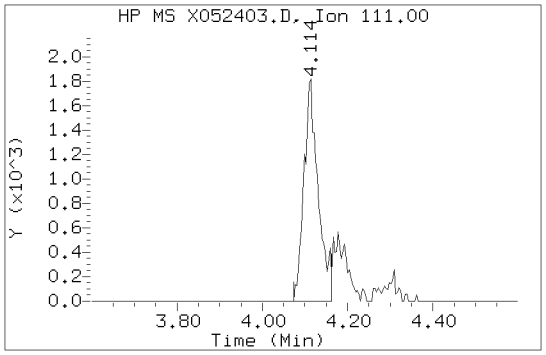
BEFORE

MASS
65
AREA
1344
HEIGHT
829
09-Jun-2022
16:42
linh
pham



AFTER

MASS
111
AREA
4280
HEIGHT
1818
15-Jul-2022
12:20
linh
pham

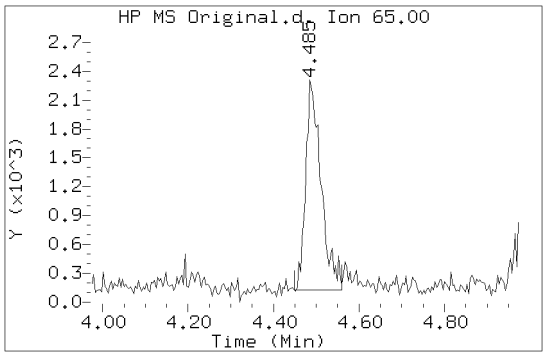


1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

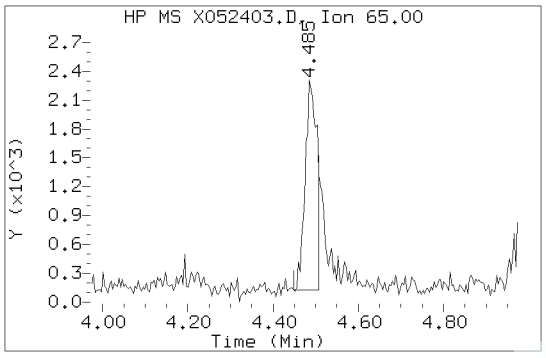
BEFORE

MASS
96
AREA
3339
HEIGHT
2143
09-Jun-2022
16:42
linh
pham



AFTER

MASS
65
AREA
4171
HEIGHT
2186
15-Jul-2022
12:20
linh
pham



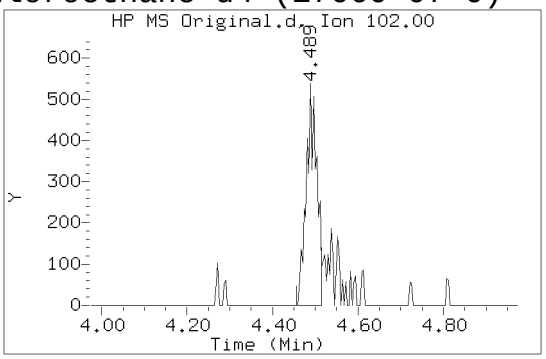
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052403.D
Inj Date : 24-MAY-2022 12:10
InstruID : voa6.i
LabSampID : VSTD000.5

1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

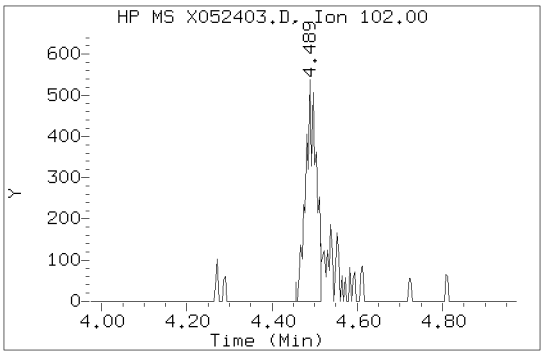
BEFORE

MASS
61
AREA
5088
HEIGHT
3344
09-Jun-2022
16:42
linh
pham



AFTER

MASS
102
AREA
924
HEIGHT
538
15-Jul-2022
12:20
linh
pham

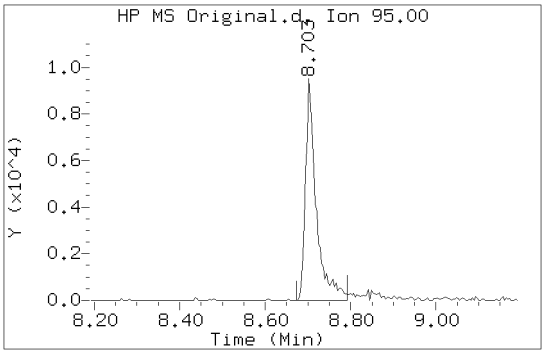


4-Bromofluorobenzene (460-00-4)

Reason Code:

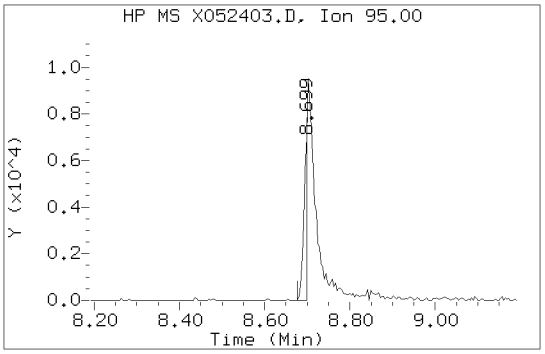
BEFORE

MASS
130
AREA
3353
HEIGHT
1683
09-Jun-2022
16:42
linh
pham



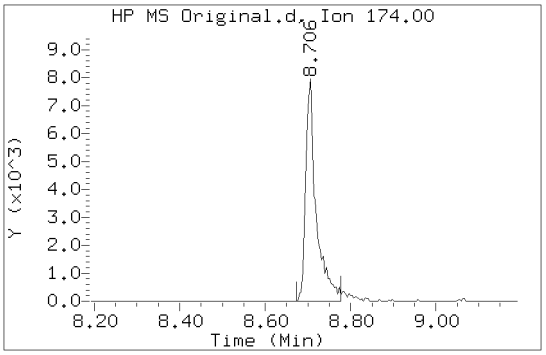
AFTER

MASS
95
AREA
4188
HEIGHT
7013
15-Jul-2022
12:20
linh
pham



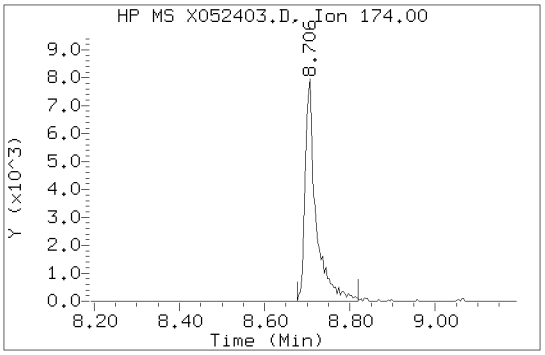
BEFORE

MASS
97
AREA
2316
HEIGHT
1119
09-Jun-2022
16:42
linh
pham



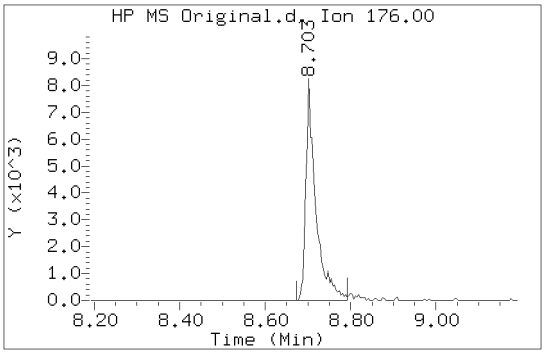
AFTER

MASS
174
AREA
14181
HEIGHT
7958
15-Jul-2022
12:20
linh
pham



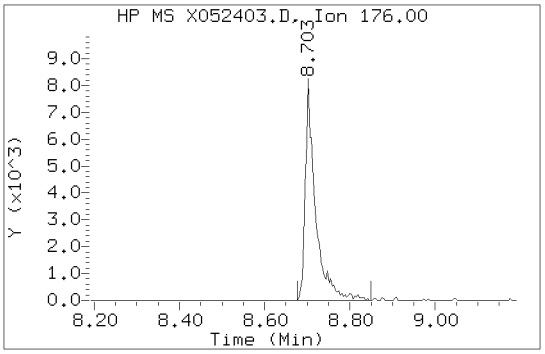
BEFORE

MASS
95
AREA
3498
HEIGHT
1660
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
13720
HEIGHT
8256
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 24-MAY-2022 12:30
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 12:10 Cal File: X052403.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

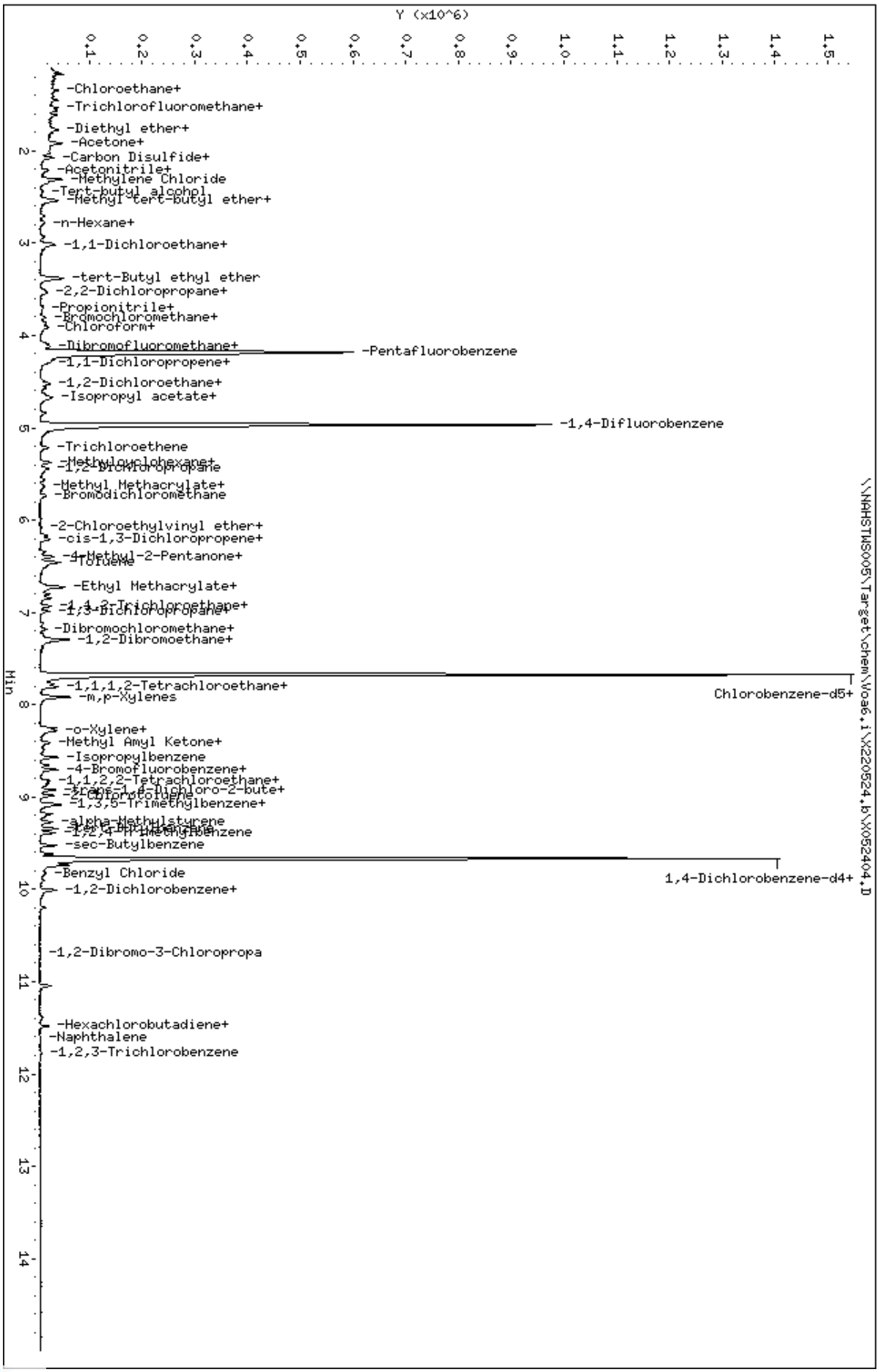
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	520334	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	816004	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	744880	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	339757	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.496	4.496	(1.074)	6545	1.00000	0.69(a)
$ 69 4-Bromofluorobenzene	95	8.706	8.706	(1.135)	9115	1.00000	0.44(aM)
$ 30 Dibromofluoromethane	113	4.110	4.110	(0.982)	4587	1.00000	0.81
$ 48 Toluene-d8	98	6.401	6.401	(0.834)	18215	1.00000	0.92(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4494	1.00000	0.97(a)
11 1,1-Dichloroethene	96	1.917	1.917	(0.458)	4582	1.00000	0.84(a)
33 1,2-Dichloroethane	62	4.571	4.571	(0.920)	7133	1.00000	0.87(a)
27 cis-1,2-Dichloroethene	96	3.540	3.540	(0.846)	5389	1.00000	0.85(a)
17 Methylene Chloride	84	2.307	2.307	(0.551)	7709	1.00000	1.17(aM)
38 Trichloroethene	130	5.216	5.216	(1.050)	5513	1.00000	0.89(a)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	6347	1.00000	0.86(a)

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\Voa6.i\X220524.b\X052404.D
Date : 24-MAY-2022 12:30
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

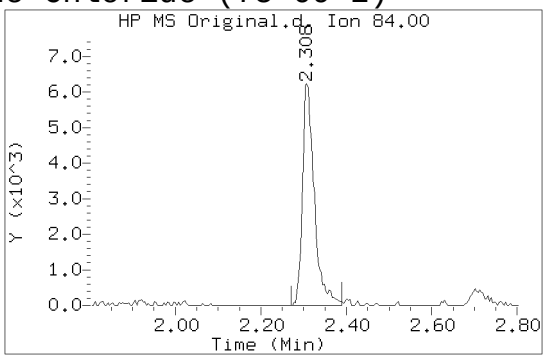
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D
Inj Date : 24-MAY-2022 12:30
InstruID : voa6.i
LabSampID : VSTD001

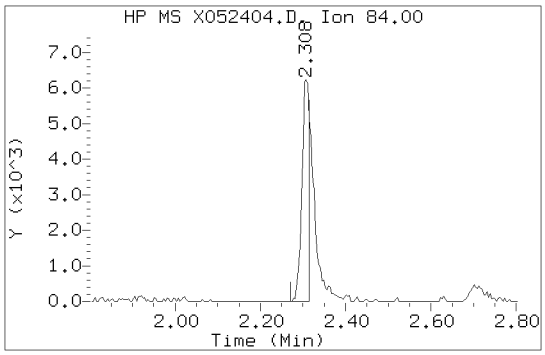
Methylene Chloride (75-09-2)

Reason Code:

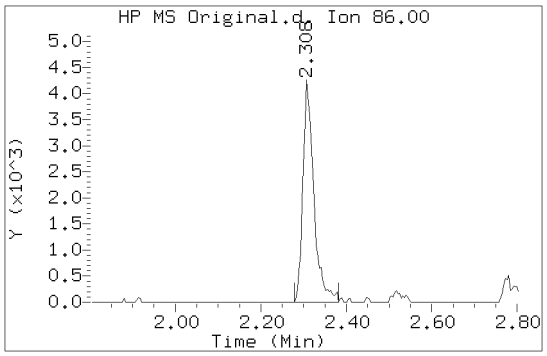
BEFORE
MASS
93
AREA
3655
HEIGHT
2067
09-Jun-2022
16:42
linh
pham



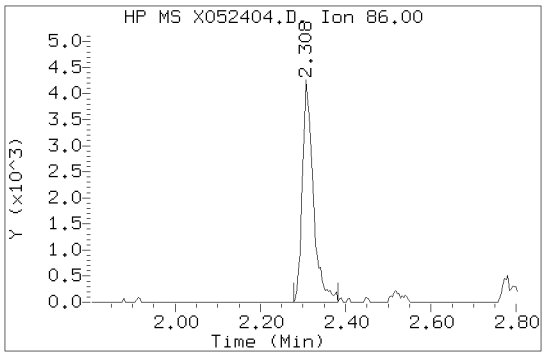
AFTER
MASS
84
AREA
7709
HEIGHT
6234
15-Jul-2022
12:20
linh
pham



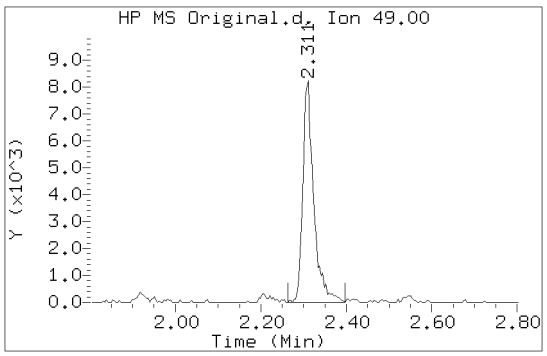
BEFORE
MASS
95
AREA
2997
HEIGHT
1695
09-Jun-2022
16:42
linh
pham



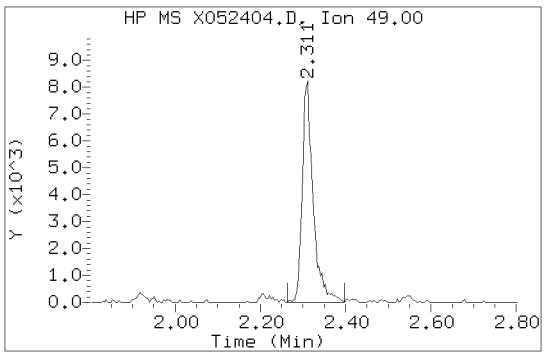
AFTER
MASS
86
AREA
7732
HEIGHT
4262
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
174
AREA
3341
HEIGHT
1661
09-Jun-2022
16:42
linh
pham



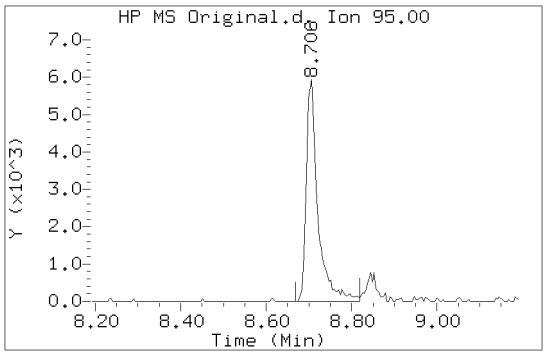
AFTER
MASS
49
AREA
14961
HEIGHT
8243
15-Jul-2022
12:20
linh
pham



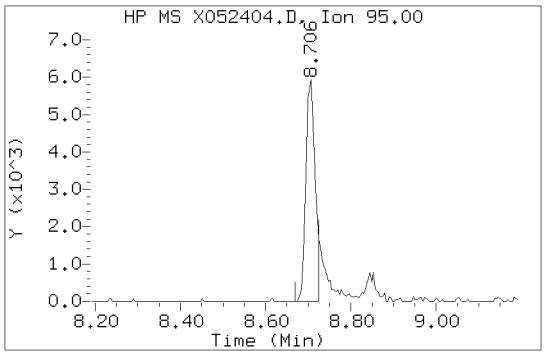
4-Bromofluorobenzene (460-00-4)

Reason Code:

BEFORE
MASS
130
AREA
5513
HEIGHT
2570
09-Jun-2022
16:42
linh
pham



AFTER
MASS
95
AREA
9115
HEIGHT
5935
15-Jul-2022
12:20
linh
pham



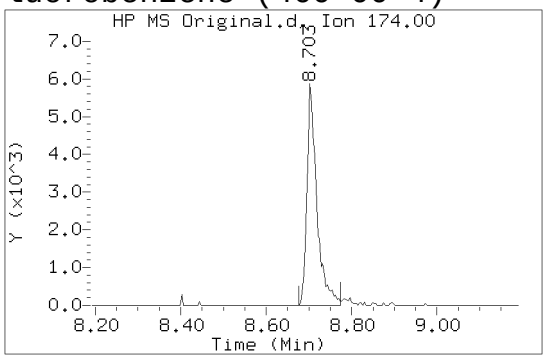
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052404.D
Inj Date : 24-MAY-2022 12:30
InstruID : voa6.i
LabSampID : VSTD001

4-Bromofluorobenzene (460-00-4)

Reason Code:

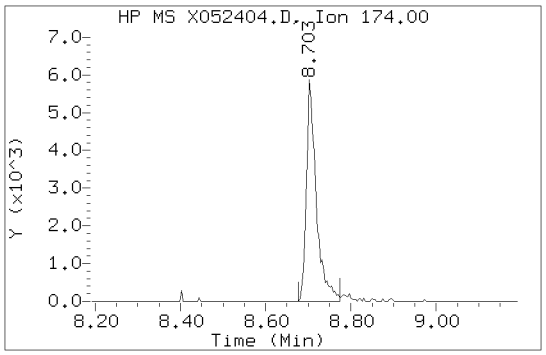
BEFORE

MASS
97
AREA
3348
HEIGHT
1753
09-Jun-2022
16:42
linh
pham



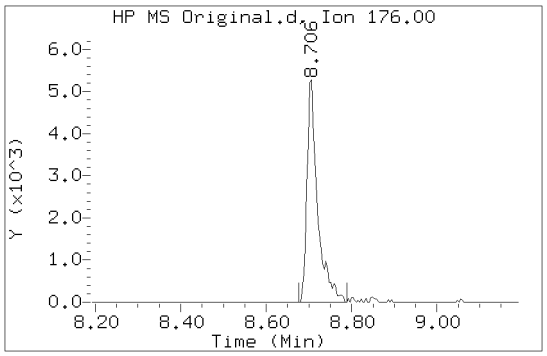
AFTER

MASS
174
AREA
9528
HEIGHT
5873
15-Jul-2022
12:20
linh
pham



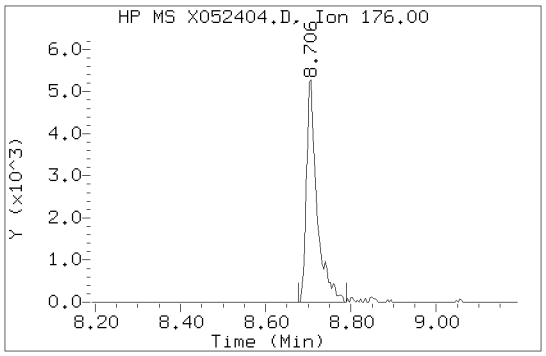
BEFORE

MASS
95
AREA
5169
HEIGHT
2986
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
9192
HEIGHT
5277
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 24-MAY-2022 12:51
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 12:30 Cal File: X052404.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

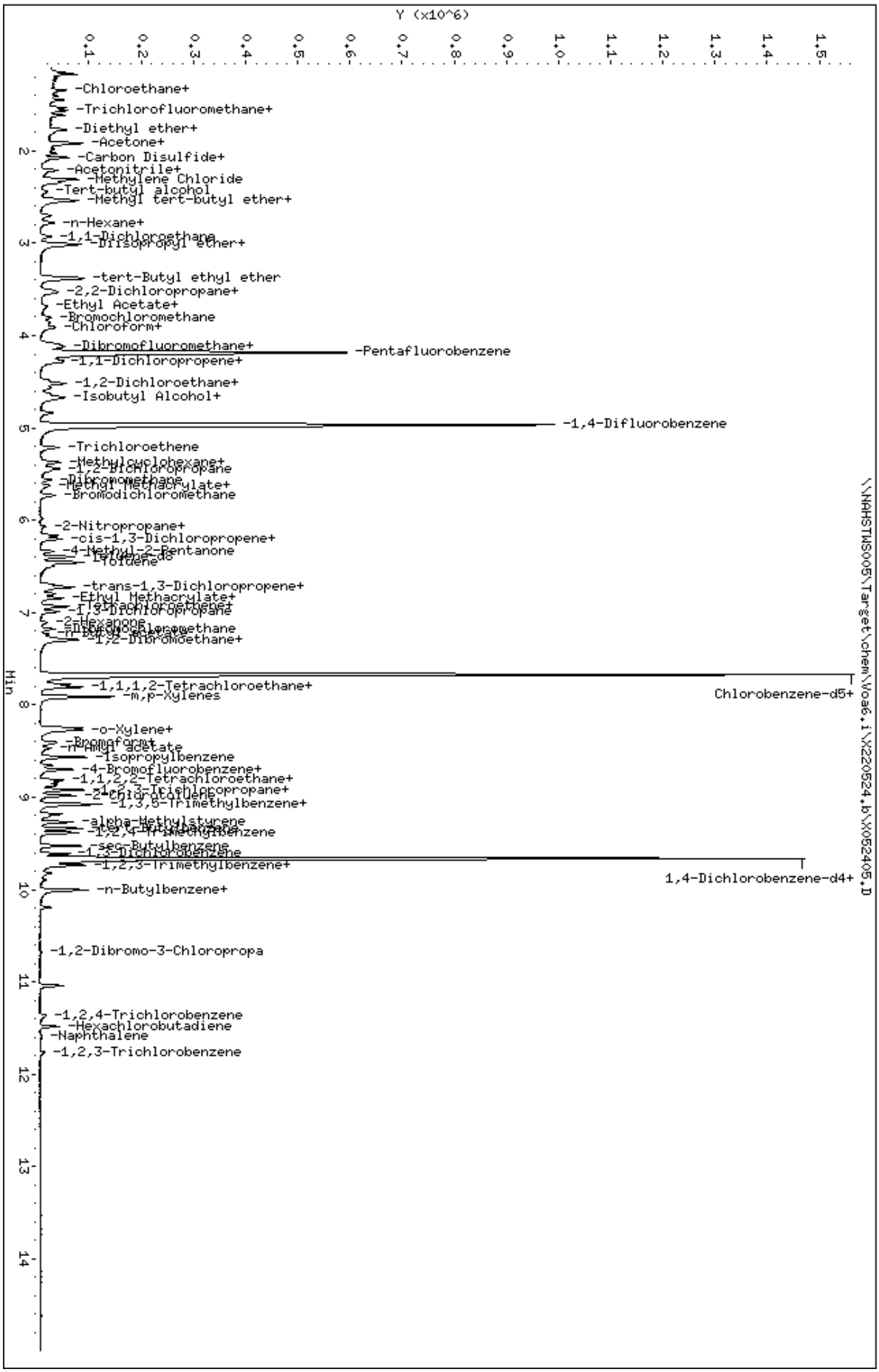
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.185	4.185	(1.000)	506499	50.0000	
*	36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	823111	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	753017	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	340249	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.485	4.485	(1.072)	13694	2.00000	1.87(aM)
$	69 4-Bromofluorobenzene	95	8.702	8.702	(1.134)	17686	2.00000	1.65(aM)
$	30 Dibromofluoromethane	113	4.106	4.106	(0.981)	11150	2.00000	2.07
$	48 Toluene-d8	98	6.393	6.393	(0.833)	40470	2.00000	2.03(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	9391	2.00000	2.01(a)
	11 1,1-Dichloroethene	96	1.917	1.917	(0.458)	11701	2.00000	2.21(a)
	33 1,2-Dichloroethane	62	4.567	4.567	(0.919)	15433	2.00000	1.87(a)
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.845)	12355	2.00000	2.02(a)
	17 Methylene Chloride	84	2.307	2.307	(0.551)	12867	2.00000	2.01(aM)
	38 Trichloroethene	130	5.212	5.212	(1.049)	12893	2.00000	2.08(a)
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	15090	2.00000	2.11(a)

QC Flag Legend

a - Target compound detected but, quantitated amount

Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

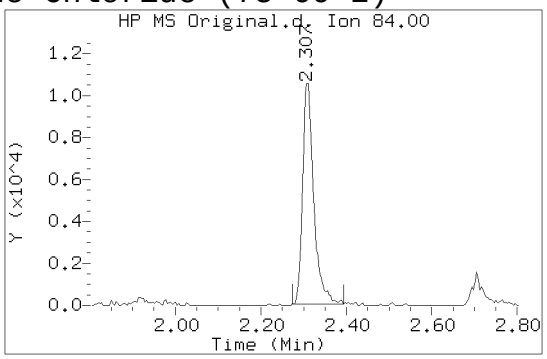

Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Carbon Disulfide+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Methyl tert-butyl ether+
-n-Hexane+
-1,1-Dichloroethane
-Diisopropyl ether+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Ethyl Acetate+
-Bromochloromethane
-Chloroform+
-Dibromofluoromethane+
-Pentafluorobenzene
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-1,2-Dichloropropane
-Dibromomethane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-Tetrachloroethene+
-1,3-Dichloropropane
-2-Hexanone
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform+
-n-Amyl acetate
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-1,2,3-Trichloropropane+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-1,2,4-Trimethylbenzene
-sec-Butylbenzene
-1,3-Dichlorobenzene
-1,2,3-Trimethylbenzene+
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
\\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Date : 24-MAY-2022 12:51
Client ID: VSTD002
Sample Info: VSTD002;VSTD002+1+4;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Inj Date : 24-MAY-2022 12:51
InstruID : voa6.i
LabSampID : VSTD002

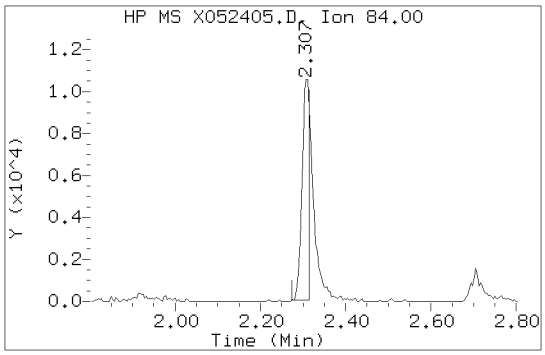
Methylene Chloride (75-09-2)

Reason Code:

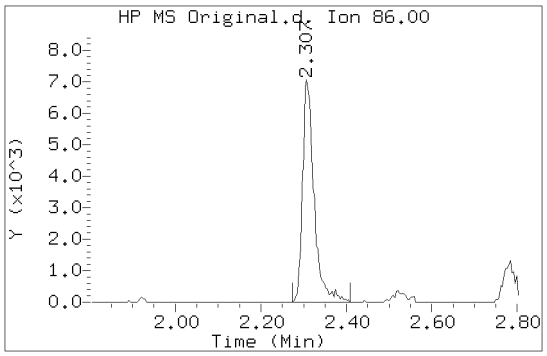
BEFORE
MASS
93
AREA
7735
HEIGHT
4035
09-Jun-2022
16:42
linh
pham



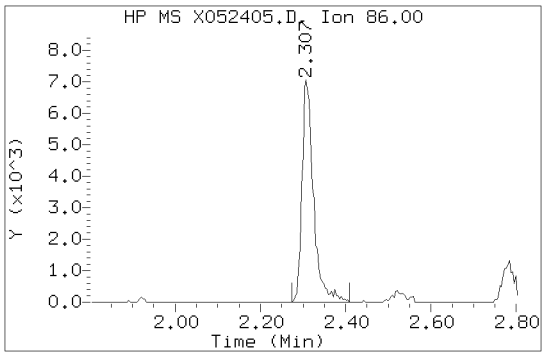
AFTER
MASS
84
AREA
12867
HEIGHT
10497
15-Jul-2022
12:20
linh
pham



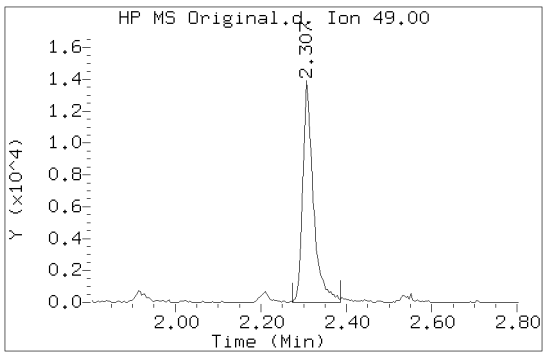
BEFORE
MASS
95
AREA
6481
HEIGHT
3356
09-Jun-2022
16:42
linh
pham



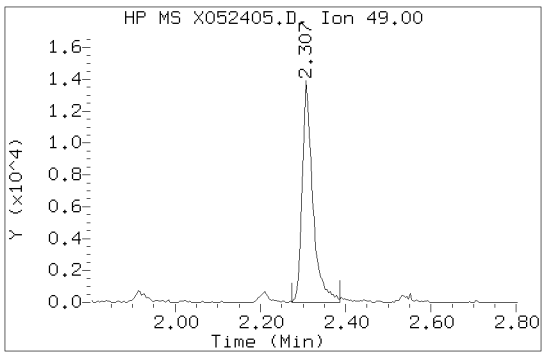
AFTER
MASS
86
AREA
13511
HEIGHT
7061
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
174
AREA
7980
HEIGHT
4123
09-Jun-2022
16:42
linh
pham



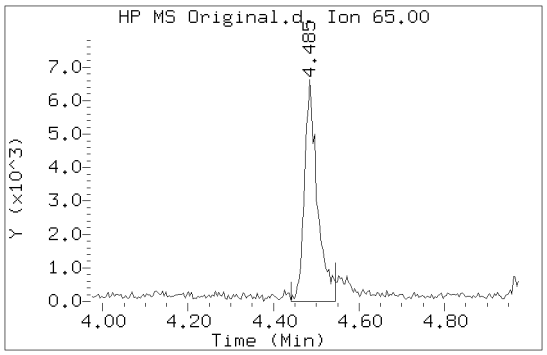
AFTER
MASS
49
AREA
24435
HEIGHT
13912
15-Jul-2022
12:20
linh
pham



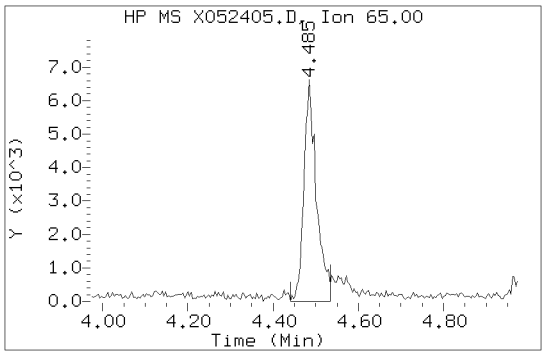
1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

BEFORE
MASS
96
AREA
11701
HEIGHT
7057
09-Jun-2022
16:42
linh
pham



AFTER
MASS
65
AREA
13694
HEIGHT
6628
15-Jul-2022
12:20
linh
pham



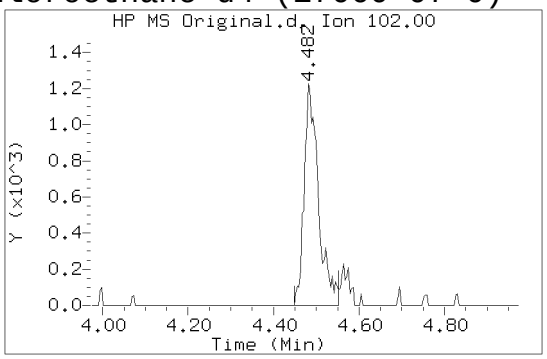
Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052405.D
Inj Date : 24-MAY-2022 12:51
InstruID : voa6.i
LabSampID : VSTD002

1,2-Dichloroethane-d4 (17060-07-0)

Reason Code:

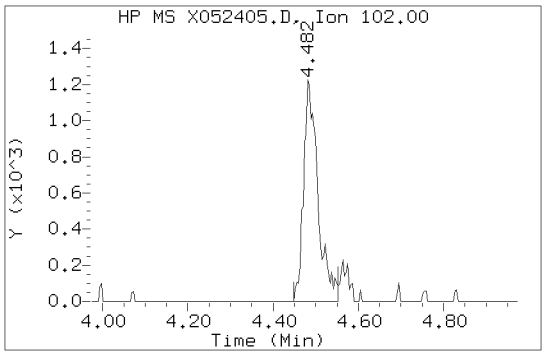
BEFORE

MASS
61
AREA
18435
HEIGHT
11023
09-Jun-2022
16:42
linh
pham



AFTER

MASS
102
AREA
2890
HEIGHT
1227
15-Jul-2022
12:20
linh
pham

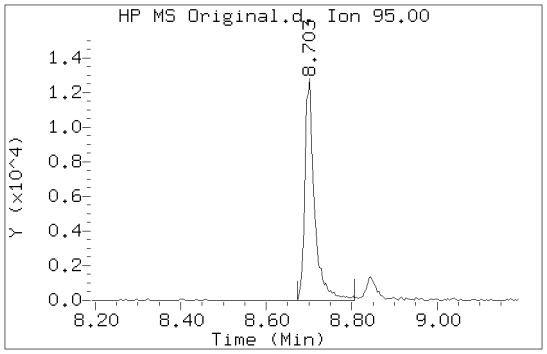


4-Bromofluorobenzene (460-00-4)

Reason Code:

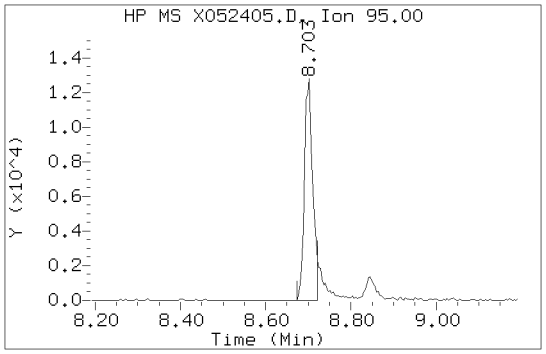
BEFORE

MASS
130
AREA
12893
HEIGHT
6384
09-Jun-2022
16:42
linh
pham



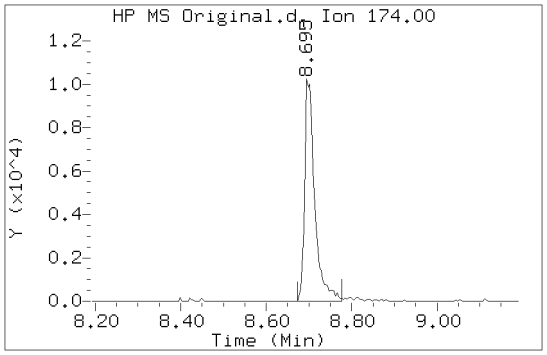
AFTER

MASS
95
AREA
17686
HEIGHT
12793
15-Jul-2022
12:20
linh
pham



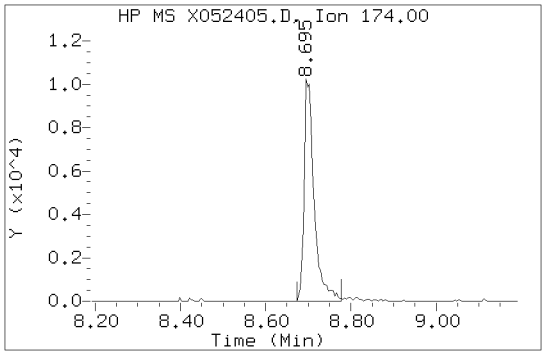
BEFORE

MASS
97
AREA
7964
HEIGHT
4033
09-Jun-2022
16:42
linh
pham



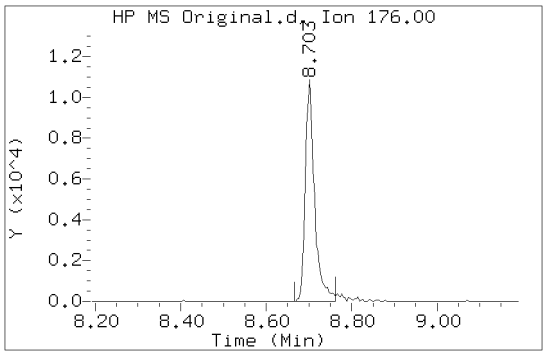
AFTER

MASS
174
AREA
17086
HEIGHT
10253
15-Jul-2022
12:20
linh
pham



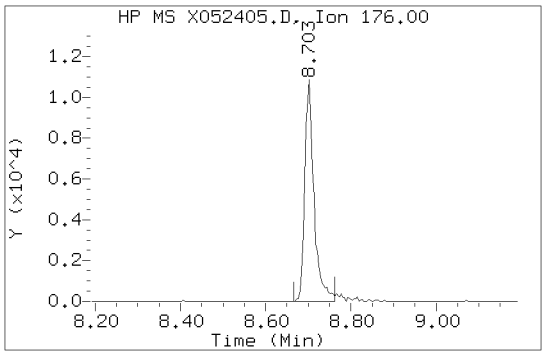
BEFORE

MASS
95
AREA
13139
HEIGHT
7283
09-Jun-2022
16:42
linh
pham



AFTER

MASS
176
AREA
16652
HEIGHT
10870
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 24-MAY-2022 13:12
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 12:51 Cal File: X052405.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

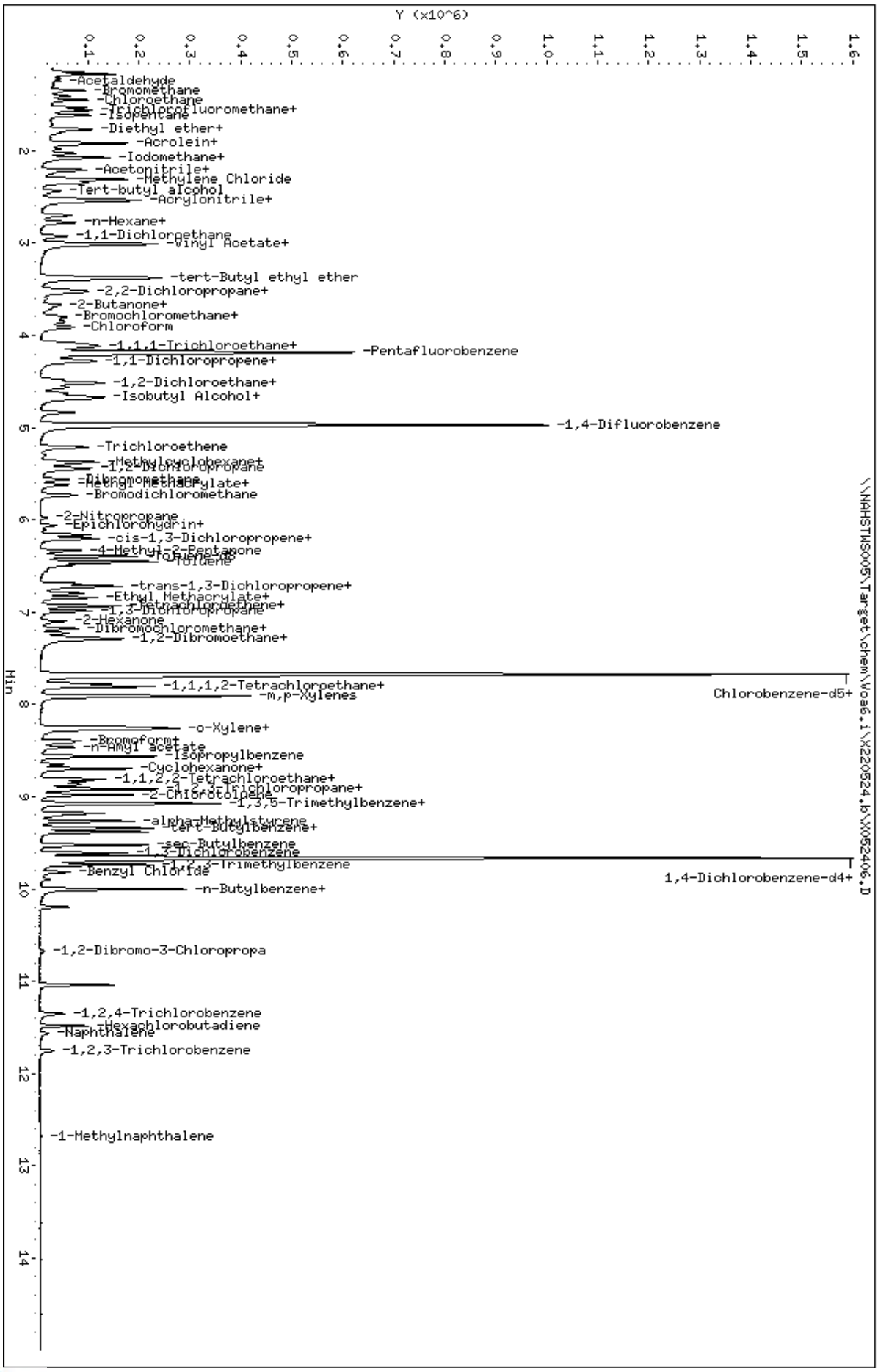
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.181	4.181	(1.000)	517817	50.0000	
*	36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	833465	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	758015	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	355376	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.481	4.481	(1.072)	36258	5.00000	5.38(M)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.133)	48914	5.00000	6.09(M)
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	29413	5.00000	5.38(M)
$	48 Toluene-d8	98	6.393	6.393	(0.833)	114070	5.00000	5.69
	53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	25426	5.00000	5.42
	11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	28012	5.00000	5.18
	33 1,2-Dichloroethane	62	4.564	4.564	(0.919)	44721	5.00000	5.37
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	33095	5.00000	5.29
	17 Methylene Chloride	84	2.307	2.307	(0.552)	38537	5.00000	5.89
	38 Trichloroethene	130	5.212	5.212	(1.049)	33463	5.00000	5.34
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	37791	5.00000	5.17

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Date : 24-MAY-2022 13:12
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

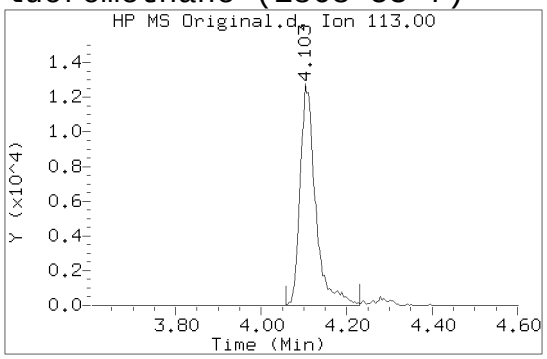
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Inj Date : 24-MAY-2022 13:12
InstruID : voa6.i
LabSampID : VSTD005

Dibromofluoromethane (1868-53-7)

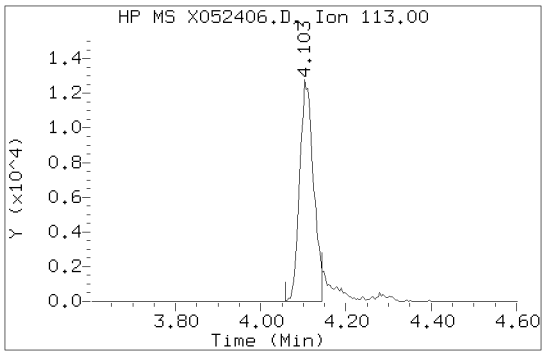
BEFORE

MASS
63
AREA
53792
HEIGHT
25984
09-Jun-2022
16:42
linh
pham



AFTER

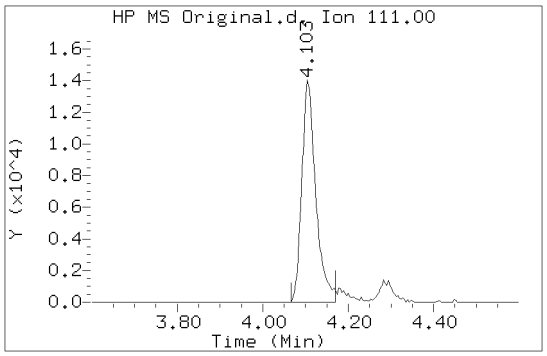
MASS
113
AREA
29413
HEIGHT
12784
15-Jul-2022
12:20
linh
pham



Reason Code:

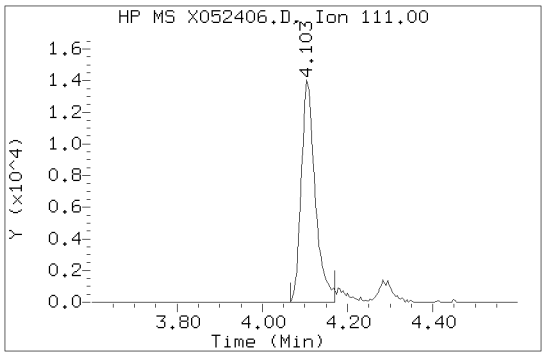
BEFORE

MASS
65
AREA
17706
HEIGHT
8417
09-Jun-2022
16:42
linh
pham



AFTER

MASS
111
AREA
32528
HEIGHT
14046
15-Jul-2022
12:20
linh
pham

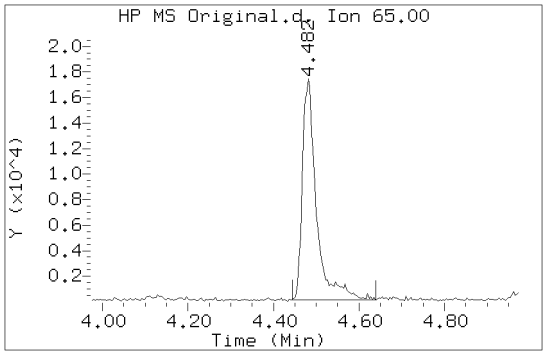


Reason Code:

1,2-Dichloroethane-d4 (17060-07-0)

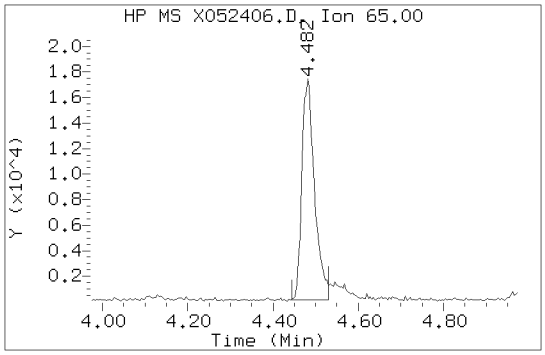
BEFORE

MASS
96
AREA
28012
HEIGHT
16744
09-Jun-2022
16:42
linh
pham



AFTER

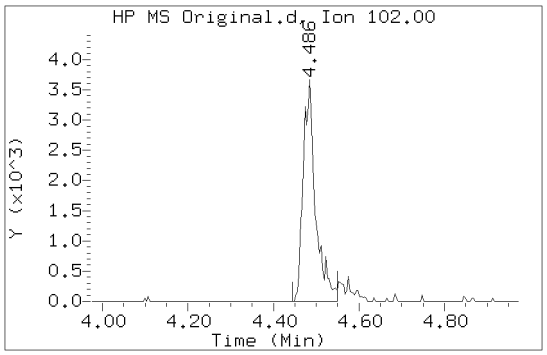
MASS
65
AREA
36258
HEIGHT
17280
15-Jul-2022
12:20
linh
pham



Reason Code:

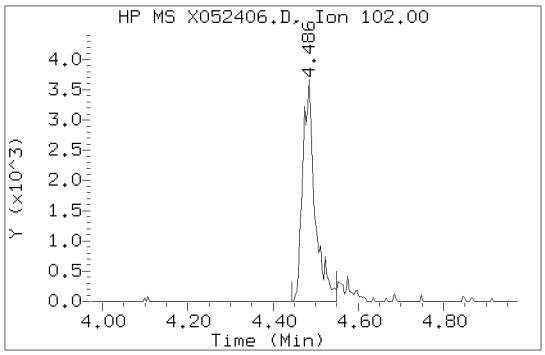
BEFORE

MASS
61
AREA
47136
HEIGHT
27256
09-Jun-2022
16:42
linh
pham



AFTER

MASS
102
AREA
7479
HEIGHT
3667
15-Jul-2022
12:20
linh
pham

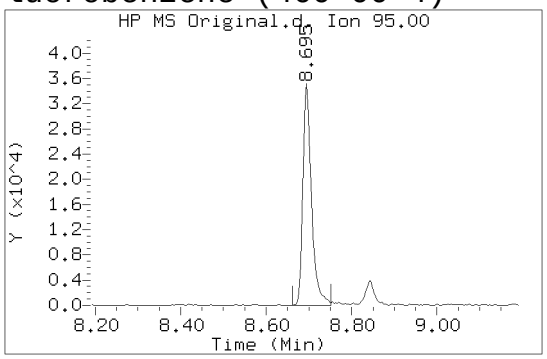


Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052406.D
Inj Date : 24-MAY-2022 13:12
InstruID : voa6.i
LabSampID : VSTD005

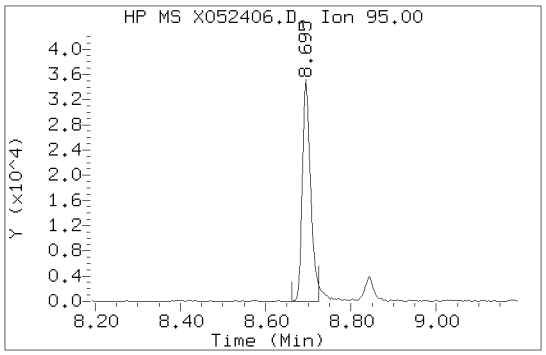
4-Bromofluorobenzene (460-00-4)

Reason Code:

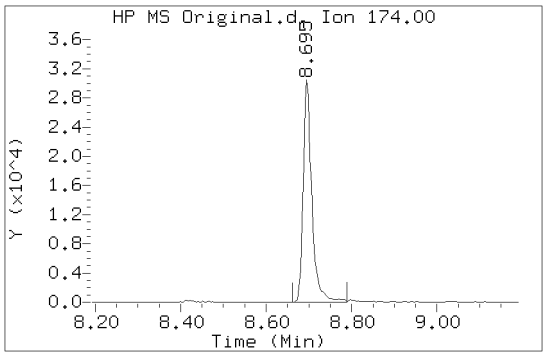
BEFORE
MASS
130
AREA
33463
HEIGHT
17776
09-Jun-2022
16:42
linh
pham



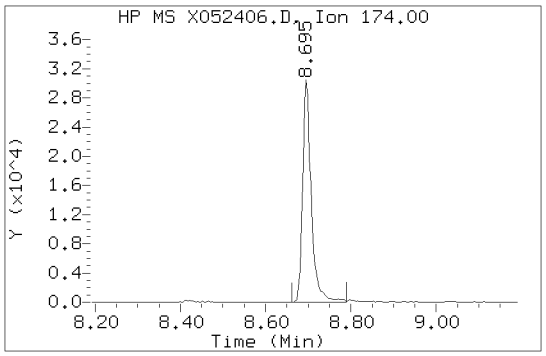
AFTER
MASS
95
AREA
48914
HEIGHT
35160
15-Jul-2022
12:20
linh
pham



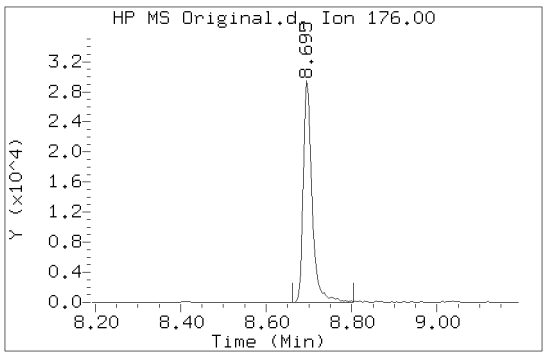
BEFORE
MASS
97
AREA
20450
HEIGHT
10901
09-Jun-2022
16:42
linh
pham



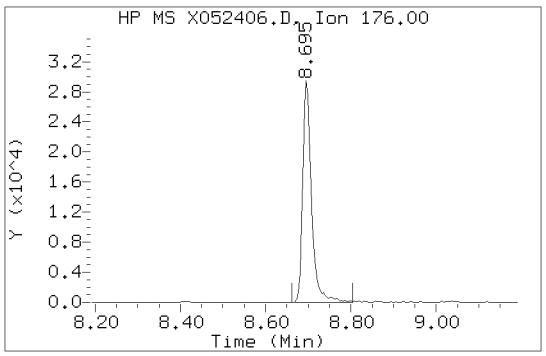
AFTER
MASS
174
AREA
43976
HEIGHT
30472
15-Jul-2022
12:20
linh
pham



BEFORE
MASS
95
AREA
31684
HEIGHT
16829
09-Jun-2022
16:42
linh
pham



AFTER
MASS
176
AREA
43532
HEIGHT
29480
15-Jul-2022
12:20
linh
pham



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D Page 1
Report Date: 15-Jul-2022 12:20

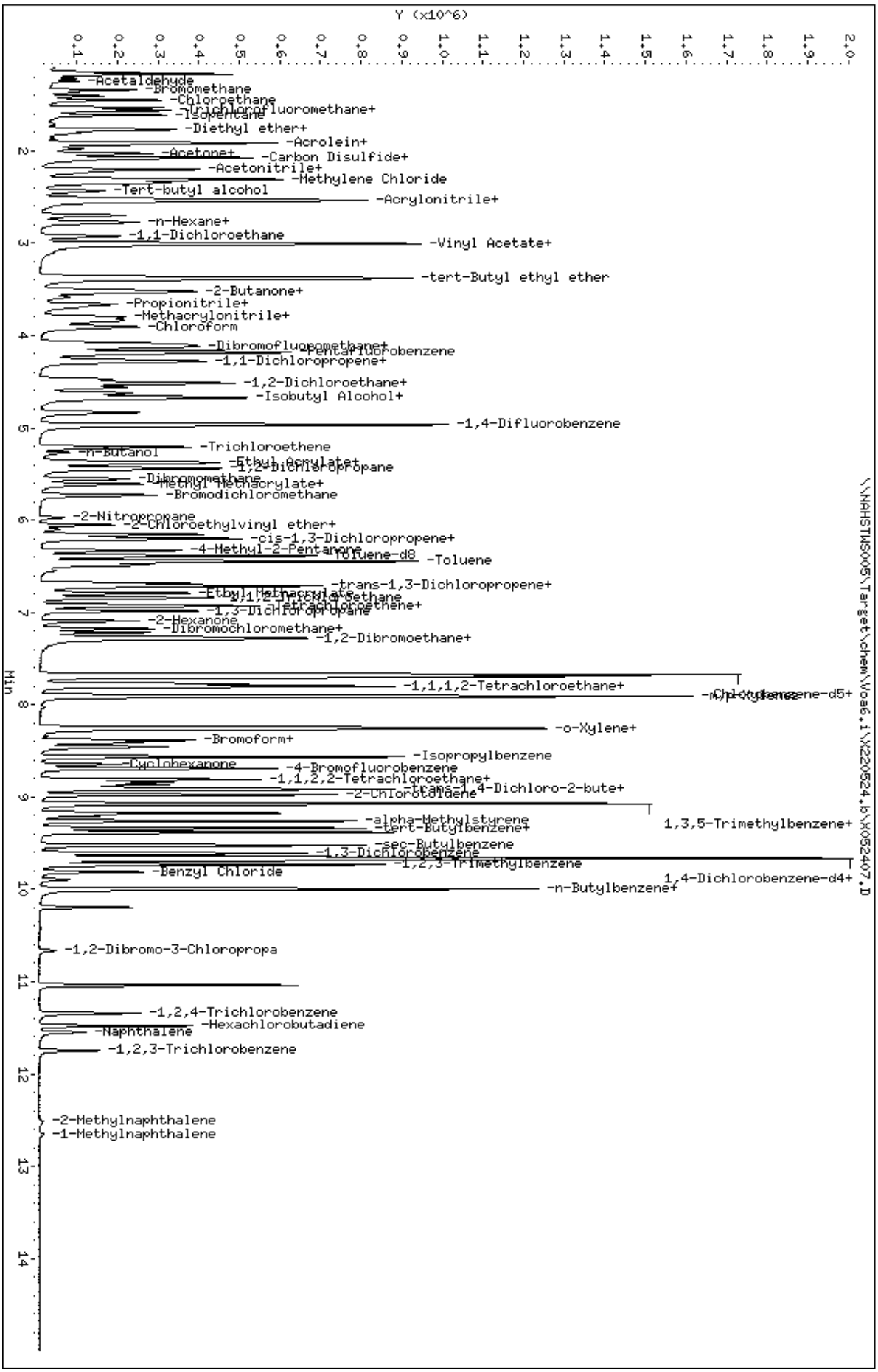
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 24-MAY-2022 13:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:12 Cal File: X052406.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.181	4.181	(1.000)	517604	50.0000	
*	36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	827602	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	774241	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	369188	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	132108	20.0000	20.52
$	69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	154990	20.0000	20.75
$	30 Dibromofluoromethane	113	4.102	4.102	(0.981)	112071	20.0000	20.58
$	48 Toluene-d8	98	6.389	6.389	(0.833)	401816	20.0000	19.65
	53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	94053	20.0000	19.64
	11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	105673	20.0000	19.57
	33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	168275	20.0000	20.36
	27 cis-1,2-Dichloroethene	96	3.533	3.533	(0.845)	126310	20.0000	20.23
	17 Methylene Chloride	84	2.307	2.307	(0.552)	123160	20.0000	18.84
	38 Trichloroethene	130	5.208	5.208	(1.048)	122238	20.0000	19.66
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	143233	20.0000	19.62



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D
Date : 24-MAY-2022 13:33
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052407.D
Inj Date : 24-MAY-2022 13:33
InstruID : voa6.i
LabSampID : VSTD020

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D Page 1
Report Date: 15-Jul-2022 12:20

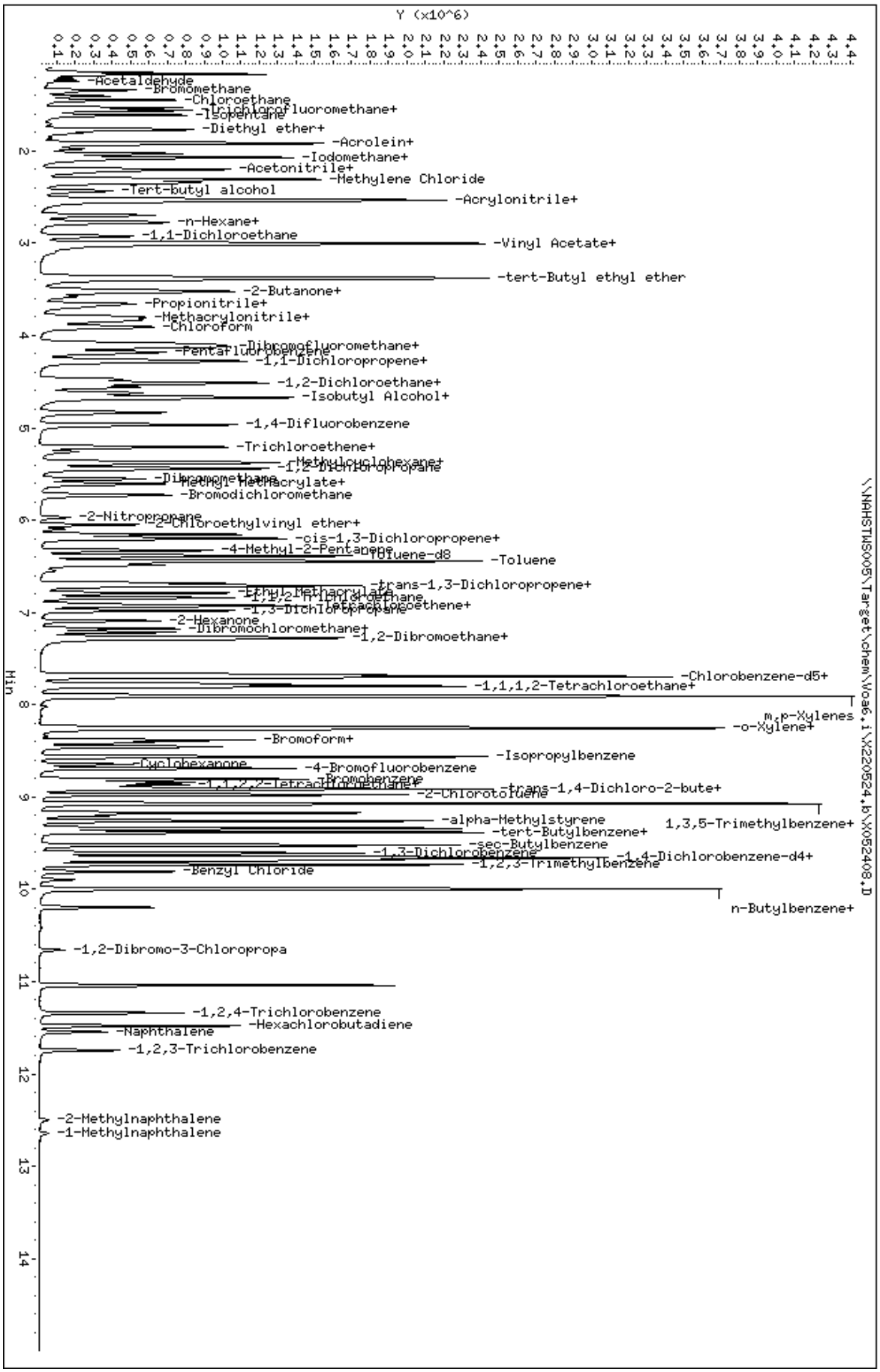
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-MAY-2022 13:54
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:33 Cal File: X052407.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.181	4.181	(1.000)	543171	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.969	(1.000)	866710	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	807069	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	390008	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	325873	50.0000	48.69
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	368870	50.0000	48.52
$ 30 Dibromofluoromethane	113	4.099	4.099	(0.980)	273214	50.0000	47.84
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	997670	50.0000	46.80
53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	236243	50.0000	47.33
11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	276594	50.0000	48.83
33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	425030	50.0000	49.12
27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.843)	321139	50.0000	49.02
17 Methylene Chloride	84	2.303	2.303	(0.551)	305506	50.0000	44.54
38 Trichloroethene	130	5.208	5.208	(1.048)	321314	50.0000	49.34
5 Vinyl Chloride	62	1.145	1.145	(0.274)	377950	50.0000	49.35



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D
Date : 24-MAY-2022 13:54
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052408.D
Inj Date : 24-MAY-2022 13:54
InstruID : voa6.i
LabSampID : VSTD050

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D Page 1
Report Date: 15-Jul-2022 12:20

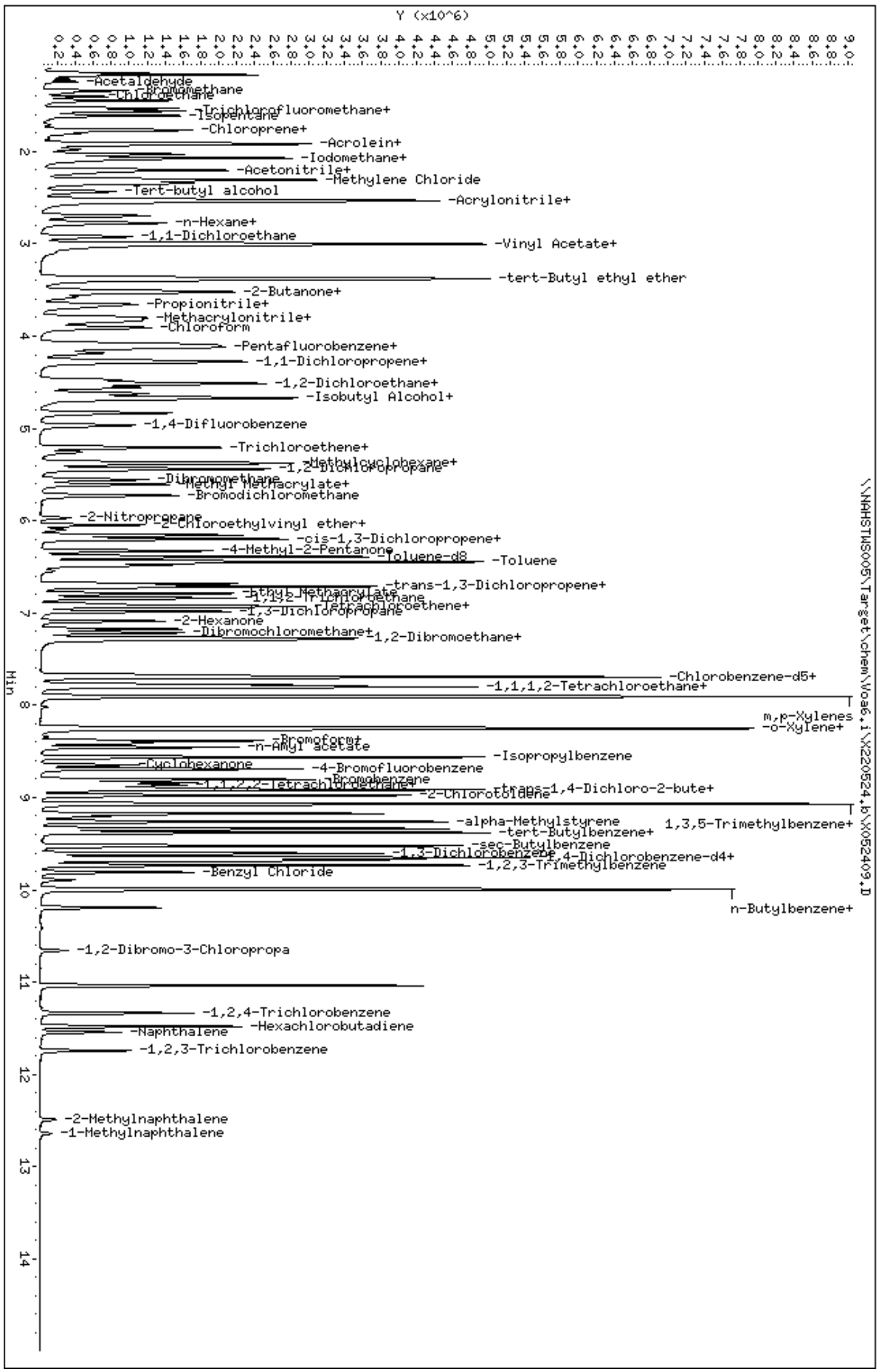
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 24-MAY-2022 14:15
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.181	4.181	(1.000)	540996	50.0000	
*	36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	866045	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	812540	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	400085	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.473	4.473	(1.070)	671007	100.000	101.01
$	69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	768821	100.000	101.39
$	30 Dibromofluoromethane	113	4.099	4.099	(0.980)	573971	100.000	100.95
$	48 Toluene-d8	98	6.389	6.389	(0.833)	2066277	100.000	96.29
	53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	483130	100.000	96.15
	11 1,1-Dichloroethene	96	1.917	1.917	(0.459)	552855	100.000	97.99
	33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	851603	100.000	98.50
	27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.843)	657416	100.000	100.75
	17 Methylene Chloride	84	2.303	2.303	(0.551)	608232	100.000	89.04
	38 Trichloroethene	130	5.204	5.204	(1.048)	650395	100.000	99.96
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	754890	100.000	98.97



Data File: \\NAHSTWS005\Target\chem\Woa6,i\X220524,b\X052409,D
Date : 24-MAY-2022 14:15
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6,i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052409.D
Inj Date : 24-MAY-2022 14:15
InstruID : voa6.i
LabSampID : VSTD100

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 24-MAY-2022 14:36
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:15 Cal File: X052409.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

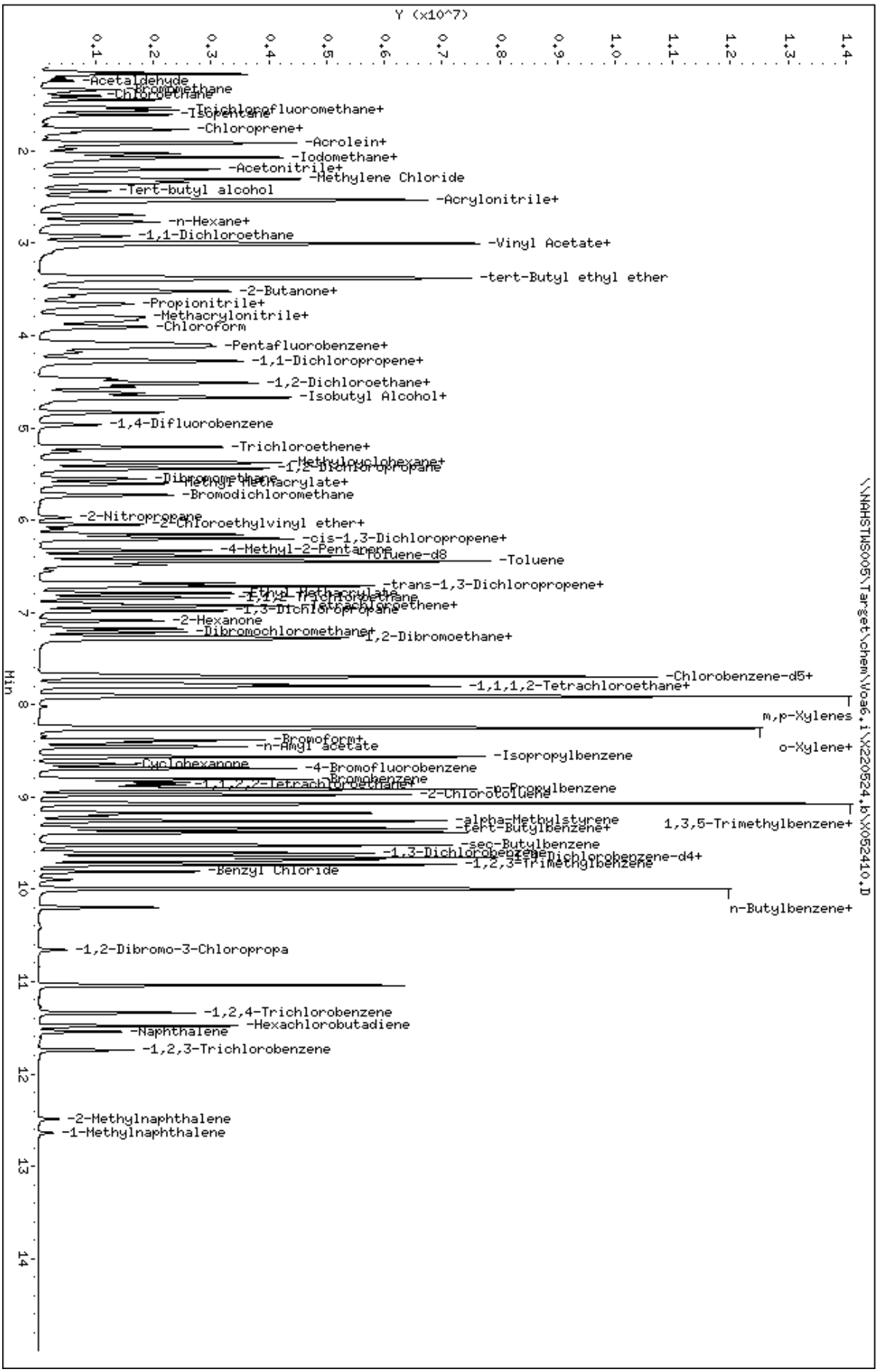
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	540150	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	872439	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	820461	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	403092	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	1000304	150.000	150.99
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	1156873	150.000	151.53
$ 30 Dibromofluoromethane	113	4.099	4.099	(0.979)	857897	150.000	151.13
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	3071727	150.000	141.76(A)
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	738253	150.000	145.51
11 1,1-Dichloroethene	96	1.913	1.913	(0.457)	834706	150.000	148.18
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	1337696	150.000	153.59
27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.842)	1009093	150.000	154.90
17 Methylene Chloride	84	2.303	2.303	(0.550)	930781	150.000	136.47
38 Trichloroethene	130	5.208	5.208	(1.048)	1000791	150.000	152.68
5 Vinyl Chloride	62	1.145	1.145	(0.274)	1153438	150.000	151.47

QC Flag Legend

A - Target compound detected but, quantitated amount

exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\Woa6.i\X220524.b\X052410.D
Date : 24-MAY-2022 14:36
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\Woa6.i\X220524.b\X052410.D

Instrument: woa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052410.D
Inj Date : 24-MAY-2022 14:36
InstruID : voa6.i
LabSampID : VSTD150

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D Page 1
Report Date: 15-Jul-2022 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 24-MAY-2022 14:57
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:36 Cal File: X052410.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

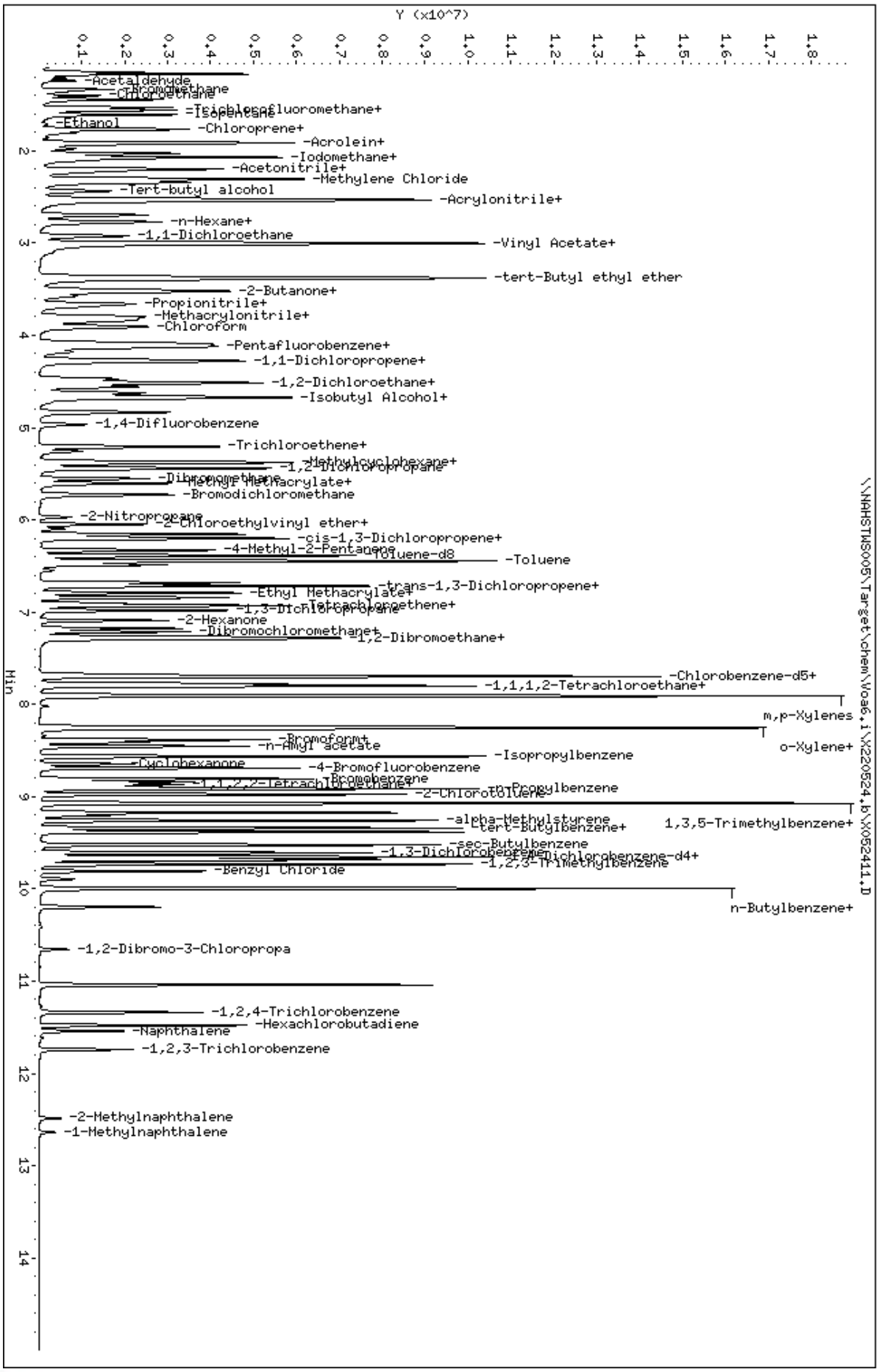
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	550666	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	892902	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	845028	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	413231	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	1343168	200.000	198.98
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	1557639	200.000	198.36
$ 30 Dibromofluoromethane	113	4.102	4.102	(0.980)	1152135	200.000	199.10
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	4136842	200.000	185.37(A)
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	1005726	200.000	192.47
11 1,1-Dichloroethene	96	1.913	1.913	(0.457)	1111897	200.000	193.62
33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	1803872	200.000	202.38(A)
27 cis-1,2-Dichloroethene	96	3.525	3.525	(0.842)	1368508	200.000	206.06(A)
17 Methylene Chloride	84	2.303	2.303	(0.550)	1243727	200.000	178.87
38 Trichloroethene	130	5.205	5.205	(1.048)	1348299	200.000	200.99(A)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	1555289	200.000	200.34(A)

QC Flag Legend

A - Target compound detected but, quantitated amount

exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D
Date : 24-MAY-2022 14:57
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052411.D
Inj Date : 24-MAY-2022 14:57
InstruID : voa6.i
LabSampID : VSTD200

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D Page 1
Report Date: 15-Jul-2022 12:20

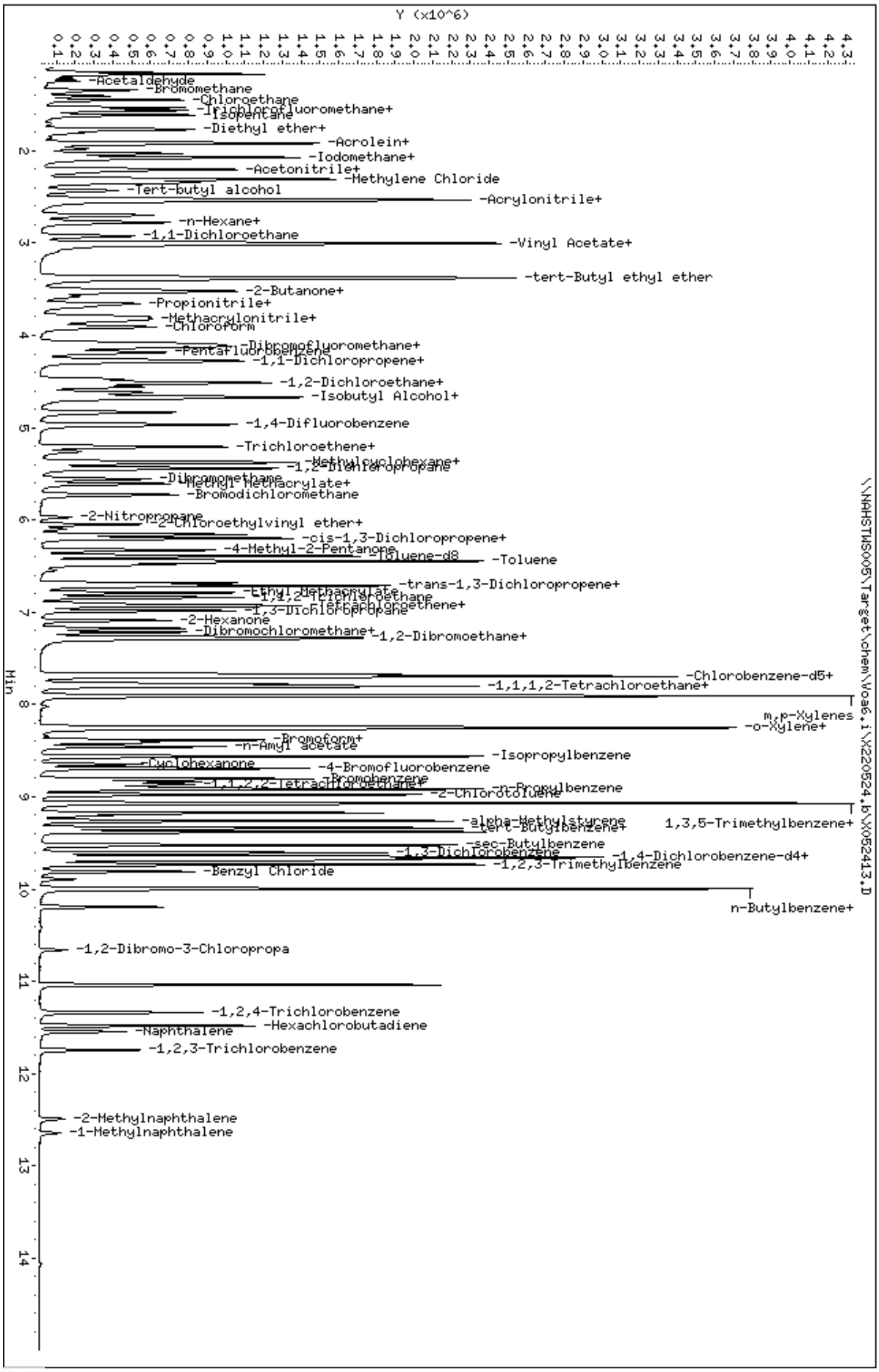
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-MAY-2022 15:39
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\8260W.m
Meth Date : 15-Jul-2022 12:20 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 14:57 Cal File: X052411.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	538516	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	859799	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	806383	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	395952	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	333237	50.2317	50.23
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	381181	50.2151	50.21
$ 30 Dibromofluoromethane	113	4.102	4.102	(0.980)	280144	49.4867	49.48
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1005171	47.2013	47.20
53 1,1,2-Trichloroethane	83	6.843	6.843	(0.892)	239579	48.0487	48.04
11 1,1-Dichloroethene	96	1.917	1.913	(0.458)	267231	47.5859	47.58
33 1,2-Dichloroethane	62	4.556	4.556	(0.917)	428857	49.9671	49.96
27 cis-1,2-Dichloroethene	96	3.529	3.525	(0.843)	323496	49.8087	49.80
17 Methylene Chloride	84	2.307	2.303	(0.551)	310763	45.7033	45.70
38 Trichloroethene	130	5.208	5.205	(1.048)	319638	49.4835	49.48
5 Vinyl Chloride	62	1.145	1.145	(0.274)	371097	48.8808	48.88



Data File: \\NAHSTWS005\Target\chem\Woa6.i\X220524.b\X052413.D
Date : 24-MAY-2022 15:39
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220524.b\X052413.D
Inj Date : 24-MAY-2022 15:39
InstruID : voa6.i
LabSampID : ICV

NO MANUAL INTEGRATIONS

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right partner.

Raw Data VOA6 411964

Volatiles Organics by Method 8260C

Wokorder

HS22061313

Client

Aptim Environmental & Infrastucture, Inc.

Project

Longhorn Army Ammunition Plant 16 January 2022

07/15/2022

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063001.D Page 1
Report Date: 30-Jun-2022 11:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063001.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 30-JUN-2022 10:23
Operator : PC Inst ID: voa6.i
Smp Info : BFB;BFB;3;;BFB
Misc Info : HS22052000V6;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\bfb.m
Meth Date : 14-Jun-2022 12:47 Linh.Pham Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 1 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: NAHSTW7051

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
Vi	2.000	Injection Volume
Cpnd Variable		Local Compound Variable

					CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/l)		
RT	EXP RT	REL RT	MASS	RESPONSE			TARGET RANGE	RATIO
1 bfb							CAS #: 460-00-4	
8.691	8.889	(0.000)	95	130728			0.00- 100.00	100.00
8.691	8.889	(0.000)	50	23448			15.00- 40.00	17.94
8.691	8.889	(0.000)	75	62424			30.00- 60.00	47.75
8.691	8.889	(0.000)	96	8913			5.00- 9.00	6.82
8.691	8.889	(0.000)	173	716			0.00- 2.00	0.66
8.691	8.889	(0.000)	174	109040			50.00- 0.00	83.41
8.691	8.889	(0.000)	175	8948			5.00- 9.00	8.21
8.691	8.889	(0.000)	176	108968			95.00- 101.00	99.93
8.691	8.889	(0.000)	177	7270			5.00- 9.00	6.67

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.94
75	30.00 - 60.00% of mass 95	47.75
96	5.00 - 9.00% of mass 95	6.82
173	Less than 2.00% of mass 174	0.55 (0.66)
174	Greater than 50.00% of mass 95	83.41
175	5.00 - 9.00% of mass 174	6.84 (8.21)
176	95.00 - 101.00% of mass 174	83.35 (99.93)
177	5.00 - 9.00% of mass 176	5.56 (6.67)

Data File: X063001.D
Spectrum: Scan 2161 (8.69)
Location of Maximum: 95.00
Number of points: 112

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	992	64.90	236	96.00	8913	141.60	103
37.10	5693	66.00	140	96.90	400	142.90	1065
38.00	5027	66.90	358	98.10	1270	143.80	65
39.10	3184	68.00	12783	99.10	67	145.80	161
40.10	902	69.00	14074	102.90	197	146.90	89
41.10	1215	70.00	1796	103.90	652	147.80	237
42.10	1861	71.00	296	105.00	359	148.60	77
43.00	817	72.00	599	105.80	528	149.90	140
44.00	1366	73.00	5518	106.80	170	152.90	105
45.00	1323	74.00	20784	108.80	70	153.90	50
46.90	1154	75.00	62424	110.10	73	154.80	196
48.10	676	76.00	5562	112.00	113	156.90	255
49.00	5271	77.00	1036	112.70	149	158.90	118
50.00	23448	78.00	743	113.00	136	161.00	80
51.00	7788	78.90	3984	114.90	259	167.70	80
52.00	333	79.90	1193	115.80	479	169.80	131
52.80	74	80.90	3668	116.80	895	172.10	96
53.10	59	81.90	798	117.80	405	172.80	716
54.00	254	82.90	342	118.80	543	173.90	109040
55.00	3176	83.80	88	119.90	53	174.90	8948
56.00	2287	85.20	153	123.70	88	175.90	108968
57.00	4083	86.00	268	127.90	665	176.90	7270
58.00	212	86.90	5231	129.10	253	177.80	328
58.90	72	87.90	4887	129.80	424	185.90	265
60.00	1019	90.90	625	130.70	114	262.00	89
61.00	6697	92.00	3192	134.80	122		
62.00	5239	93.00	5129	136.70	209		
63.00	4440	94.00	14170	138.90	94		
64.00	469	95.00	130728	140.80	1161		

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063001.D Page 1

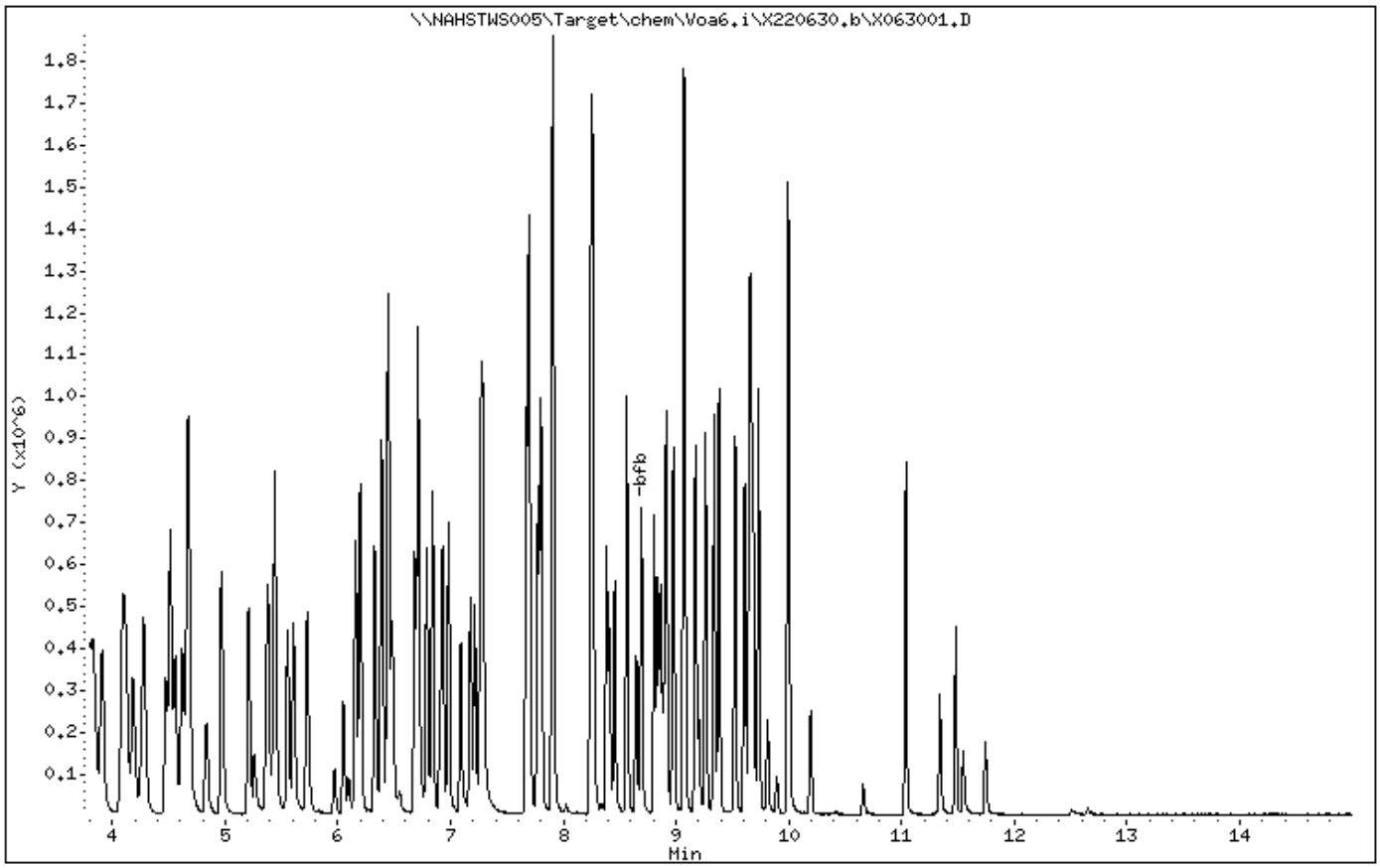
Date : 30-JUN-2022 10:23

Client ID: BFB Instrument: voa6.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\Voa6.i\X220630.b\X063001.D Page 2

Date : 30-JUN-2022 10:23

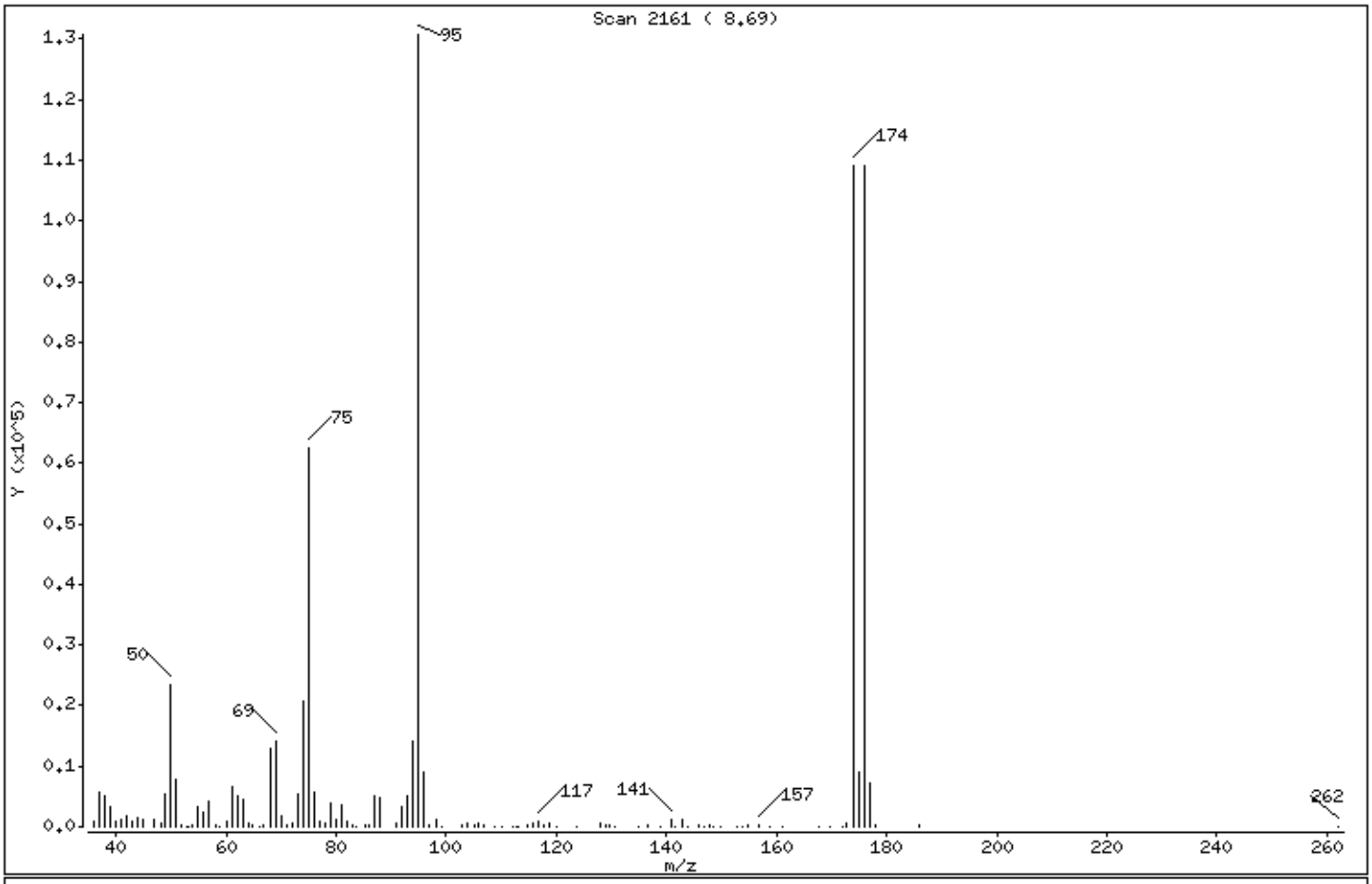
Client ID: BFB Instrument: voa6.i

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	17.94
75	30.00 - 60.00% of mass 95	47.75
96	5.00 - 9.00% of mass 95	6.82
173	Less than 2.00% of mass 174	0.55 (0.66)
174	Greater than 50.00% of mass 95	83.41
175	5.00 - 9.00% of mass 174	6.84 (8.21)
176	95.00 - 101.00% of mass 174	83.35 (99.93)
177	5.00 - 9.00% of mass 176	5.56 (6.67)

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063001.D

Date : 30-JUN-2022 10:23

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X063001.D
Spectrum: Scan 2161 (8.69)
Location of Maximum: 95.00
Number of points: 112

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	992	64.90	236	96.00	8913	141.60	103
37.10	5693	66.00	140	96.90	400	142.90	1065
38.00	5027	66.90	358	98.10	1270	143.80	65
39.10	3184	68.00	12783	99.10	67	145.80	161
40.10	902	69.00	14074	102.90	197	146.90	89
41.10	1215	70.00	1796	103.90	652	147.80	237
42.10	1861	71.00	296	105.00	359	148.60	77
43.00	817	72.00	599	105.80	528	149.90	140
44.00	1366	73.00	5518	106.80	170	152.90	105
45.00	1323	74.00	20784	108.80	70	153.90	50
46.90	1154	75.00	62424	110.10	73	154.80	196
48.10	676	76.00	5562	112.00	113	156.90	255
49.00	5271	77.00	1036	112.70	149	158.90	118
50.00	23448	78.00	743	113.00	136	161.00	80
51.00	7788	78.90	3984	114.90	259	167.70	80
52.00	333	79.90	1193	115.80	479	169.80	131
52.80	74	80.90	3668	116.80	895	172.10	96
53.10	59	81.90	798	117.80	405	172.80	716
54.00	254	82.90	342	118.80	543	173.90	109040
55.00	3176	83.80	88	119.90	53	174.90	8948
56.00	2287	85.20	153	123.70	88	175.90	108968
57.00	4083	86.00	268	127.90	665	176.90	7270
58.00	212	86.90	5231	129.10	253	177.80	328
58.90	72	87.90	4887	129.80	424	185.90	265
60.00	1019	90.90	625	130.70	114	262.00	89
61.00	6697	92.00	3192	134.80	122		
62.00	5239	93.00	5129	136.70	209		
63.00	4440	94.00	14170	138.90	94		
64.00	469	95.00	130728	140.80	1161		

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063002.D Page 1
Report Date: 15-Jul-2022 13:53

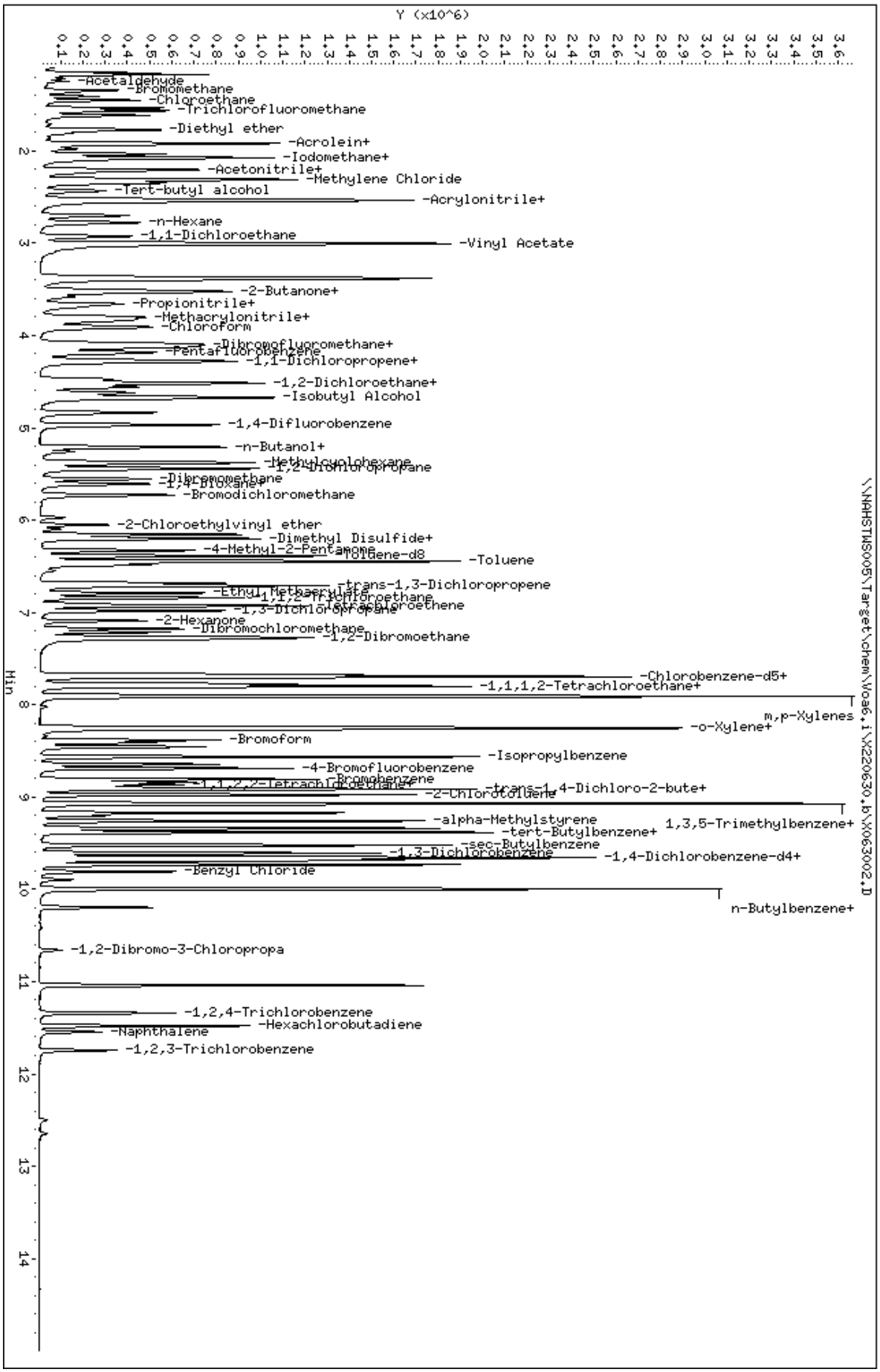
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063002.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 30-JUN-2022 10:44
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	435138	50.0000	
*	36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	671776	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	631995	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	307952	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	244171	50.0000	45.51
$	69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	287973	50.0000	48.37
$	30 Dibromofluoromethane	113	4.103	4.103	(0.980)	216149	50.0000	47.25
$	48 Toluene-d8	98	6.389	6.389	(0.833)	747641	50.0000	44.79
	53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	200819	50.0000	51.38
	11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	201635	50.0000	44.43
	33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	349283	50.0000	52.08
	27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	276280	50.0000	52.64
	17 Methylene Chloride	84	2.307	2.307	(0.551)	258372	50.0000	47.02
	38 Trichloroethene	130	5.208	5.208	(1.048)	277342	50.0000	54.95
	5 Vinyl Chloride	62	1.149	1.149	(0.275)	246754	50.0000	40.22



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220630.b\X063002.D
Date : 30-JUN-2022 10:44
Client ID: CCV
Sample Info: CCV,CCV,2,,
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063002.D
Inj Date : 30-JUN-2022 10:44
InstruID : voa6.i
LabSampID : CCV

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063004.D Page 1
Report Date: 30-Jun-2022 18:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063004.D
Lab Smp Id: CCB Client Smp ID: CCB
Inj Date : 30-JUN-2022 11:26
Operator : PC Inst ID: voa6.i
Smp Info : CCB;CCB;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X220630.b\8260W.m
Meth Date : 30-Jun-2022 18:30 pcabasca Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7051

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	4.181	4.185	(1.000)	558318	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	255963	43.6087	43.60
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	287562	41.7532	41.75
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	810819	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	696282	50.0000	
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	940309	51.1376	51.13
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	297523	45.3074	45.30
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	291430	50.0000	
17 Methylene Chloride	84	2.307	2.307	(0.552)	12701	1.80166	1.80(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063004.D
Inj Date : 30-JUN-2022 11:26
InstruID : voa6.i
LabSampID : CCB

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063005.D Page 1
Report Date: 15-Jul-2022 13:53

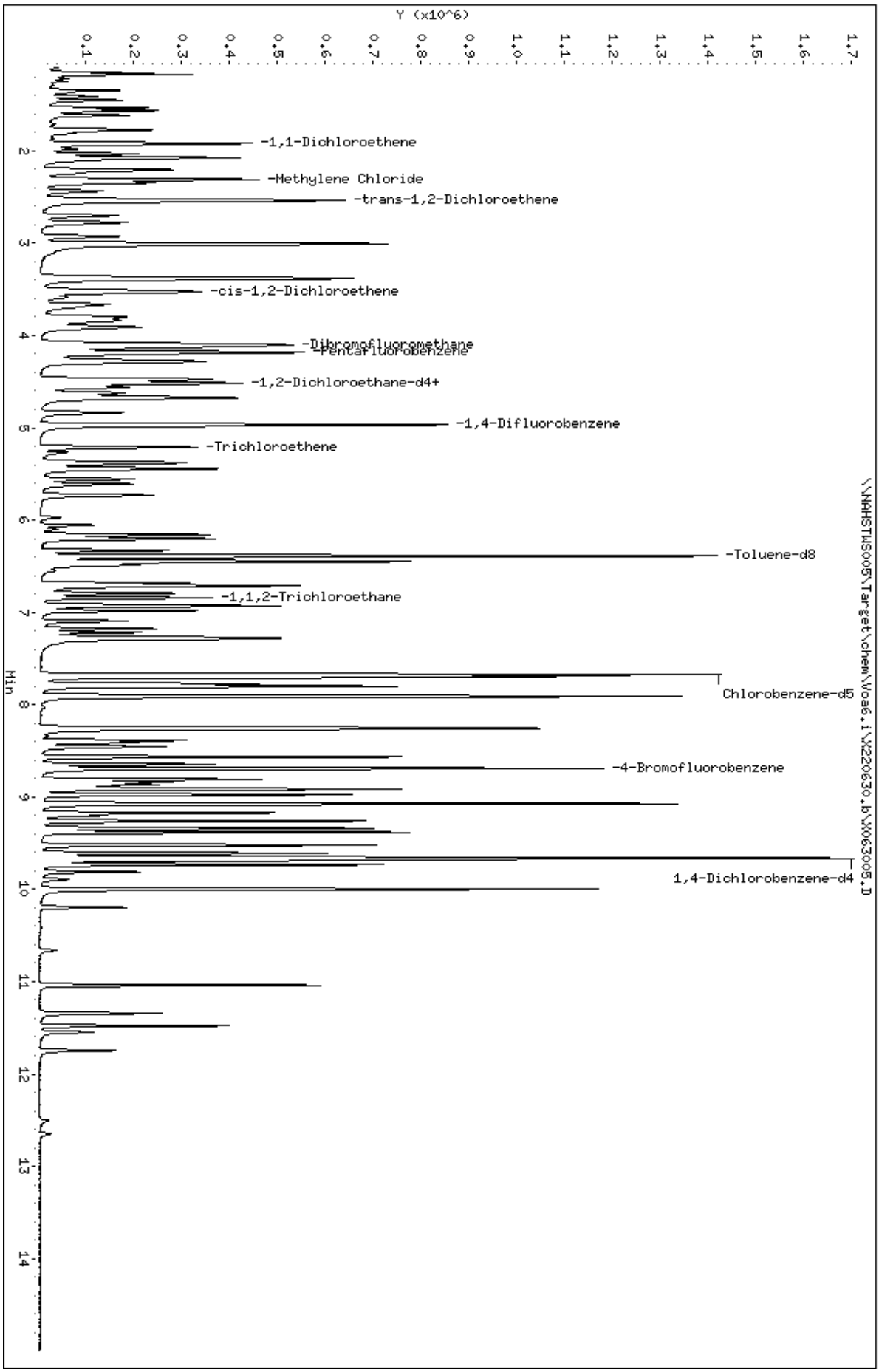
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063005.D
Lab Smp Id: VLCSW-220629 Client Smp ID: VLCSW-220629
Inj Date : 30-JUN-2022 11:47
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-220629;VLCSW-220629;3;;LCS
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	465046	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	713425	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	655497	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	324905	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	274087	47.8268	47.82
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	317762	51.5187	51.51
$ 30 Dibromofluoromethane	113	4.102	4.103	(0.980)	246711	50.4664	50.46
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	866587	50.0607	50.06
53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	78648	19.4040	19.40
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	82416	16.9944	16.99
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	141846	19.9176	19.91
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	109731	19.5645	19.56
17 Methylene Chloride	84	2.307	2.307	(0.551)	115373	19.6483	19.64
38 Trichloroethene	130	5.208	5.208	(1.048)	110513	20.6188	20.61
5 Vinyl Chloride	62	1.148	1.149	(0.275)	100264	15.2932	15.29



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220630.b\X063005.D
Date : 30-JUN-2022 11:47
Client ID: VLCSW-220629
Sample Info: VLCSW-220629;VLCSW-220629;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063005.D
Inj Date : 30-JUN-2022 11:47
InstruID : voa6.i
LabSampID : VLCSW-220629

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063007.D Page 1
Report Date: 15-Jul-2022 13:53

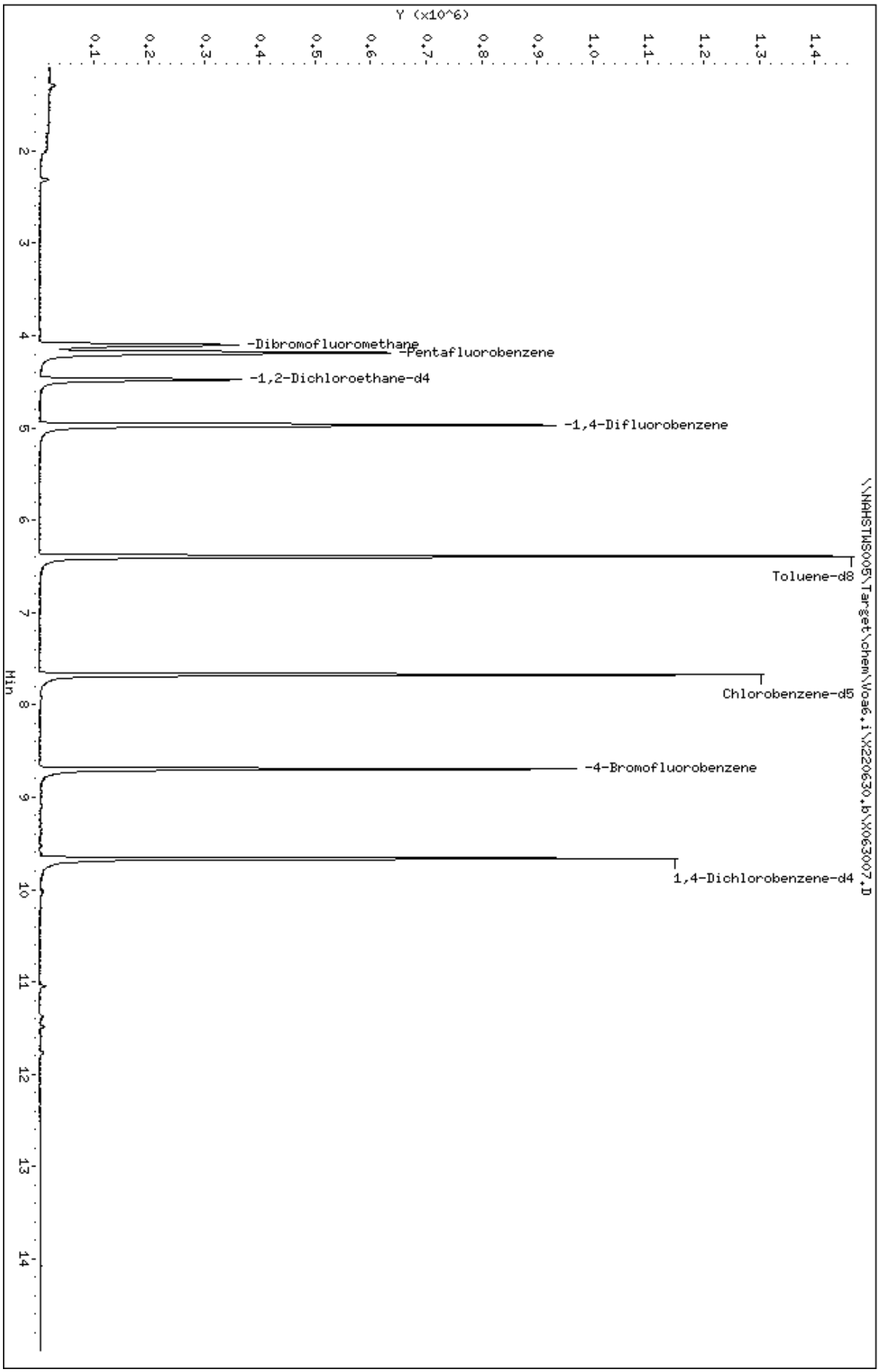
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063007.D
Lab Smp Id: VBLKW-220630 Client Smp ID: VBLKW-220630
Inj Date : 30-JUN-2022 12:30
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-220630;VBLKW-220630;3;;BLANK
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	549873	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	792346	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	683211	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	297164	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	279204	41.1575	41.15
$ 69 4-Bromofluorobenzene	95	8.695	8.691	(1.133)	300970	46.7365	46.73
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	253225	43.8049	43.80
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	926120	51.3296	51.32



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220630.b\X063007.D
Date : 30-JUN-2022 12:30
Client ID: VBLKW-220630
Sample Info: VBLKW-220630;VBLKW-220630;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063007.D
Inj Date : 30-JUN-2022 12:30
InstruID : voa6.i
LabSampID : VBLKW-220630

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063008.D Page 1
Report Date: 15-Jul-2022 13:53

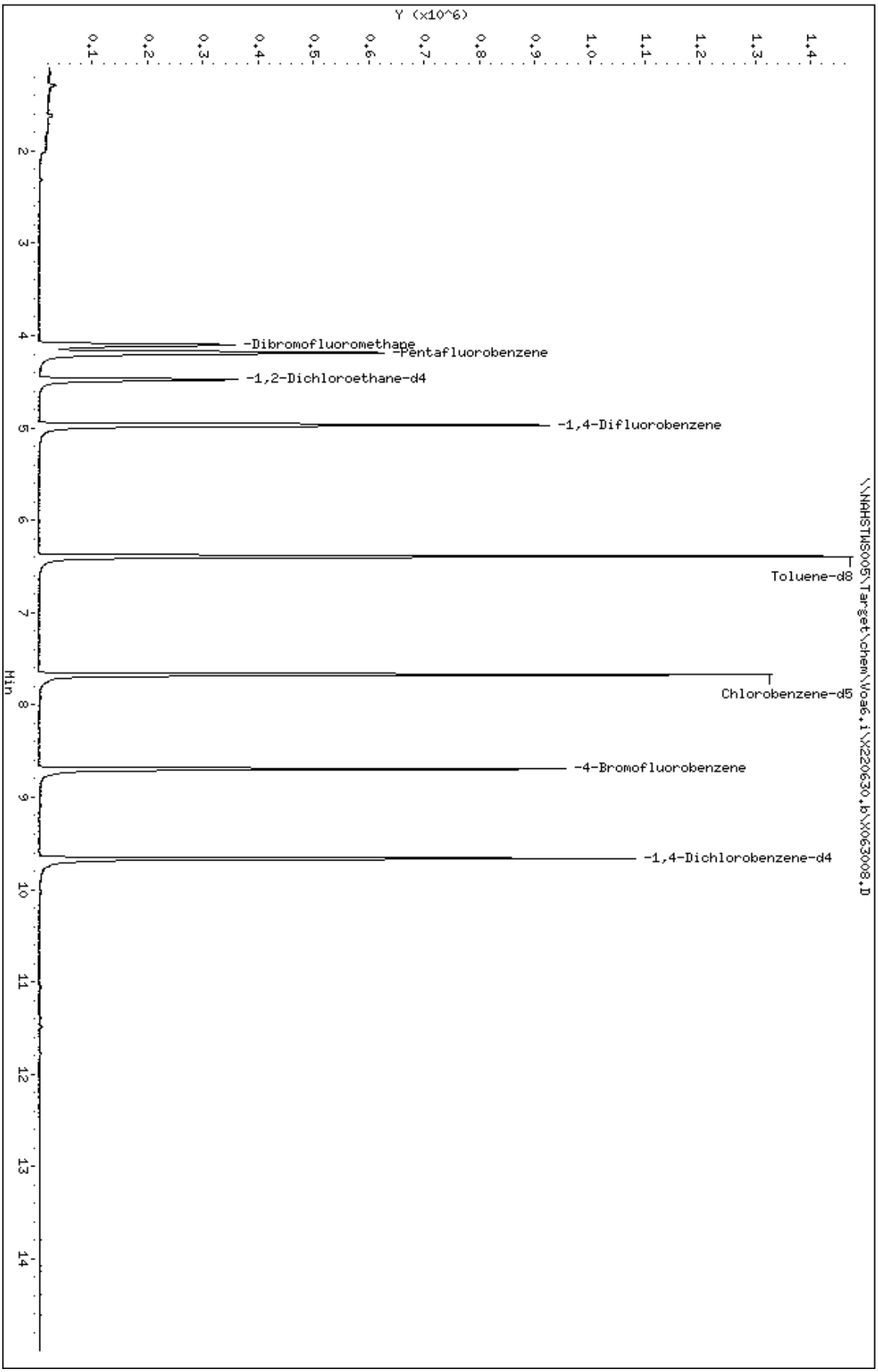
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063008.D
Lab Smp Id: HS22061313-09 Client Smp ID: HS22061313-09
Inj Date : 30-JUN-2022 12:51
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-09;HS22061313-09;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	545076	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	788339	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	678867	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	286769	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	278160	41.3661	41.36
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	293861	45.9092	45.90
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	251050	43.8109	43.81
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	919847	51.3081	51.30



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063008.D
Date : 30-JUN-2022 12:51
Client ID: HS22061313-09
Sample Info: HS22061313-09;HS22061313-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063008.D
Inj Date : 30-JUN-2022 12:51
InstruID : voa6.i
LabSampID : HS22061313-09

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063009.D Page 1
Report Date: 15-Jul-2022 13:53

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063009.D
Lab Smp Id: HS22061313-04 Client Smp ID: HS22061313-04
Inj Date : 30-JUN-2022 13:12
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-04;HS22061313-04;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

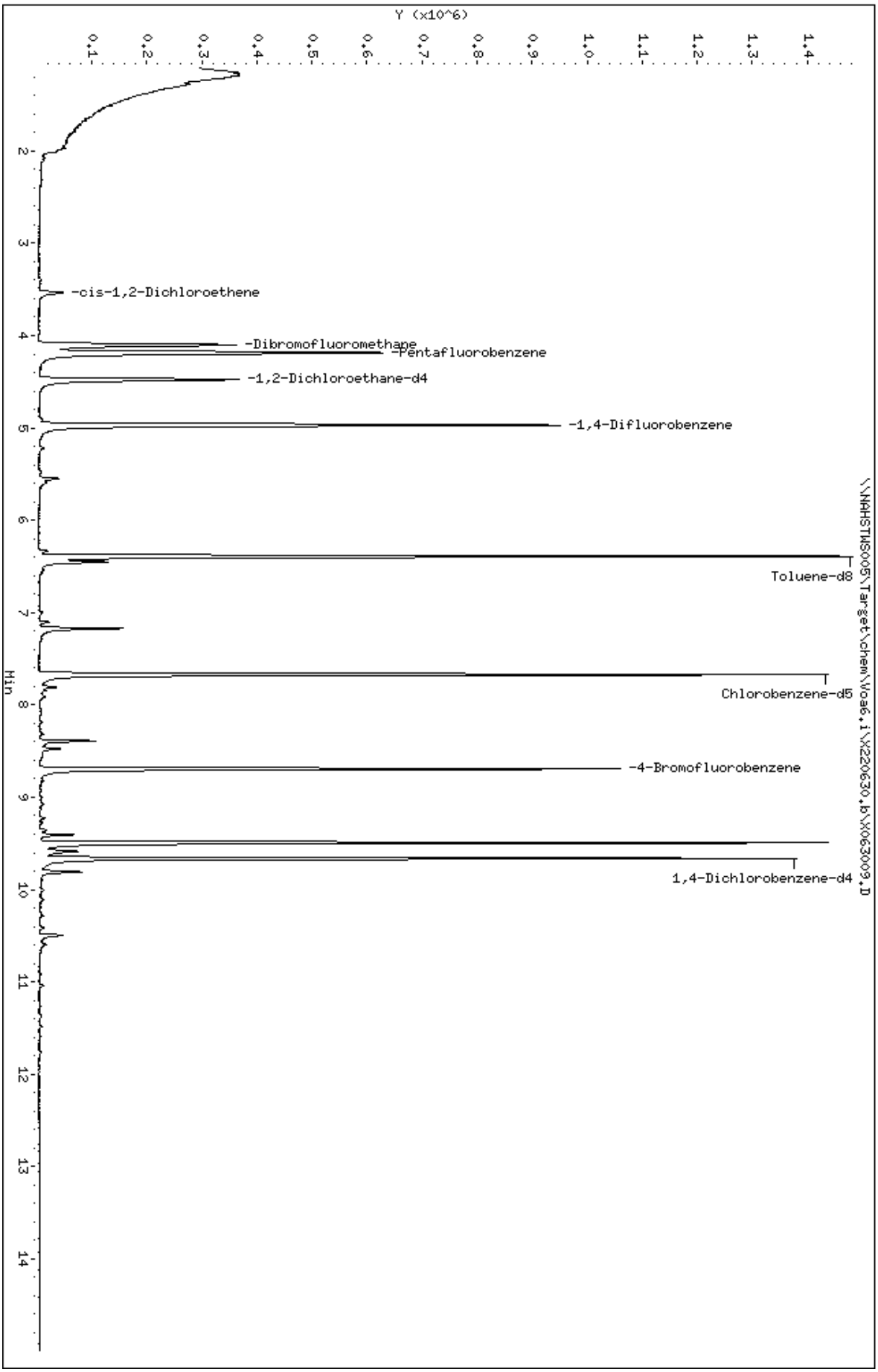
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	548928	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	785483	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	698220	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	325807	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	278494	41.1232	41.12
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	306317	46.5406	46.54
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	251134	43.5178	43.51
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	930354	50.4558	50.45
27 cis-1,2-Dichloroethene	96	3.537	3.529	(0.845)	25289	3.81989	3.81(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220630.b\X063009.D
Date : 30-JUN-2022 13:12
Client ID: HS22061313-04
Sample Info: HS22061313-04;HS22061313-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063009.D Page 2

Date : 30-JUN-2022 13:12

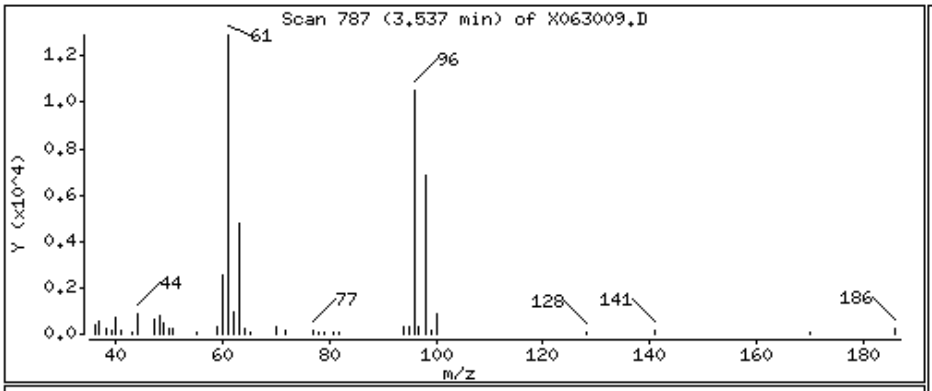
Client ID: HS22061313-04 Instrument: voa6.i

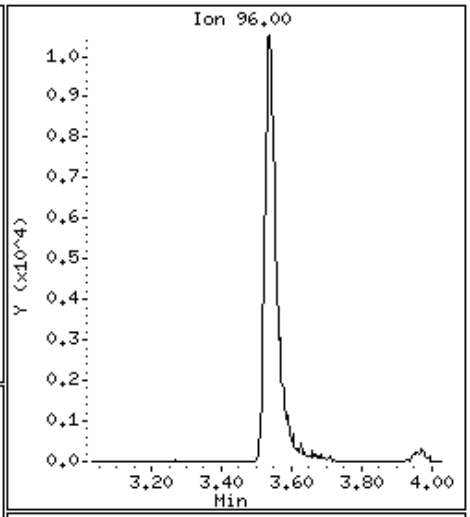
Sample Info: HS22061313-04;HS22061313-04;;;

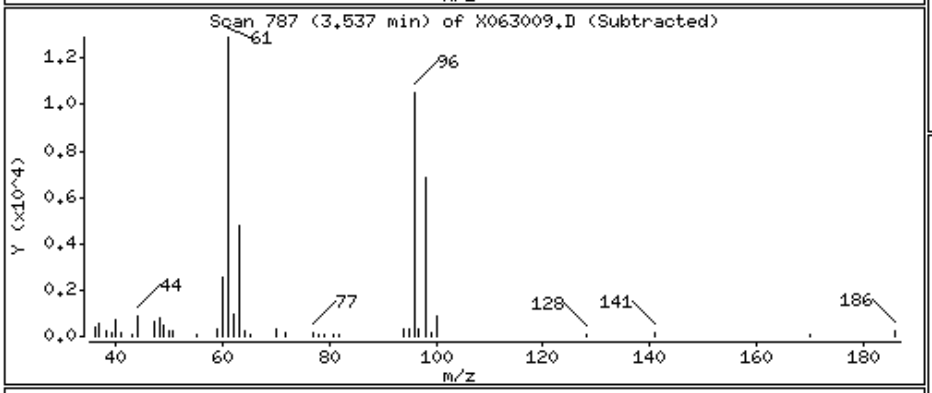
Purge Volume: 5.0 Operator: PC

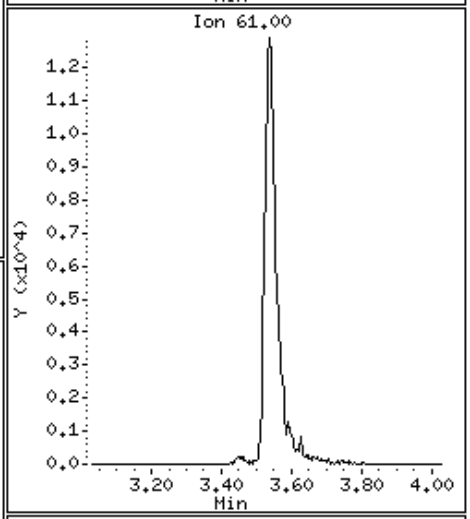
Column phase: DB624 Column diameter: 0.18

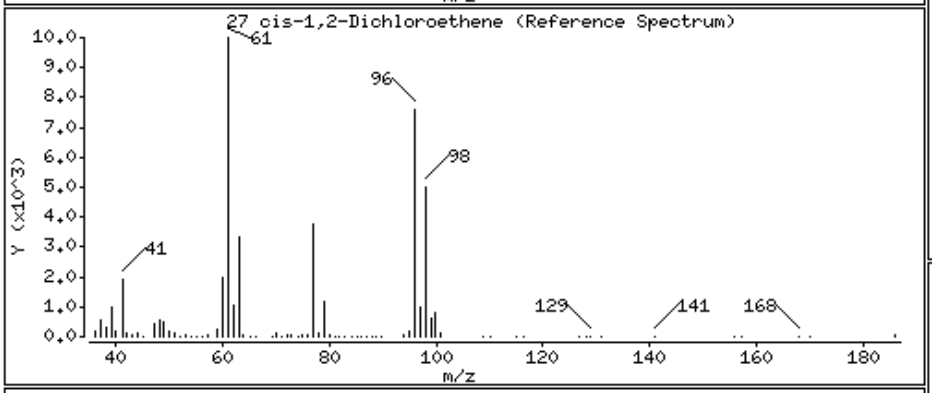
27 cis-1,2-Dichloroethene Concentration: 3.81 ug/l

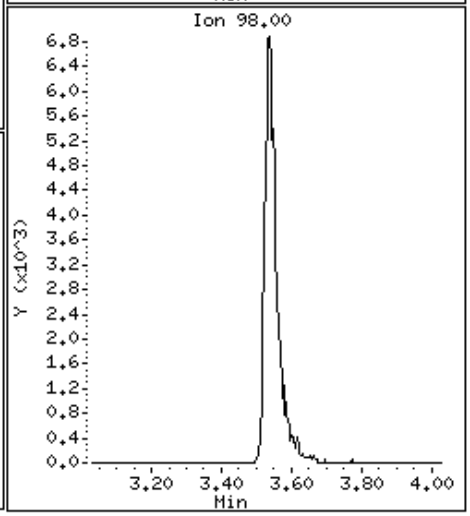


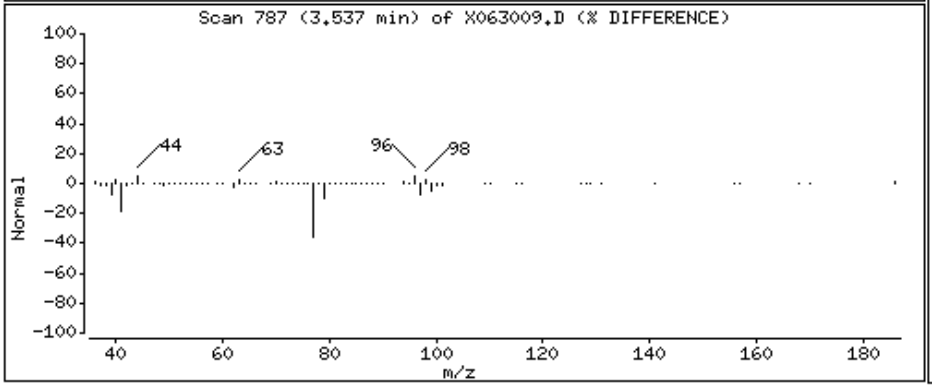












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063009.D
Inj Date : 30-JUN-2022 13:12
InstruID : voa6.i
LabSampID : HS22061313-04

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063010.D Page 1
Report Date: 15-Jul-2022 13:53

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063010.D
Lab Smp Id: HS22061313-08 Client Smp ID: HS22061313-08
Inj Date : 30-JUN-2022 13:33
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-08;HS22061313-08;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

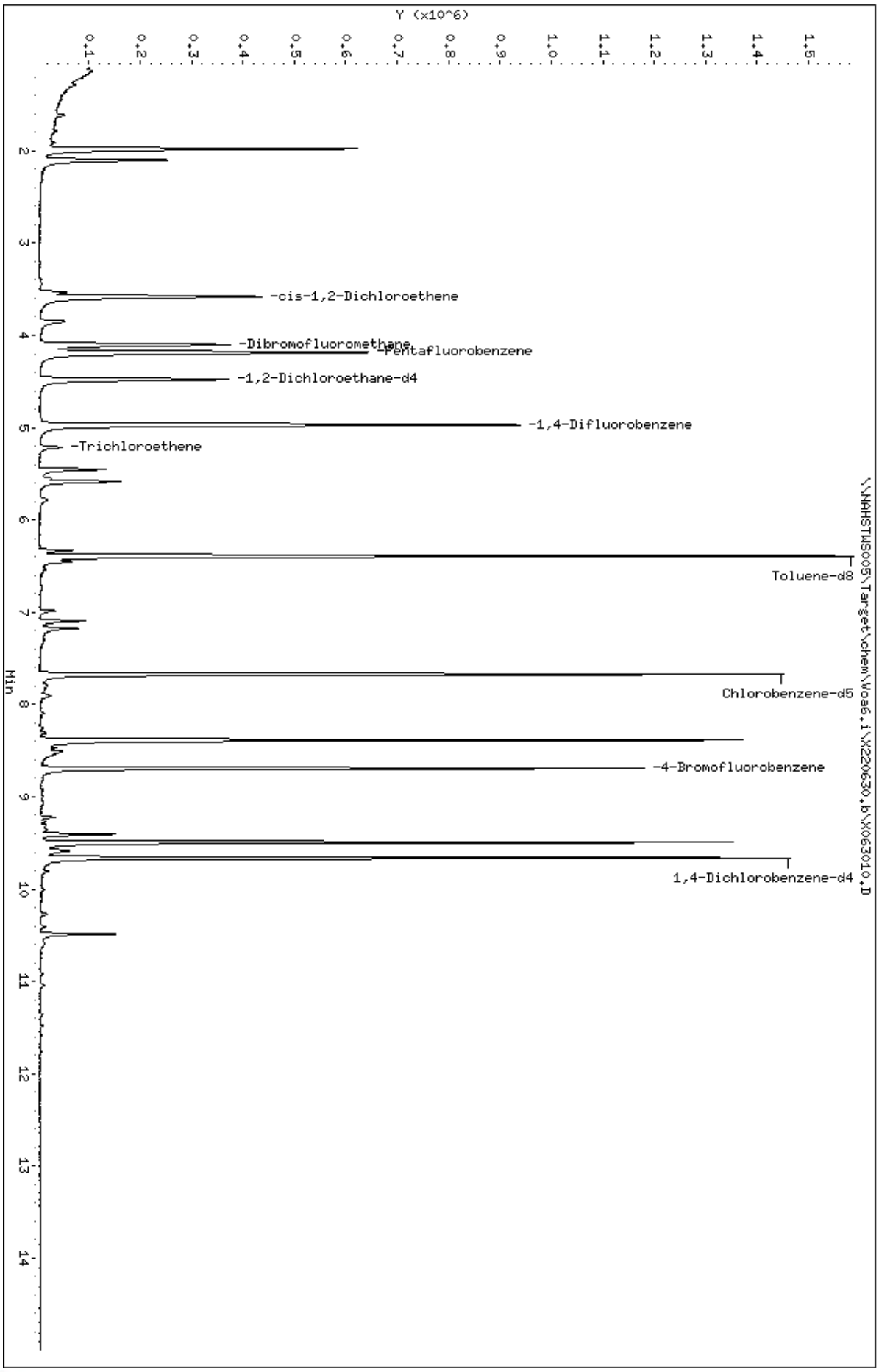
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	553026	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	803604	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	708563	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.666	(1.000)	341783	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	284742	41.7392	41.73
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	327591	49.0938	49.09
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	256474	44.1142	44.11
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	943697	50.4324	50.43
27 cis-1,2-Dichloroethene	96	3.537	3.529	(0.845)	28272	4.23883	4.23(a)
38 Trichloroethene	130	5.216	5.208	(1.050)	13503	2.23659	2.23(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063010.D
Date : 30-JUN-2022 13:33
Client ID: HS22061313-08
Sample Info: HS22061313-08;HS22061313-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Page 1

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063010.D Page 2

Date : 30-JUN-2022 13:33

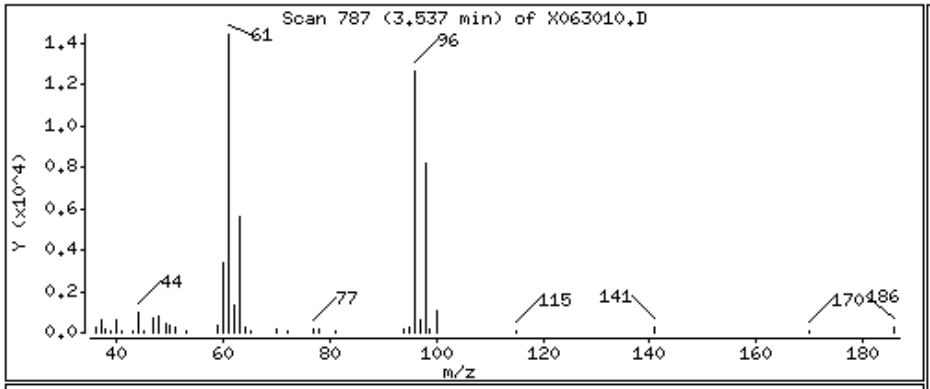
Client ID: HS22061313-08 Instrument: voa6.i

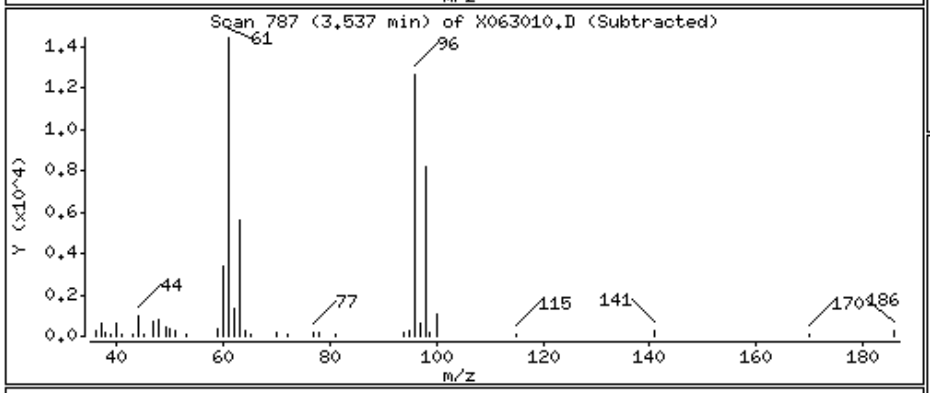
Sample Info: HS22061313-08;HS22061313-08;;;

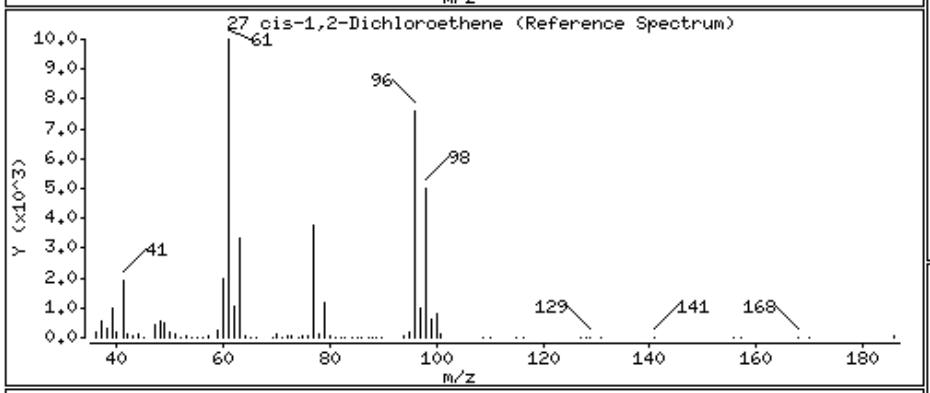
Purge Volume: 5.0 Operator: PC

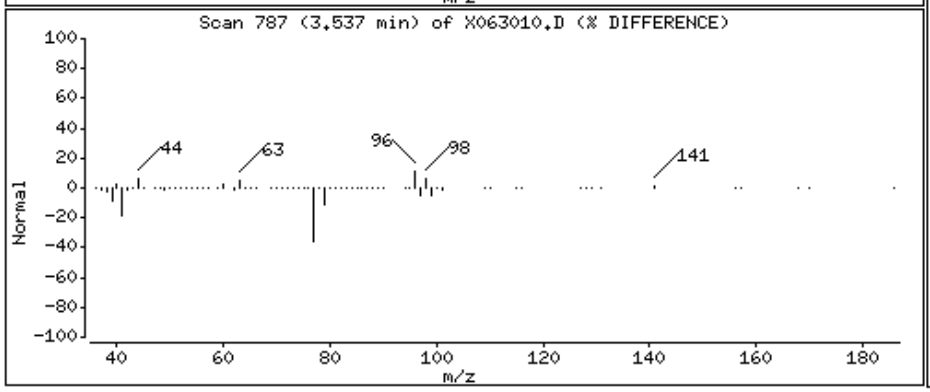
Column phase: DB624 Column diameter: 0.18

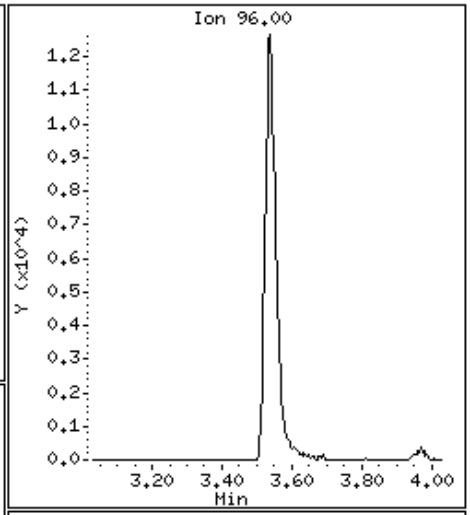
27 cis-1,2-Dichloroethene Concentration: 4.23 ug/l

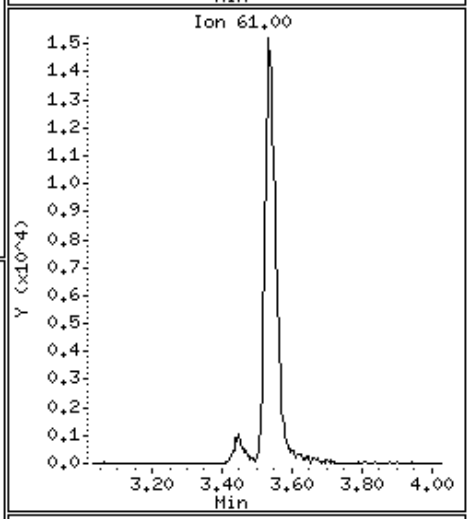


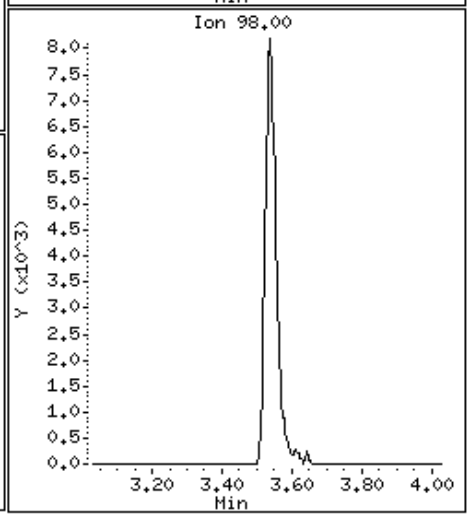












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063010.D Page 3

Date : 30-JUN-2022 13:33

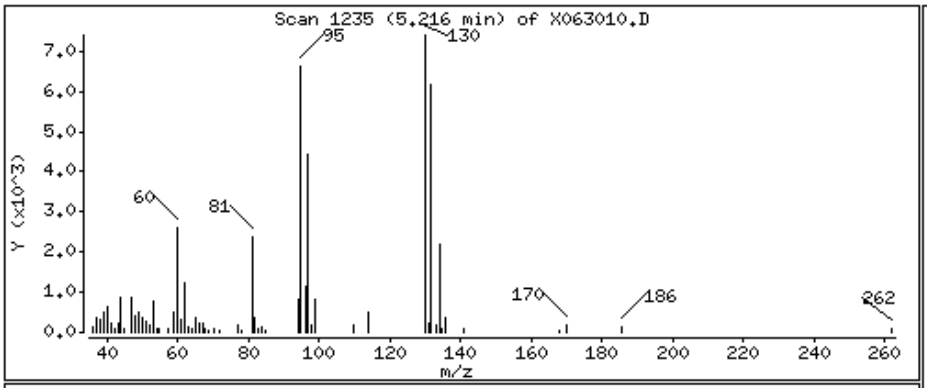
Client ID: HS22061313-08 Instrument: voa6.i

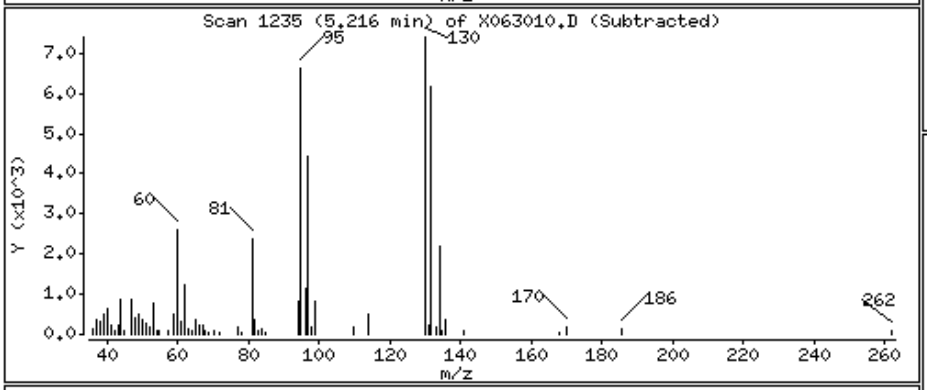
Sample Info: HS22061313-08;HS22061313-08;;;

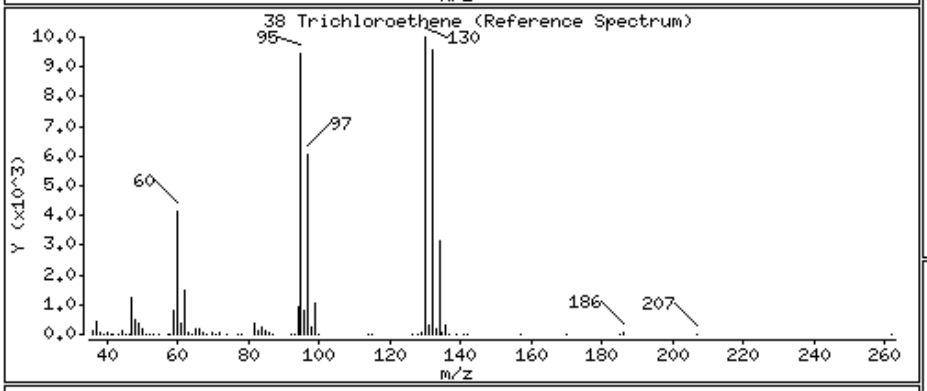
Purge Volume: 5.0 Operator: PC

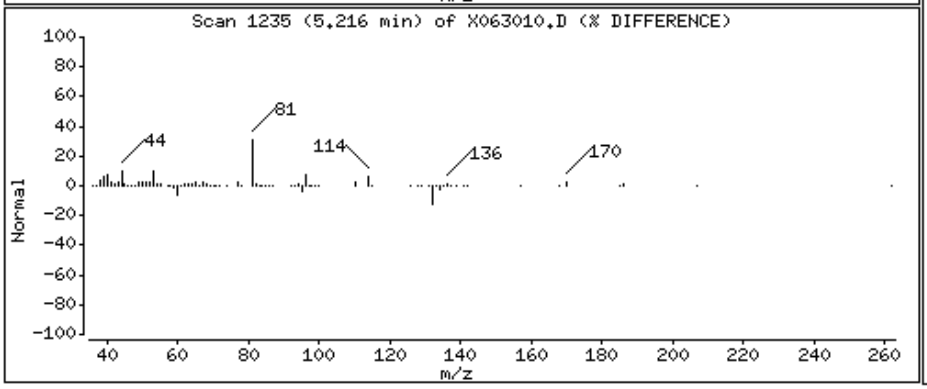
Column phase: DB624 Column diameter: 0.18

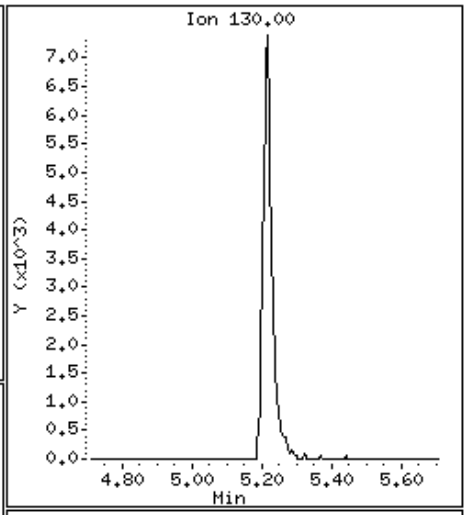
38 Trichloroethene Concentration: 2.23 ug/l

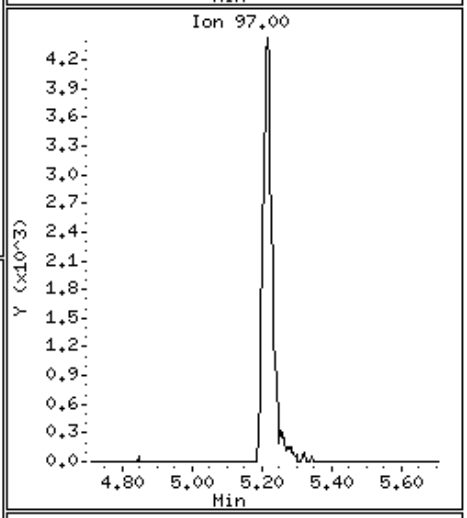


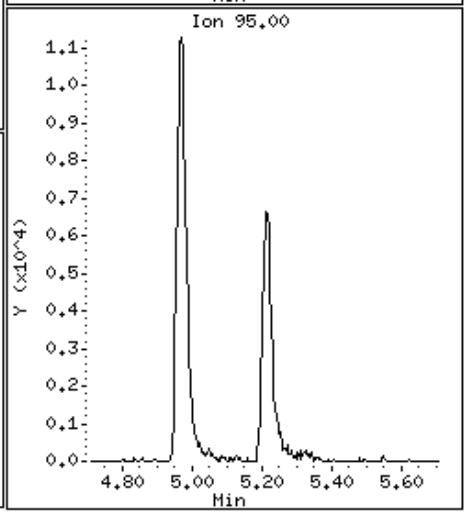












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063010.D
Inj Date : 30-JUN-2022 13:33
InstruID : voa6.i
LabSampID : HS22061313-08

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D
Lab Smp Id: HS22061313-02 Client Smp ID: HS22061313-02
Inj Date : 30-JUN-2022 14:15
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-02;HS22061313-02;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

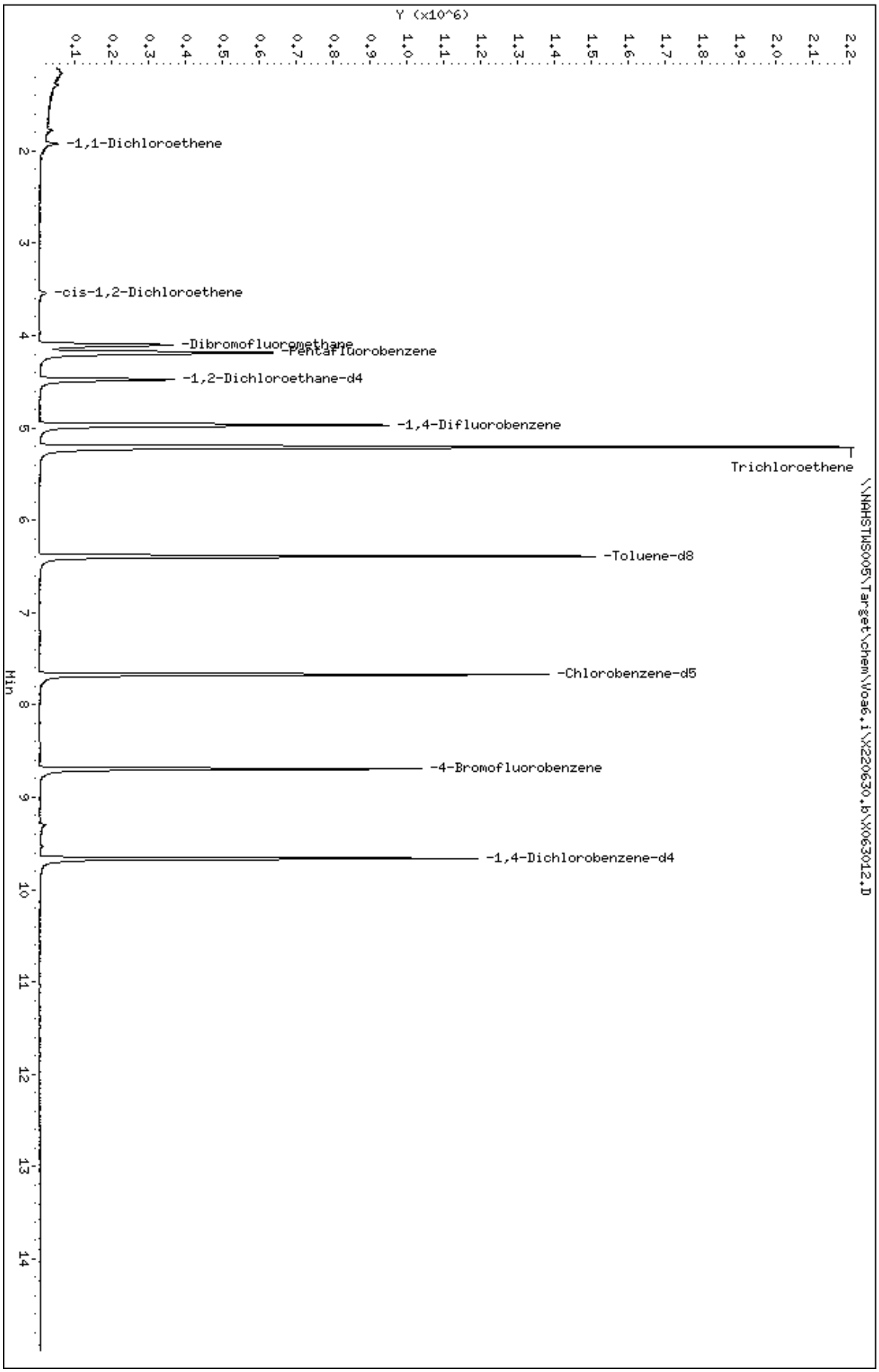
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.181	4.185	(1.000)	550104	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	797698	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	699963	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	303623	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	284113	41.8693	41.86
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	302998	45.9100	45.91
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	254141	43.9450	43.94
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	932751	50.4598	50.45
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	9041	1.57602	1.57(a)
27 cis-1,2-Dichloroethene	96	3.540	3.529	(0.847)	10725	1.61654	1.61(a)
38 Trichloroethene	130	5.208	5.208	(1.048)	736108	122.829	122.82

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D
Date : 30-JUN-2022 14:15
Client ID: HS22061313-02
Sample Info: HS22061313-02;HS22061313-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D Page 2

Date : 30-JUN-2022 14:15

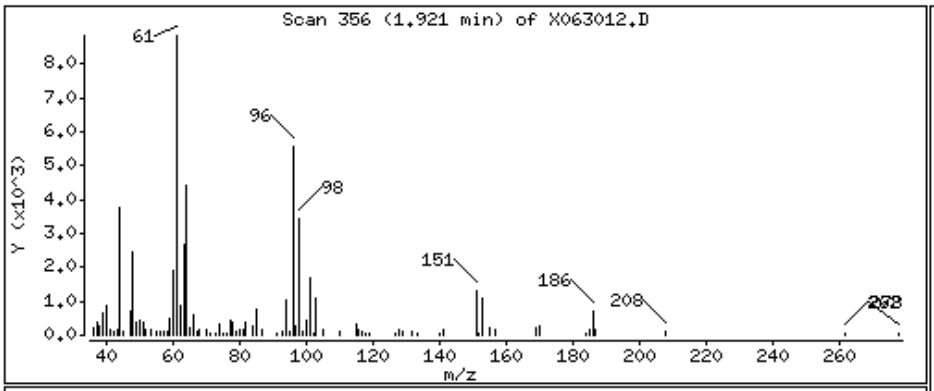
Client ID: HS22061313-02 Instrument: voa6.i

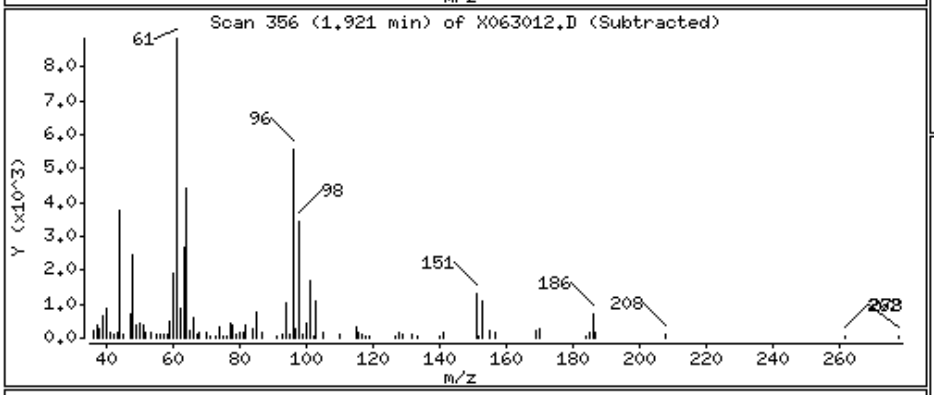
Sample Info: HS22061313-02;HS22061313-02;;;

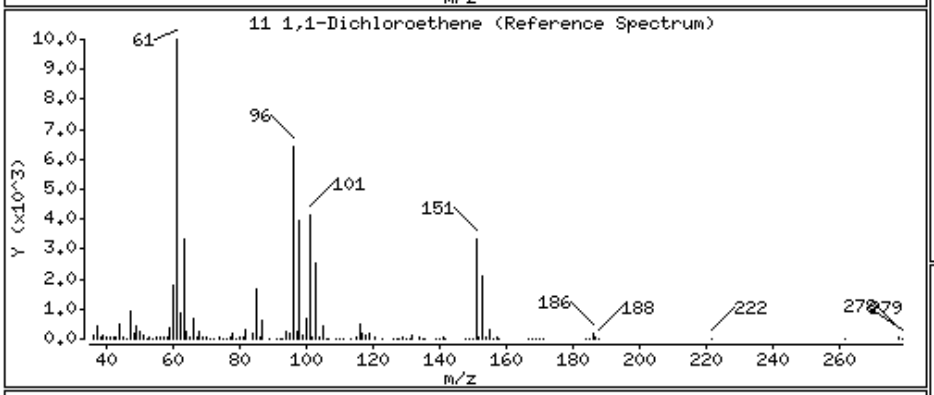
Purge Volume: 5.0 Operator: PC

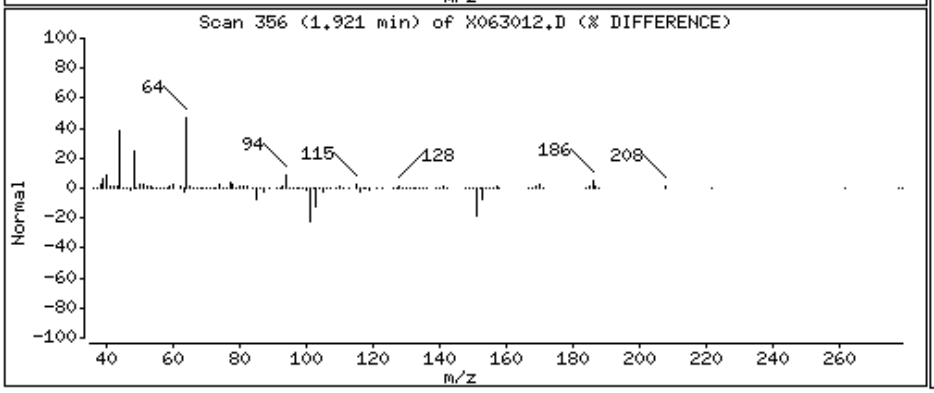
Column phase: DB624 Column diameter: 0.18

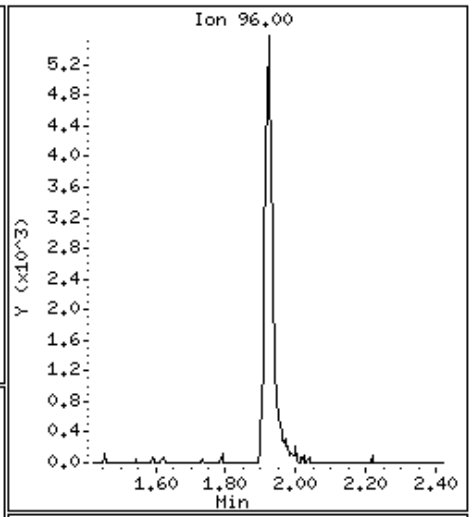
11 1,1-Dichloroethene Concentration: 1.57 ug/l

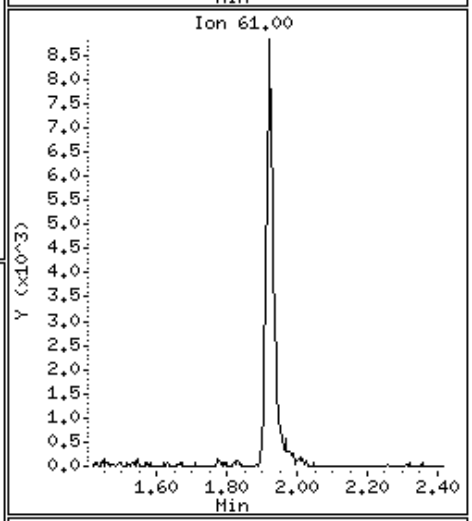


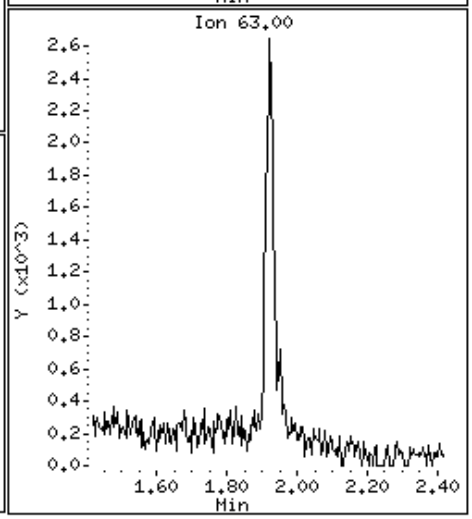












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D Page 3

Date : 30-JUN-2022 14:15

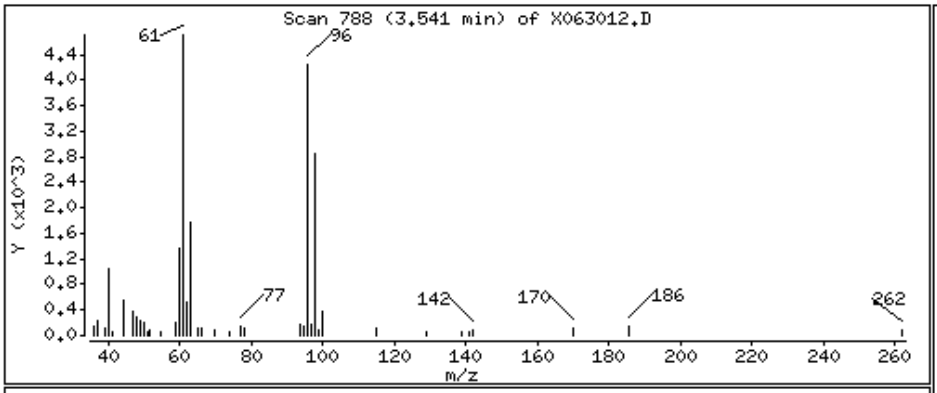
Client ID: HS22061313-02 Instrument: voa6.i

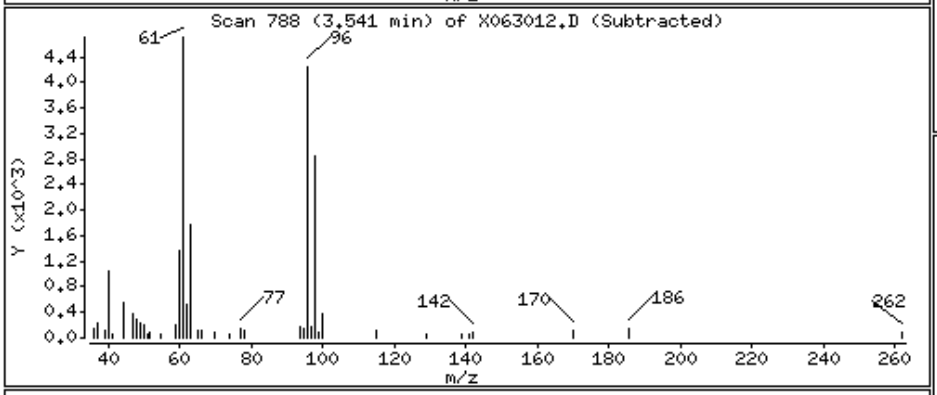
Sample Info: HS22061313-02;HS22061313-02;;;

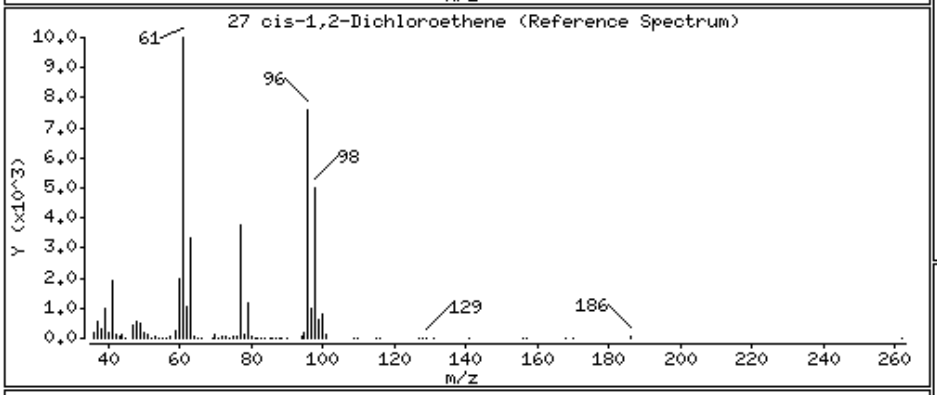
Purge Volume: 5.0 Operator: PC

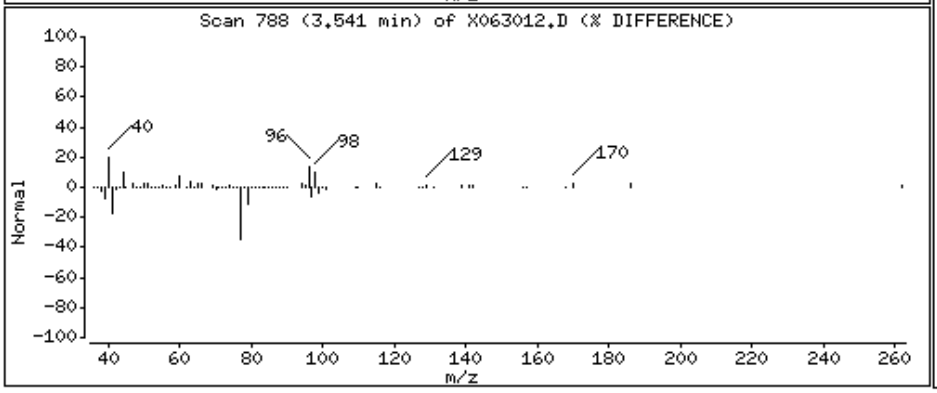
Column phase: DB624 Column diameter: 0.18

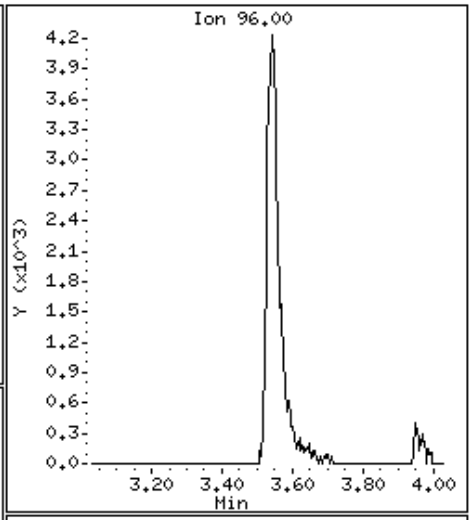
27 cis-1,2-Dichloroethene Concentration: 1.61 ug/l

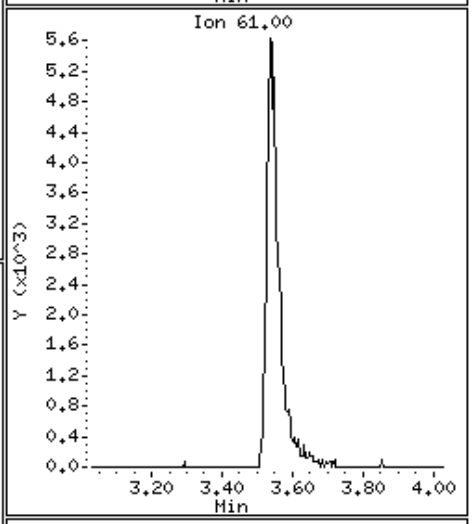


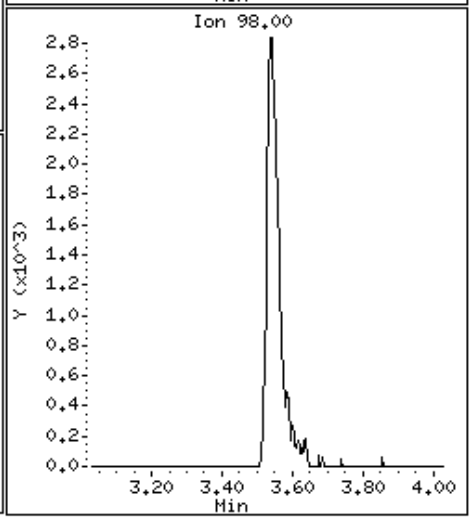












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D Page 4

Date : 30-JUN-2022 14:15

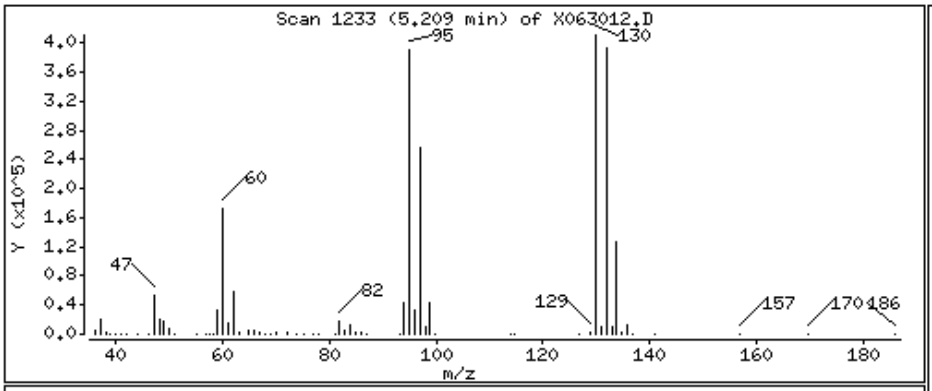
Client ID: HS22061313-02 Instrument: voa6.i

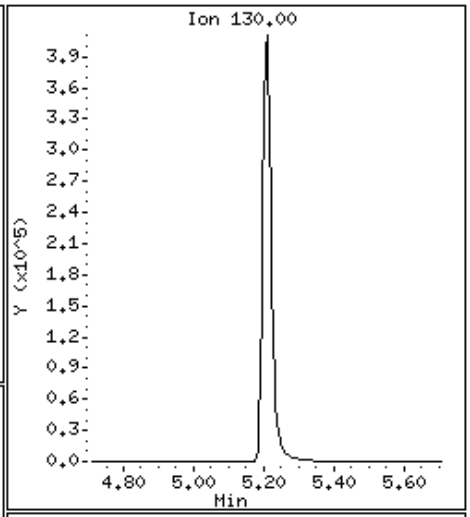
Sample Info: HS22061313-02;HS22061313-02;;;

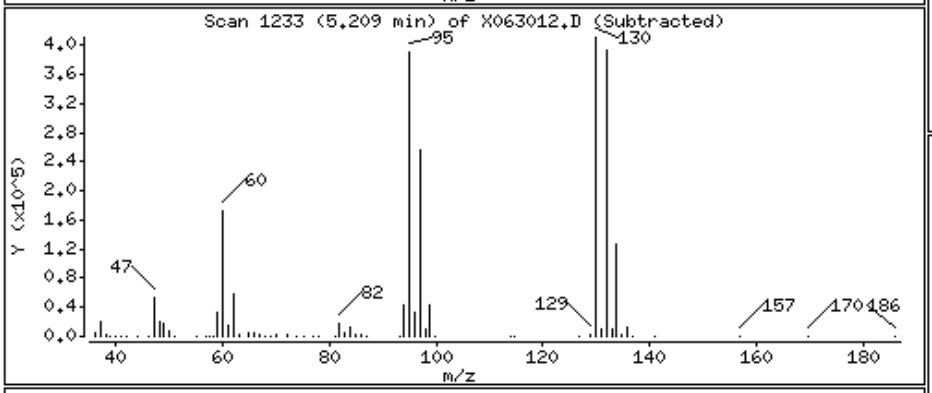
Purge Volume: 5.0 Operator: PC

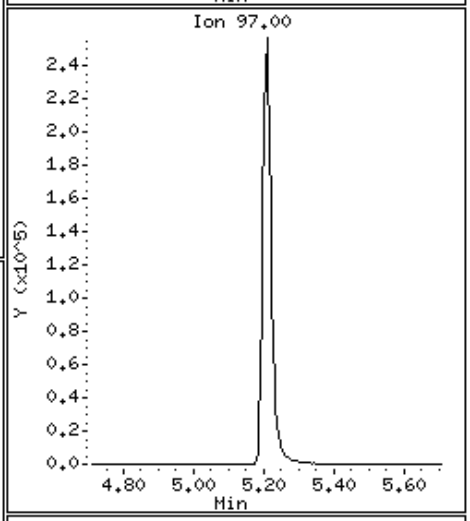
Column phase: DB624 Column diameter: 0.18

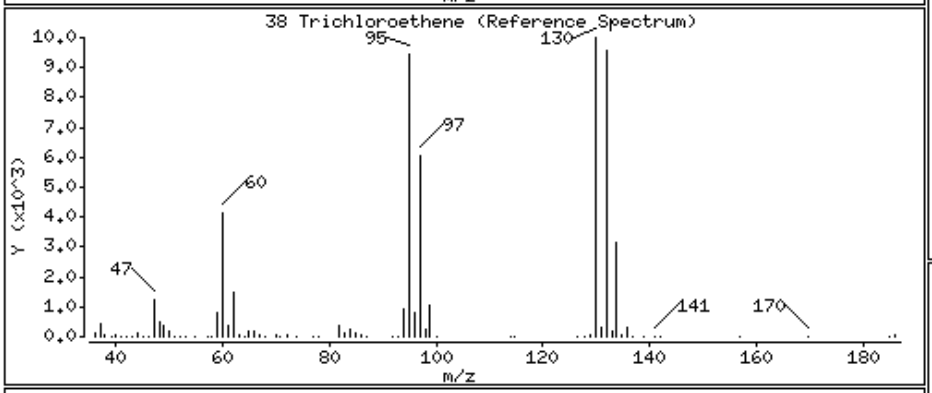
38 Trichloroethene Concentration: 122.82 ug/l

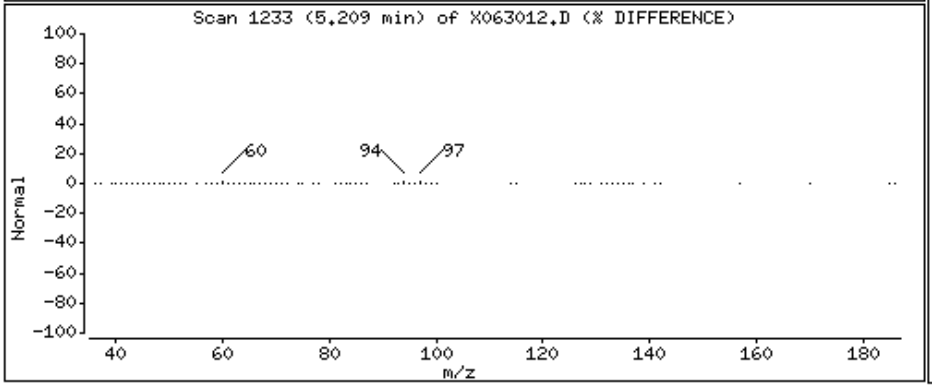


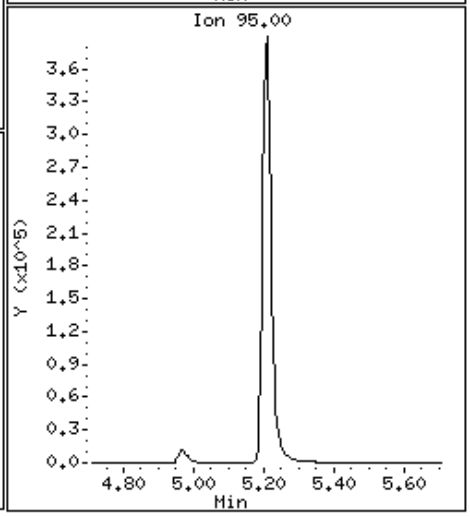












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063012.D
Inj Date : 30-JUN-2022 14:15
InstruID : voa6.i
LabSampID : HS22061313-02

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063013.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063013.D
Lab Smp Id: HS22061313-03 Client Smp ID: HS22061313-03
Inj Date : 30-JUN-2022 14:36
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-03;HS22061313-03;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

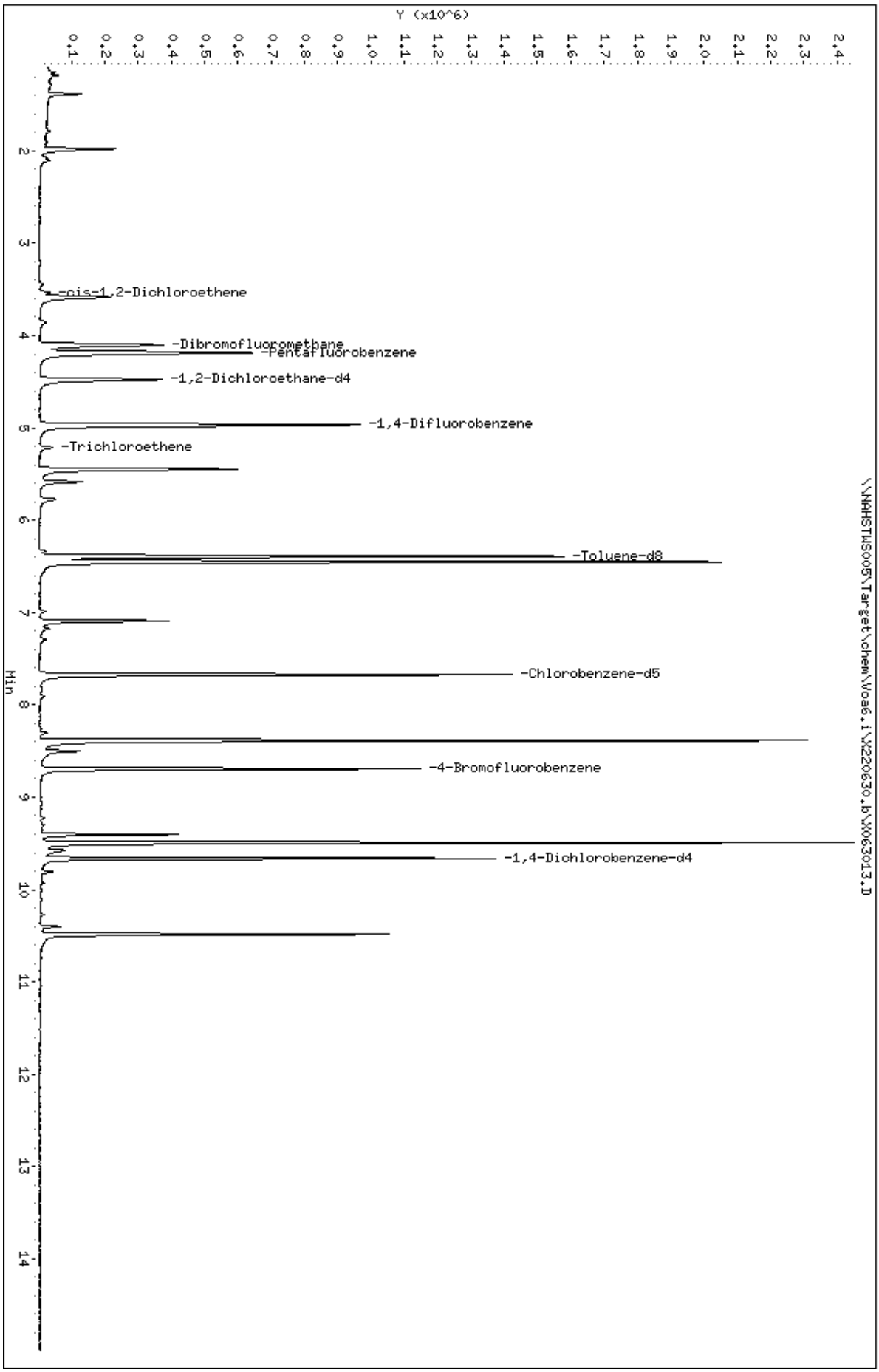
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	554753	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	814699	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	706178	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	321510	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.477	4.474	(1.070)	284177	41.5250	41.52
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	315173	47.3618	47.36
$ 30 Dibromofluoromethane	113	4.102	4.103	(0.980)	257596	44.1693	44.16
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	954215	51.1667	51.16
27 cis-1,2-Dichloroethene	96	3.536	3.529	(0.845)	18183	2.71769	2.71(a)
38 Trichloroethene	130	5.216	5.208	(1.050)	13038	2.13016	2.13(a)
5 Vinyl Chloride	62	1.149	1.149	(0.275)	10530	1.34641	1.34(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



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Date : 30-JUN-2022 14:36
Client ID: HS22061313-03
Sample Info: HS22061313-03;HS22061313-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063013.D Page 2

Date : 30-JUN-2022 14:36

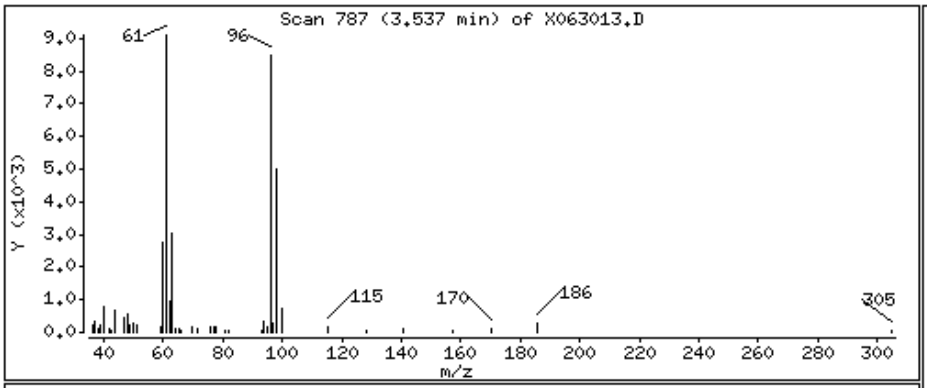
Client ID: HS22061313-03 Instrument: voa6.i

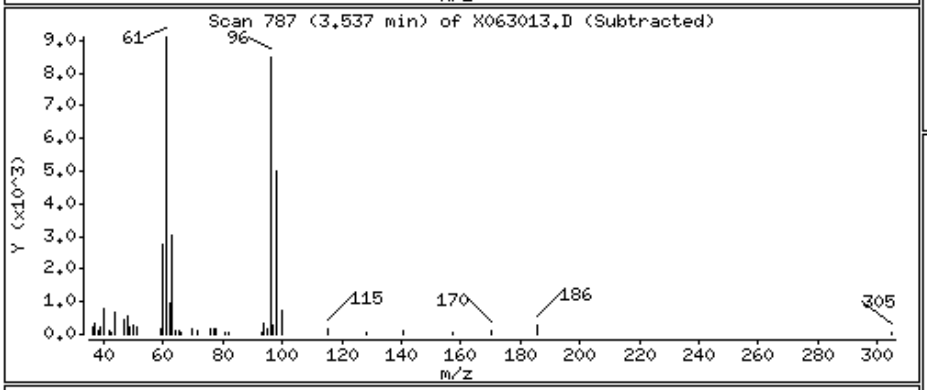
Sample Info: HS22061313-03;HS22061313-03;;;

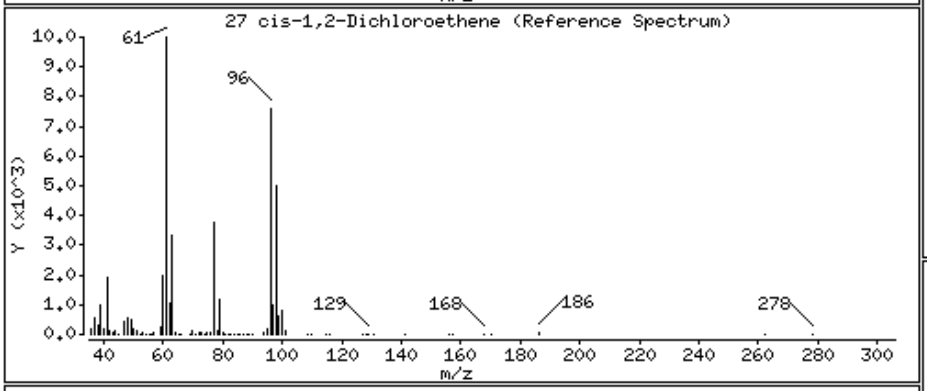
Purge Volume: 5.0 Operator: PC

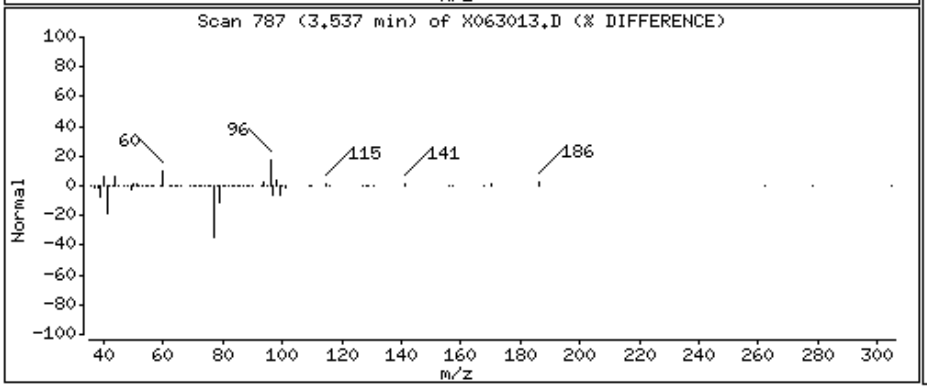
Column phase: DB624 Column diameter: 0.18

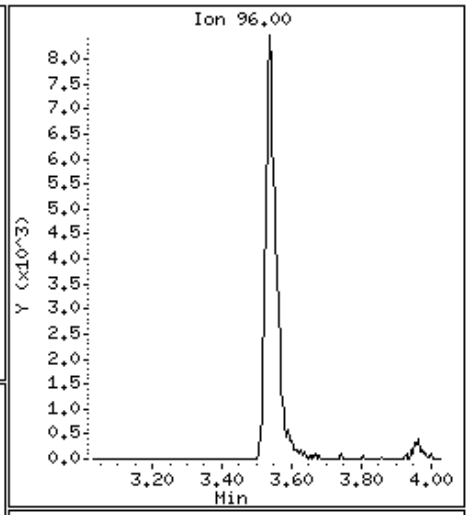
27 cis-1,2-Dichloroethene Concentration: 2.71 ug/l

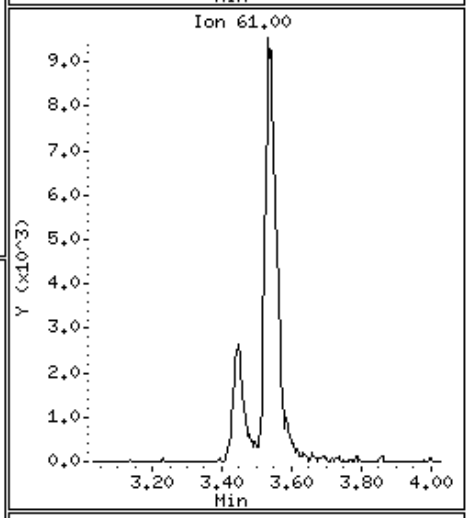


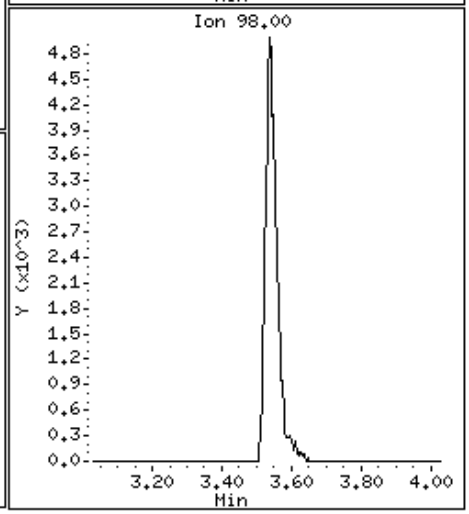












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063013.D

Date : 30-JUN-2022 14:36

Client ID: HS22061313-03

Instrument: voa6.i

Sample Info: HS22061313-03;HS22061313-03;;;

Purge Volume: 5.0

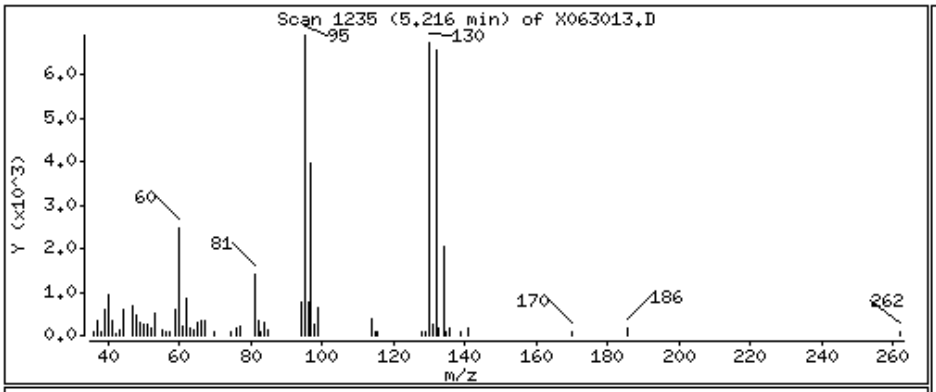
Operator: PC

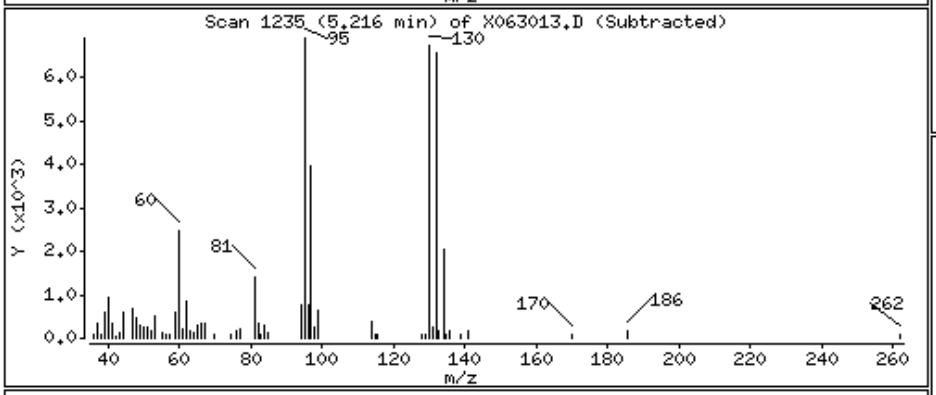
Column phase: DB624

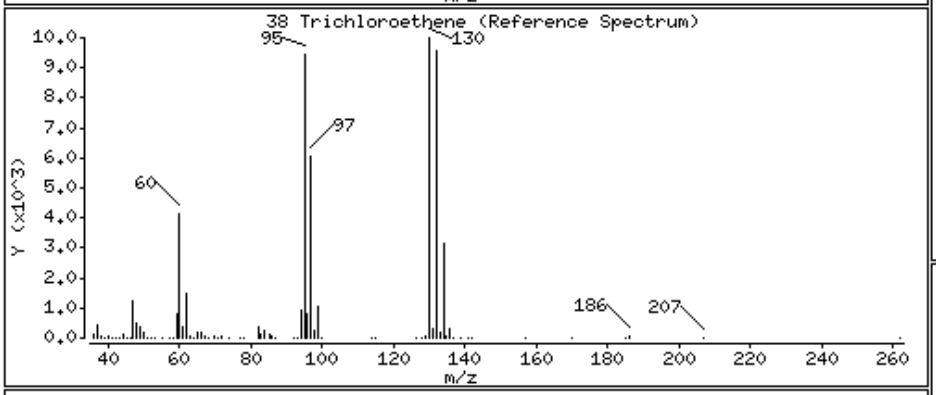
Column diameter: 0.18

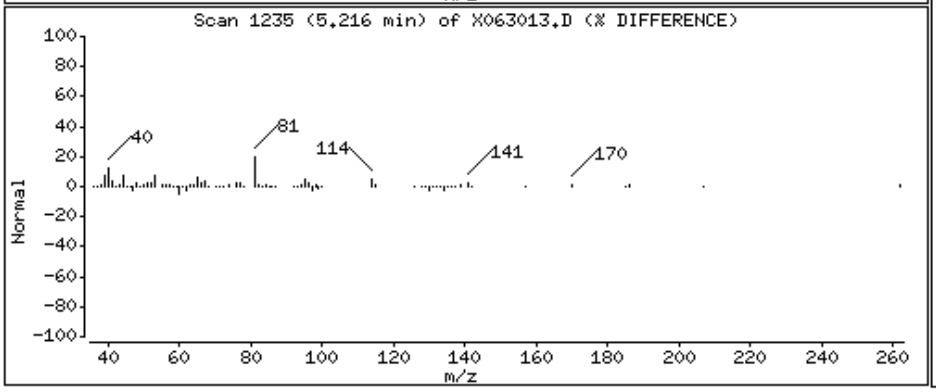
38 Trichloroethene

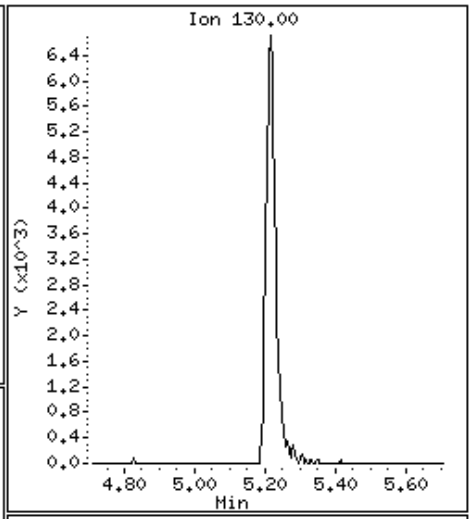
Concentration: 2.13 ug/l

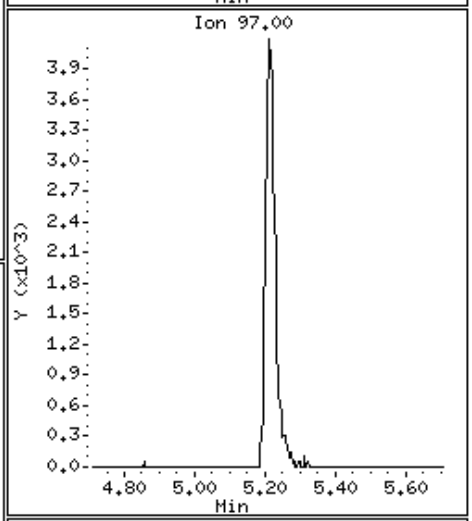


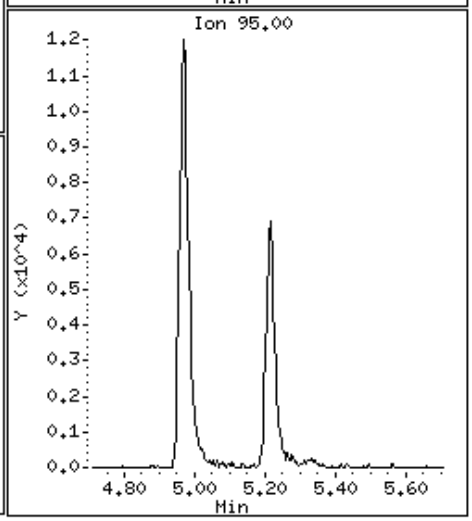












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063013.D Page 4

Date : 30-JUN-2022 14:36

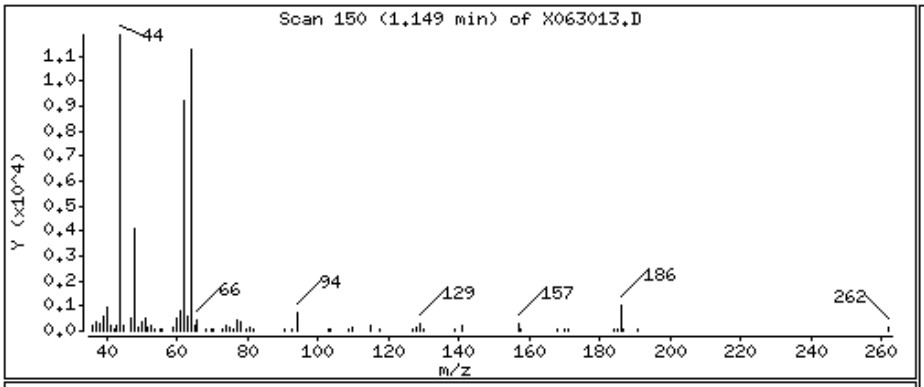
Client ID: HS22061313-03 Instrument: voa6.i

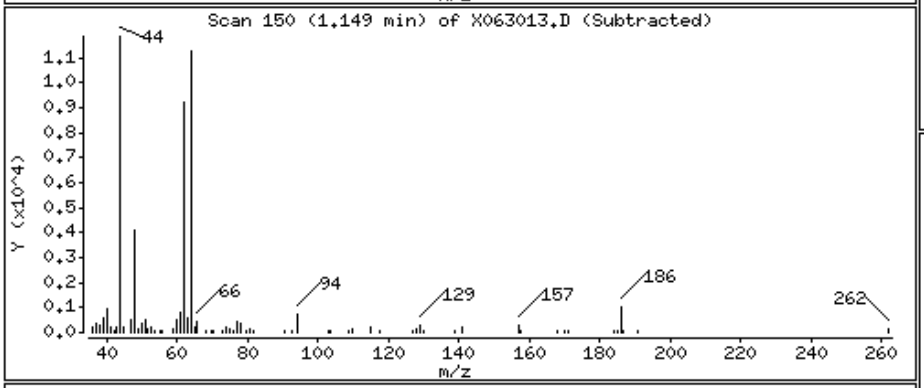
Sample Info: HS22061313-03;HS22061313-03;;;

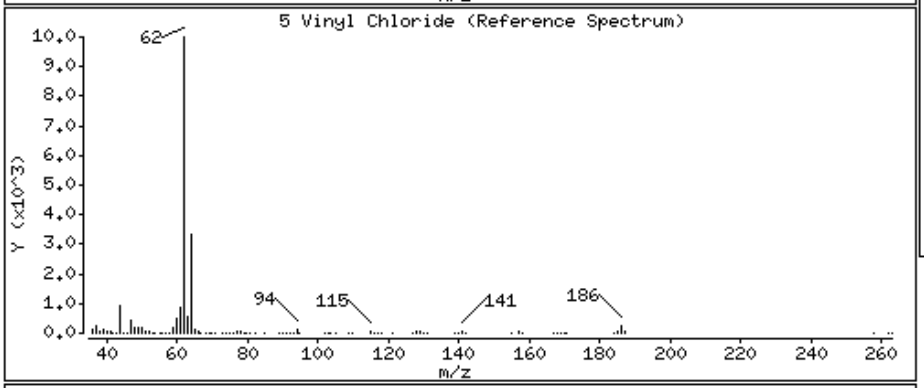
Purge Volume: 5.0 Operator: PC

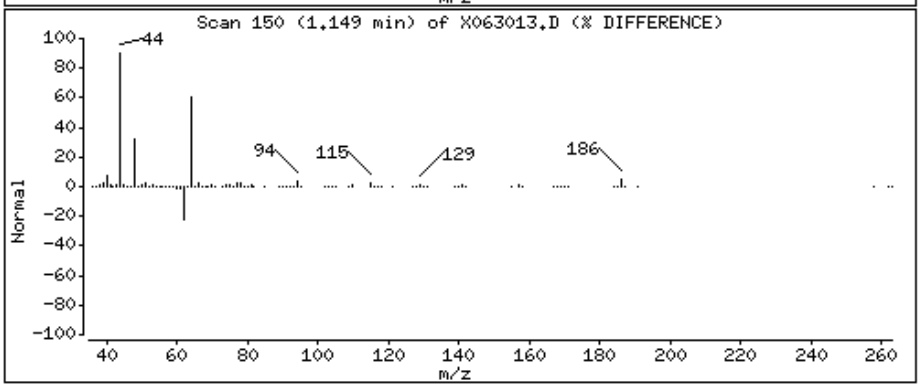
Column phase: DB624 Column diameter: 0.18

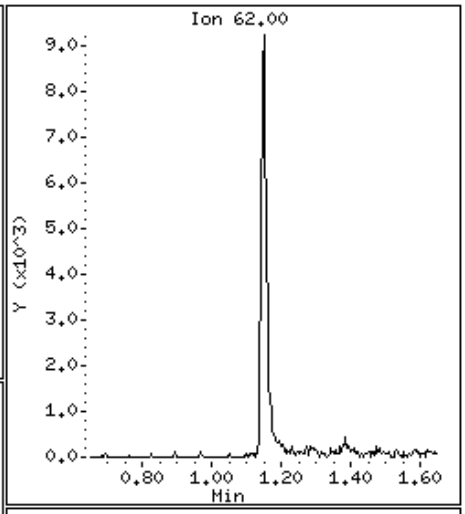
5 Vinyl Chloride Concentration: 1.34 ug/l

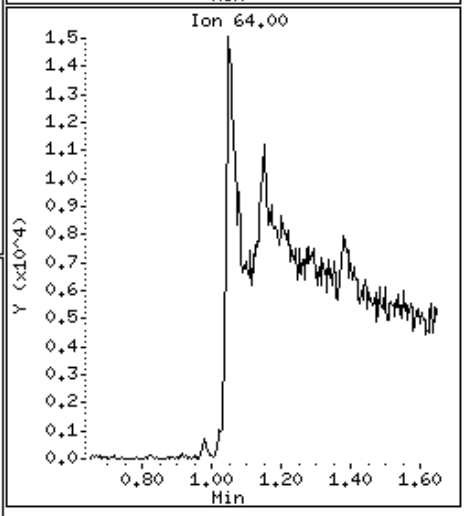












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Inj Date : 30-JUN-2022 14:36
InstruID : voa6.i
LabSampID : HS22061313-03

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063014.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063014.D
Lab Smp Id: HS22061313-05 Client Smp ID: HS22061313-05
Inj Date : 30-JUN-2022 14:57
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-05;HS22061313-05;;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

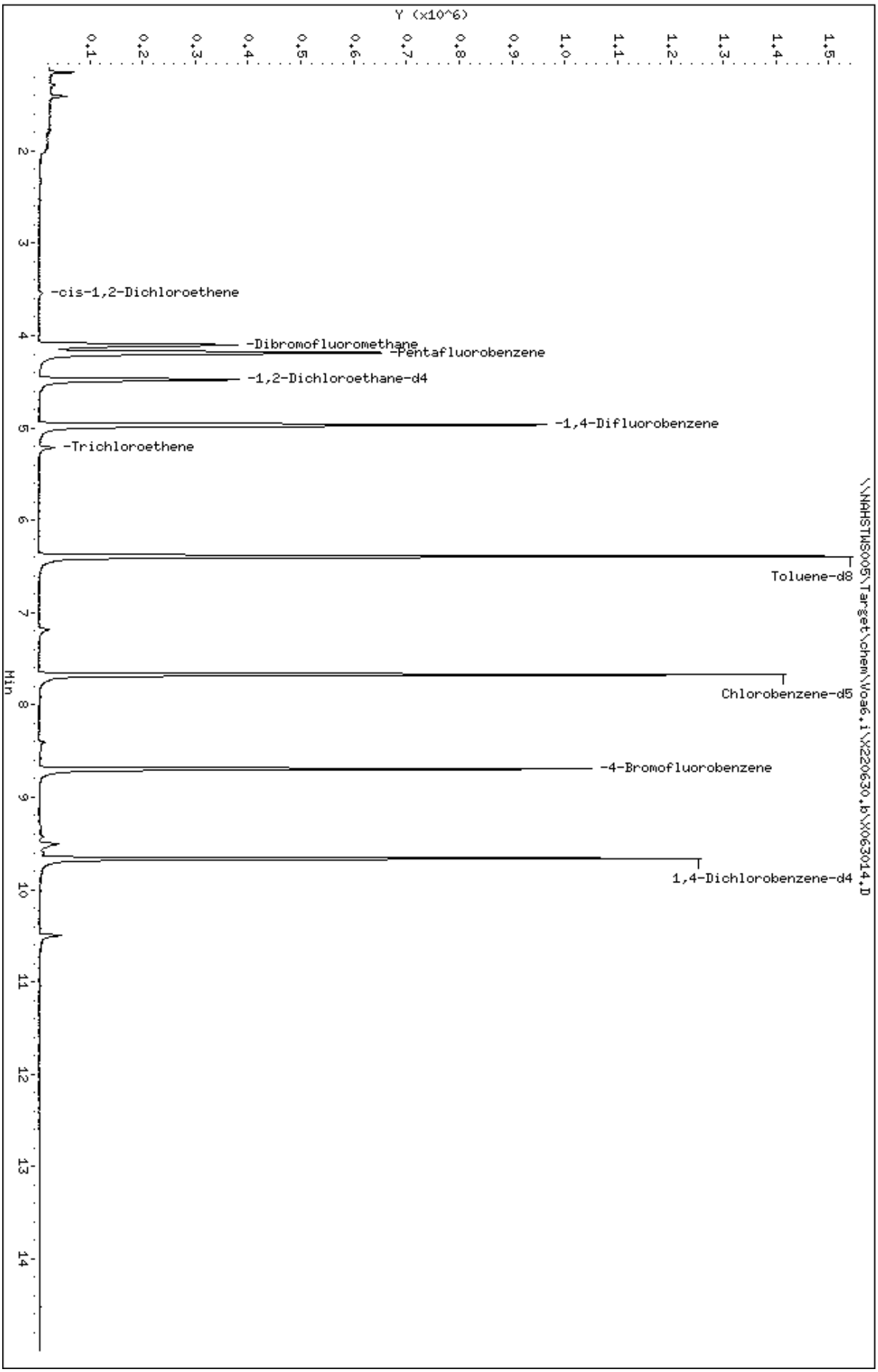
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.181	4.185	(1.000)	554695	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	816368	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	705948	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	310973	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.070)	289490	42.3121	42.31
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	309765	46.5495	46.54
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	258980	44.4113	44.41
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	951532	51.0394	51.03
27 cis-1,2-Dichloroethene	96	3.548	3.529	(0.849)	3504	0.52377	0.52(a)
38 Trichloroethene	130	5.216	5.208	(1.050)	9745	1.58889	1.58(a)
5 Vinyl Chloride	62	1.149	1.149	(0.275)	28891	3.69452	3.69(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



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Date : 30-JUN-2022 14:57
Client ID: HS22061313-05
Sample Info: HS22061313-05;HS22061313-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063014.D Page 2

Date : 30-JUN-2022 14:57

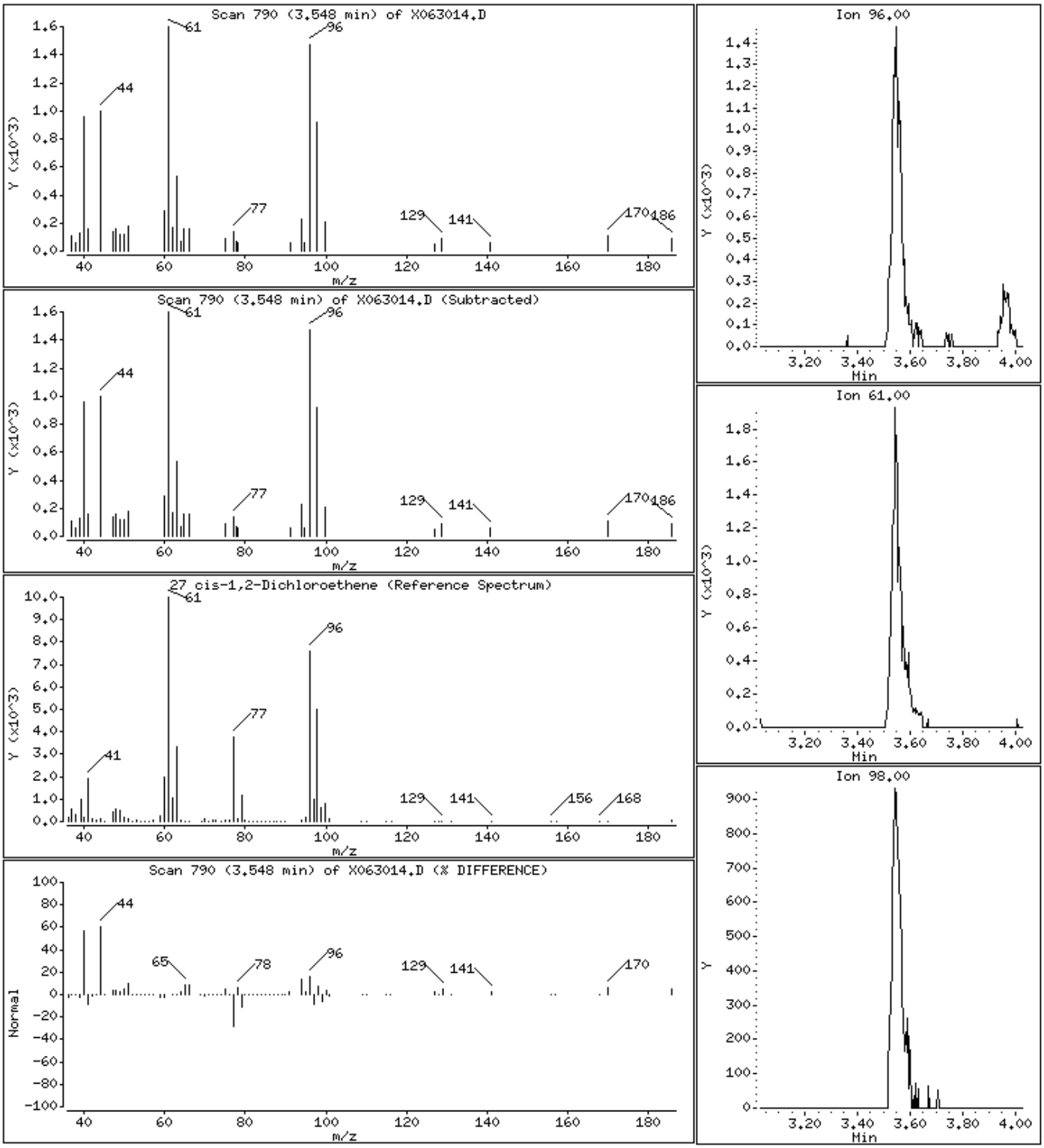
Client ID: HS22061313-05 Instrument: voa6.i

Sample Info: HS22061313-05;HS22061313-05;;;

Purge Volume: 5.0 Operator: PC

Column phase: DB624 Column diameter: 0.18

27 cis-1,2-Dichloroethene Concentration: 0.52 ug/l



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063014.D Page 3

Date : 30-JUN-2022 14:57

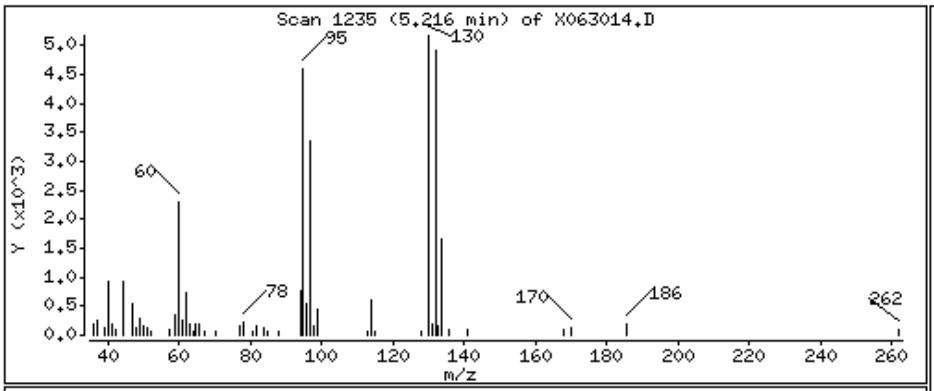
Client ID: HS22061313-05 Instrument: voa6.i

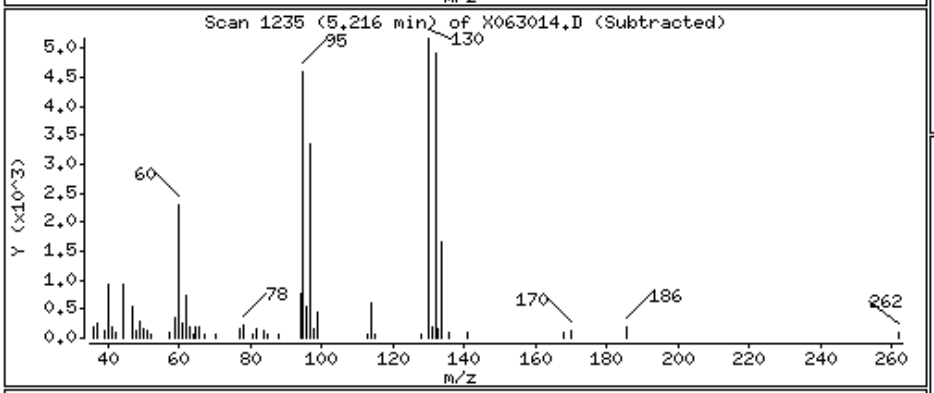
Sample Info: HS22061313-05;HS22061313-05;;;

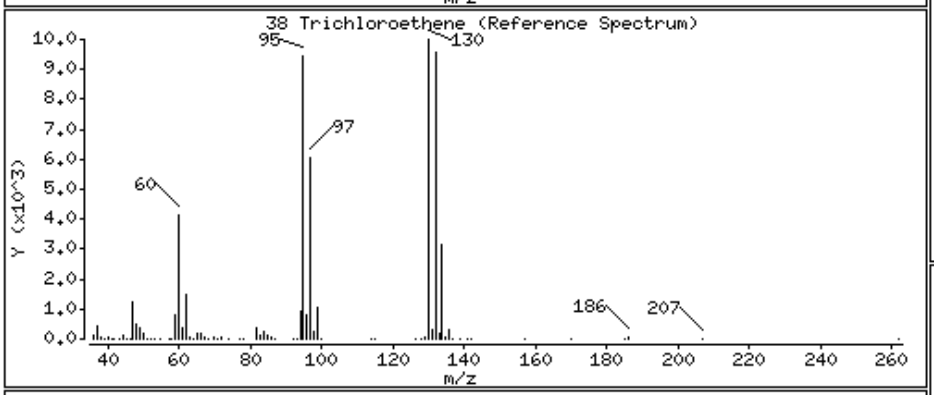
Purge Volume: 5.0 Operator: PC

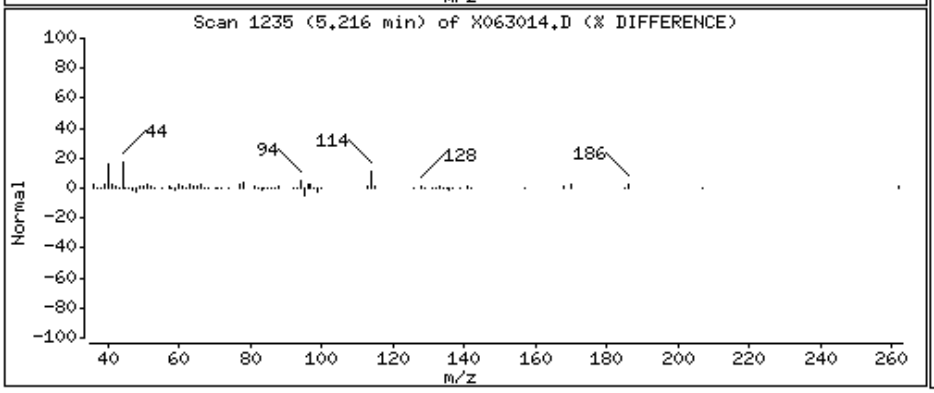
Column phase: DB624 Column diameter: 0.18

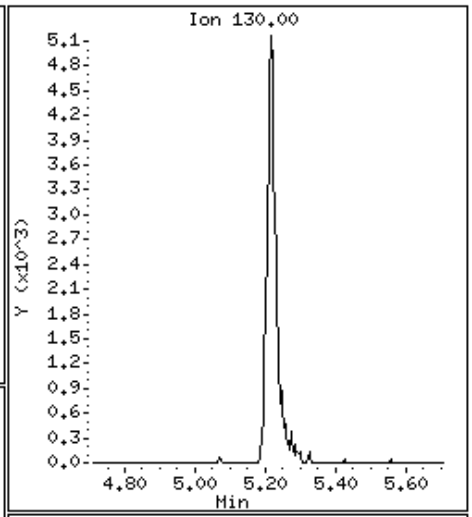
38 Trichloroethene Concentration: 1.58 ug/l

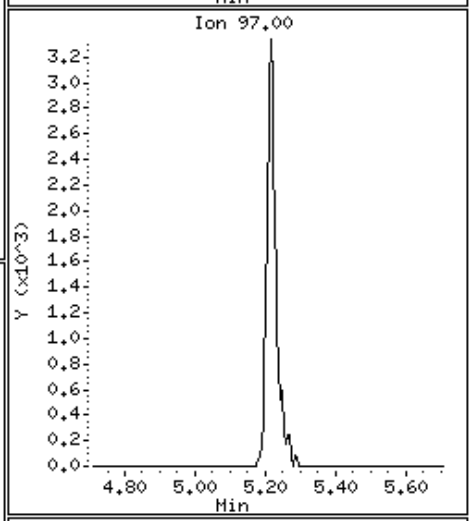


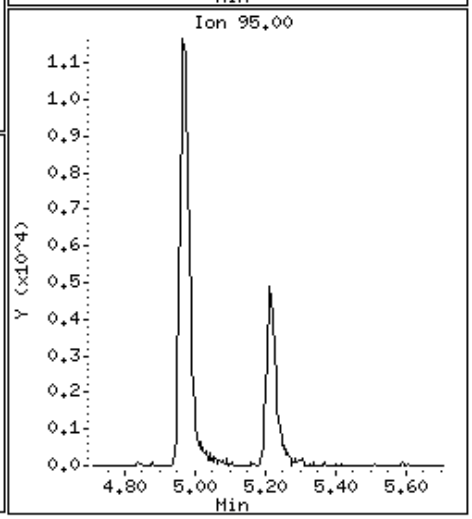












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063014.D

Date : 30-JUN-2022 14:57

Client ID: HS22061313-05

Instrument: voa6.i

Sample Info: HS22061313-05;HS22061313-05;;;

Purge Volume: 5.0

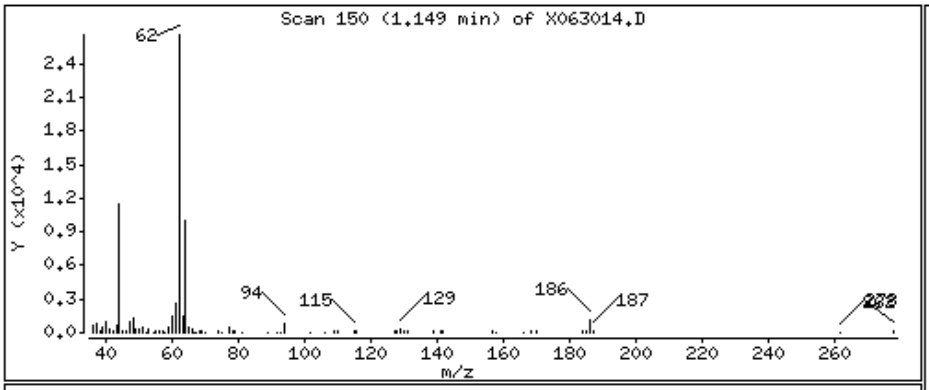
Operator: PC

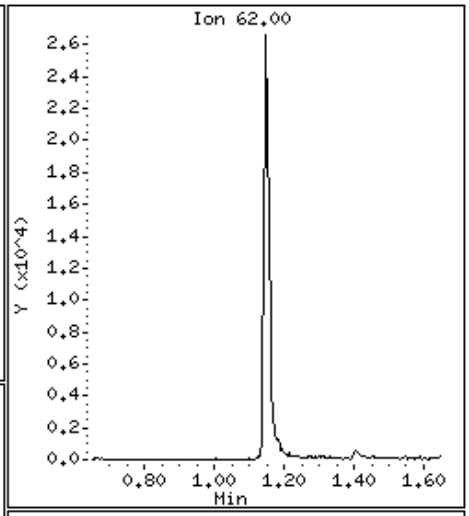
Column phase: DB624

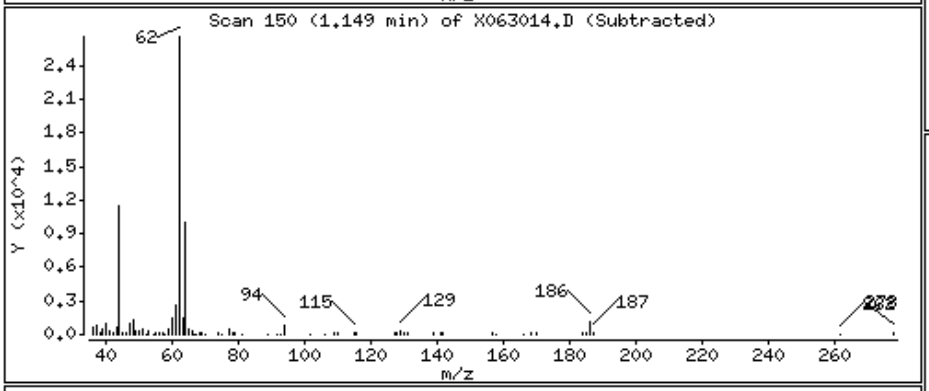
Column diameter: 0.18

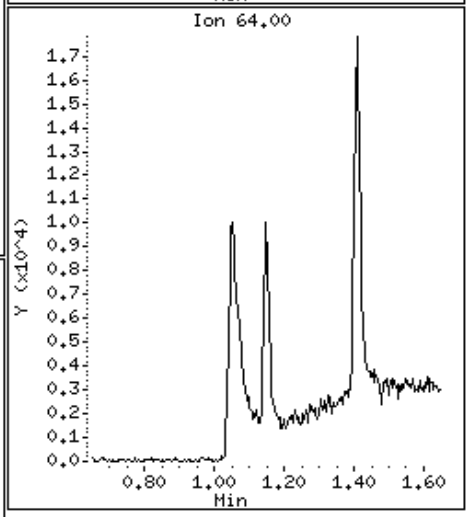
5 Vinyl Chloride

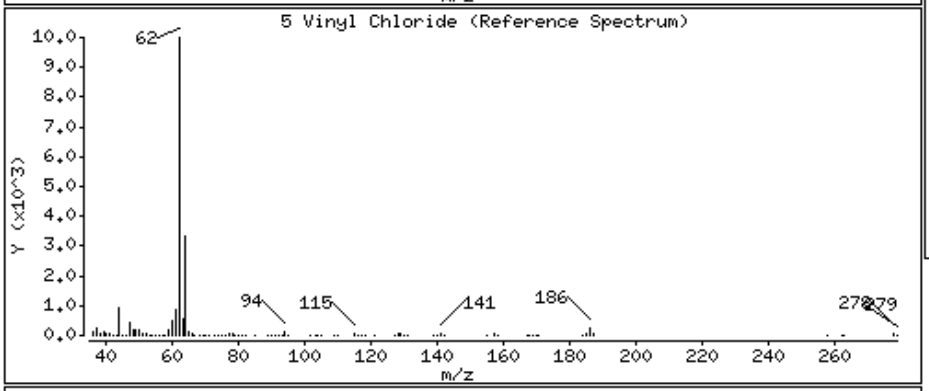
Concentration: 3.69 ug/l

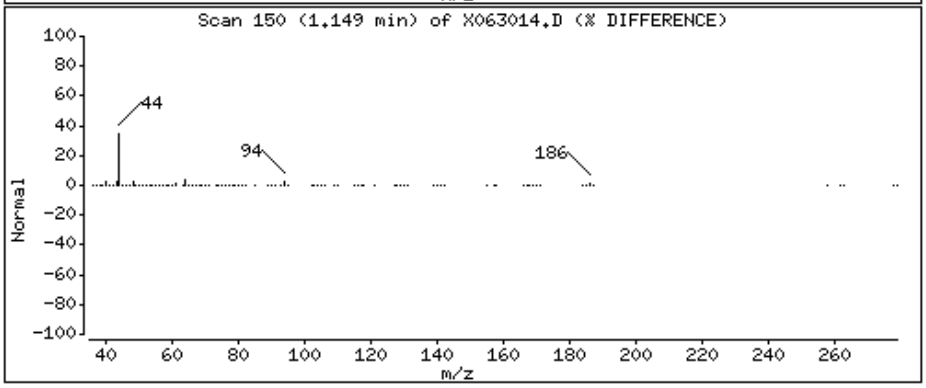












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063014.D
Inj Date : 30-JUN-2022 14:57
InstruID : voa6.i
LabSampID : HS22061313-05

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D
Lab Smp Id: HS22061313-06 Client Smp ID: HS22061313-06
Inj Date : 30-JUN-2022 15:18
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-06;HS22061313-06;;;
Misc Info : HS22052000V6;WATER;0;5;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 15
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

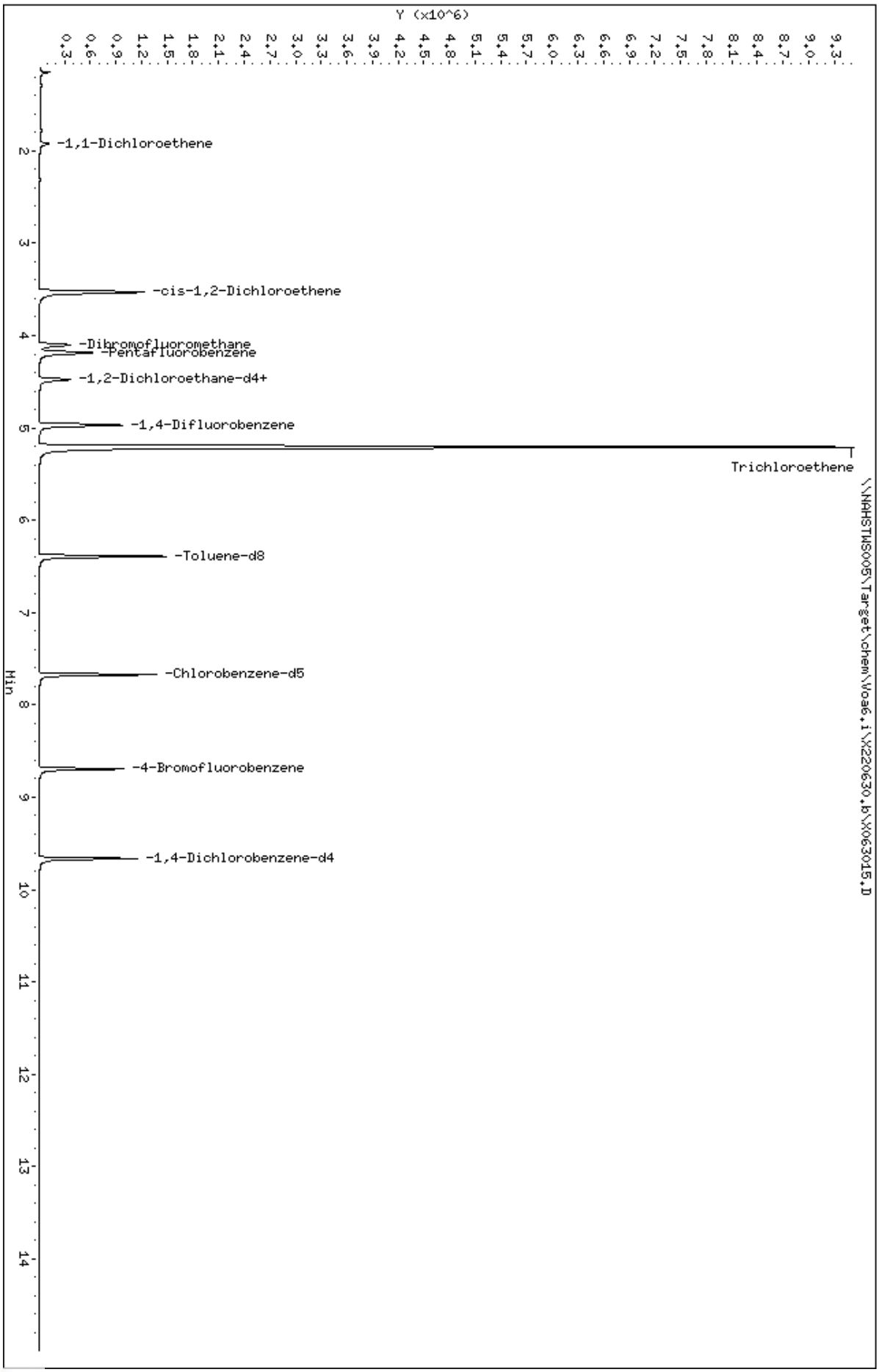
Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	549314	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	804832	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	699069	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	296656	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.477	4.474	(1.070)	281350	41.5189	41.51
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	299558	45.4379	45.43
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	253199	43.8450	43.84
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	928596	50.2993	50.29
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	7920	1.38260	6.91(a)
33 1,2-Dichloroethane	62	4.571	4.560	(0.920)	8092	1.00721	5.03(a)
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	637058	96.1597	480.79
38 Trichloroethene	130	5.208	5.208	(1.048)	3036766	502.233	2511.16(A)
5 Vinyl Chloride	62	1.149	1.149	(0.275)	68910	8.89838	44.49

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\voa6.i\X220630.b\X063015.D
Date : 30-JUN-2022 15:18
Client ID: HS22061313-06
Sample Info: HS22061313-06;HS22061313-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D

Date : 30-JUN-2022 15:18

Client ID: HS22061313-06

Instrument: voa6.i

Sample Info: HS22061313-06;HS22061313-06;;;

Purge Volume: 5.0

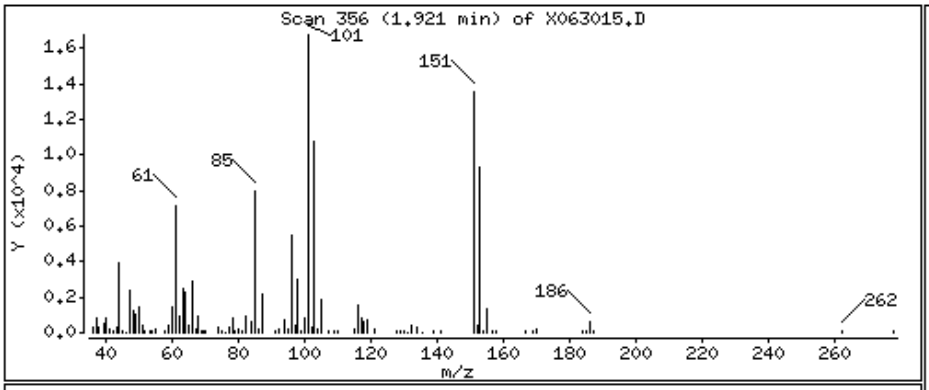
Operator: PC

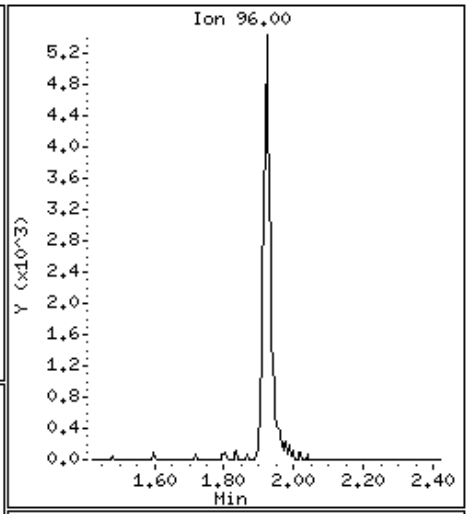
Column phase: DB624

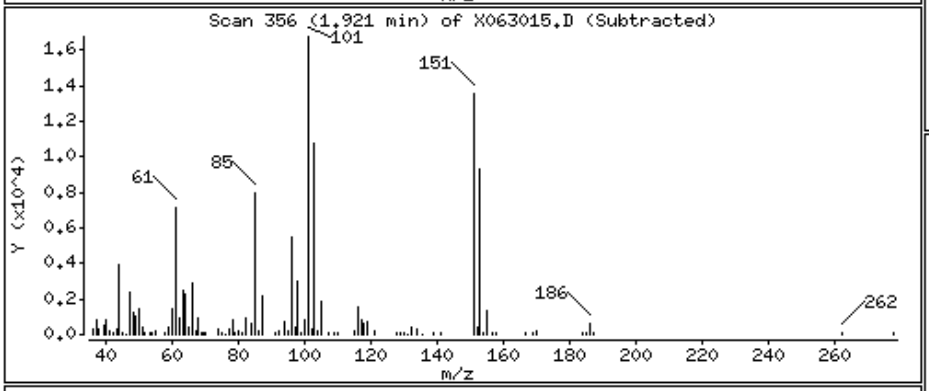
Column diameter: 0.18

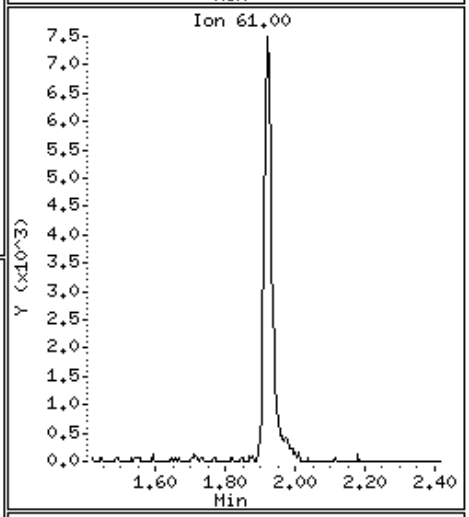
11 1,1-Dichloroethene

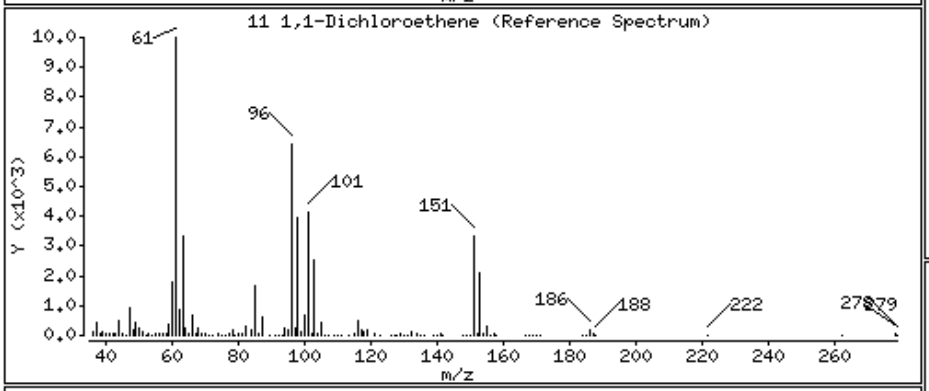
Concentration: 6.91 ug/l

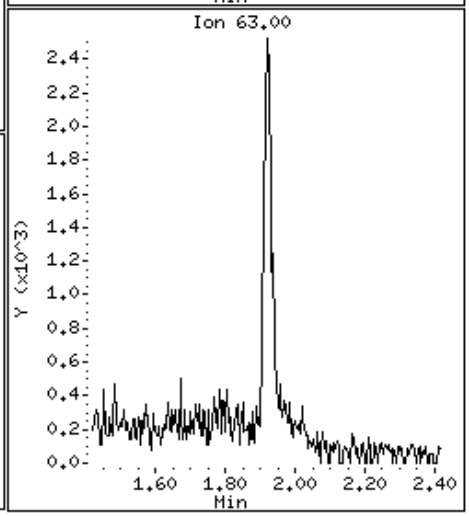


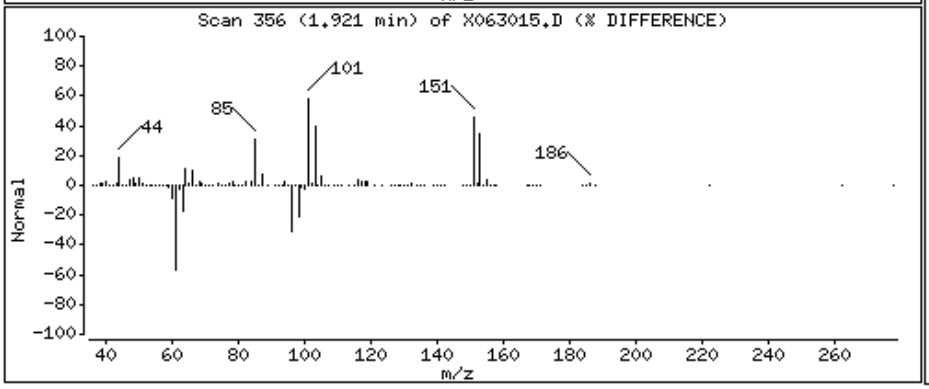












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D Page 3

Date : 30-JUN-2022 15:18

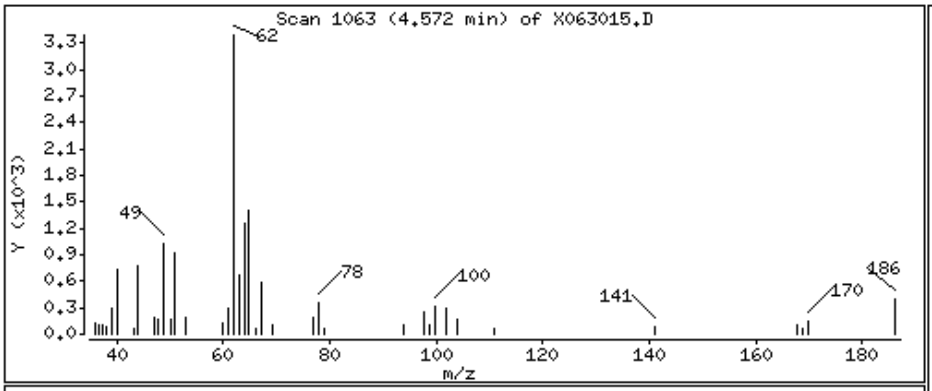
Client ID: HS22061313-06 Instrument: voa6.i

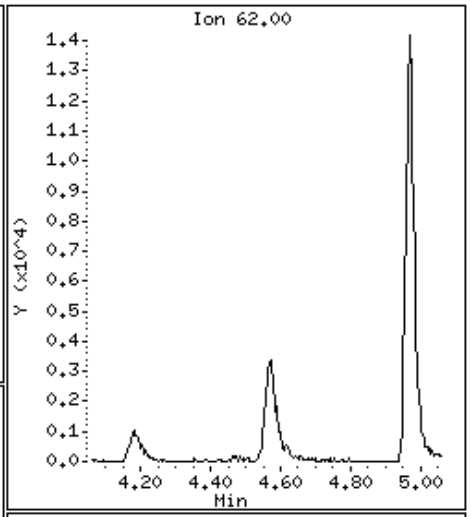
Sample Info: HS22061313-06;HS22061313-06;;;

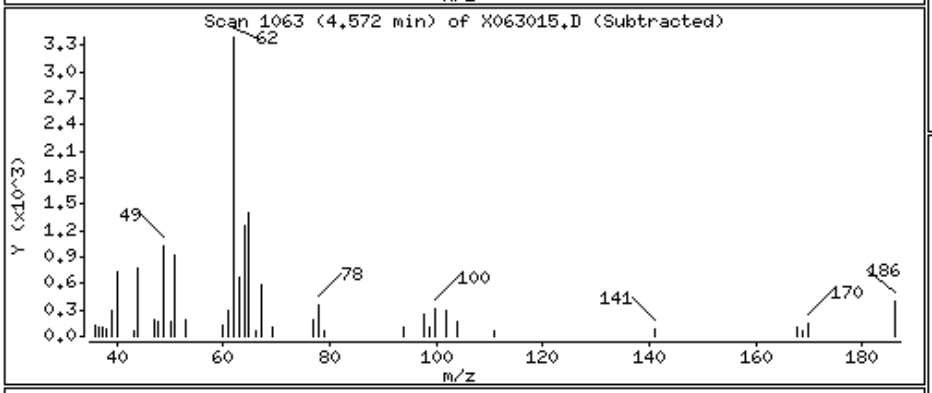
Purge Volume: 5.0 Operator: PC

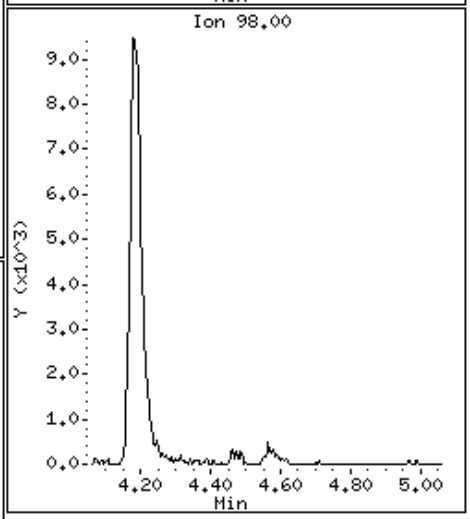
Column phase: DB624 Column diameter: 0.18

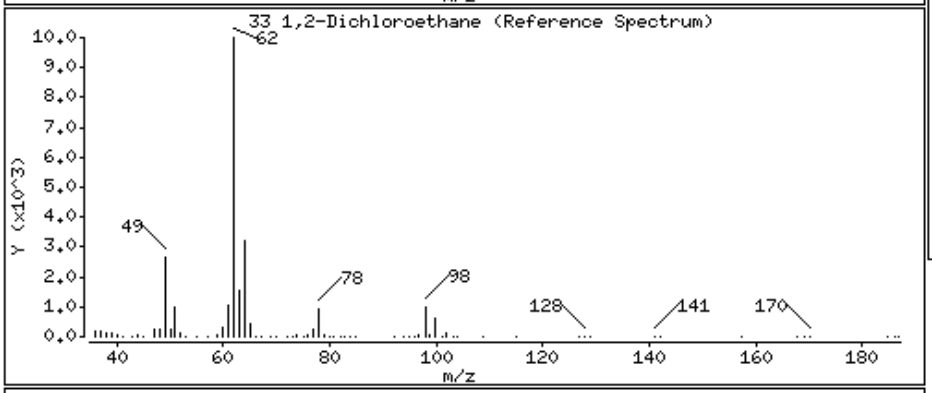
33 1,2-Dichloroethane Concentration: 5.03 ug/l

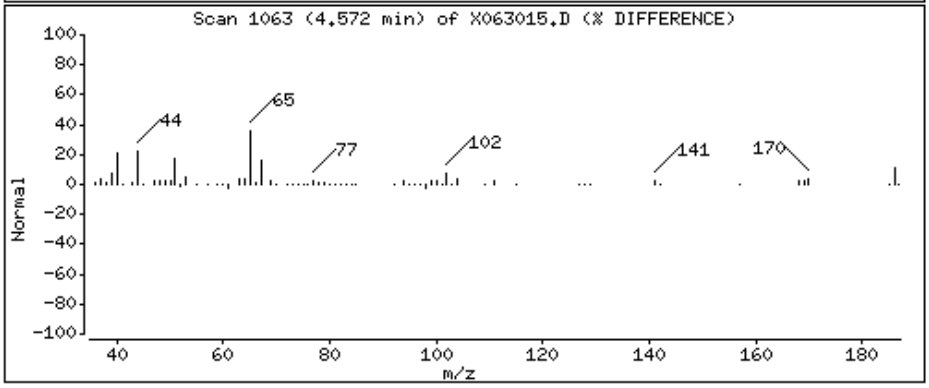












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D

Date : 30-JUN-2022 15:18

Client ID: HS22061313-06

Instrument: voa6.i

Sample Info: HS22061313-06;HS22061313-06;;;

Purge Volume: 5.0

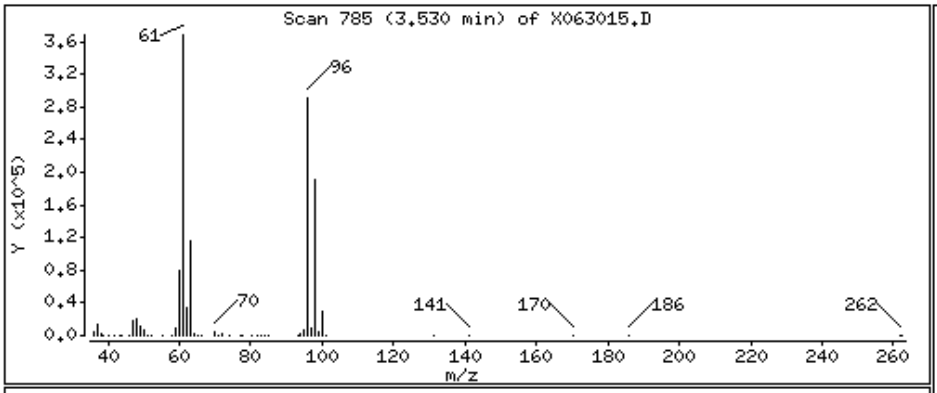
Operator: PC

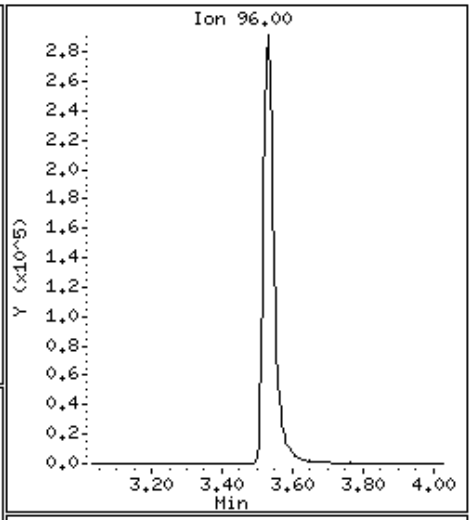
Column phase: DB624

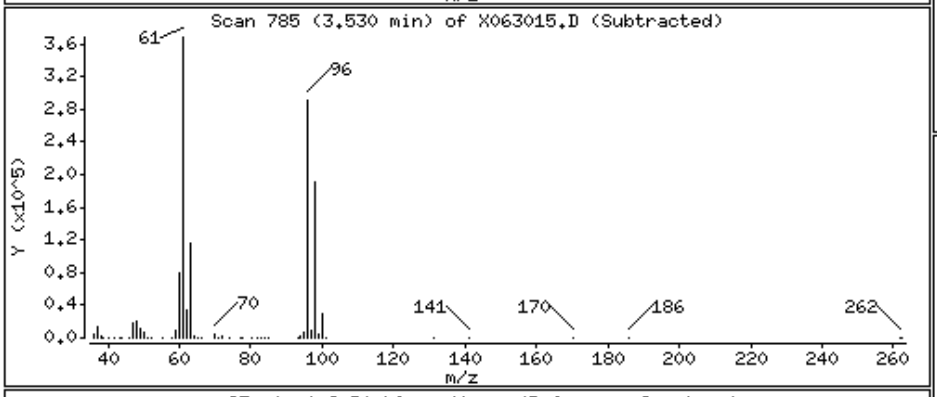
Column diameter: 0.18

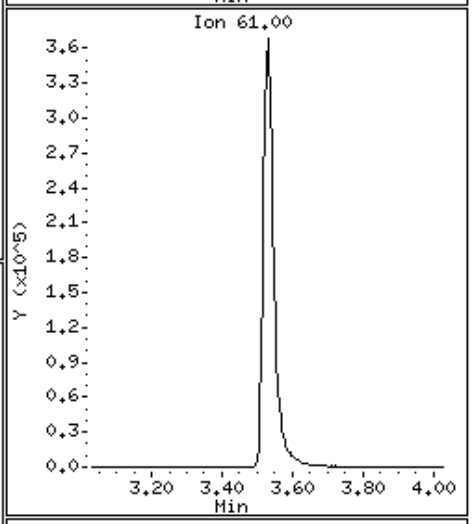
27 cis-1,2-Dichloroethene

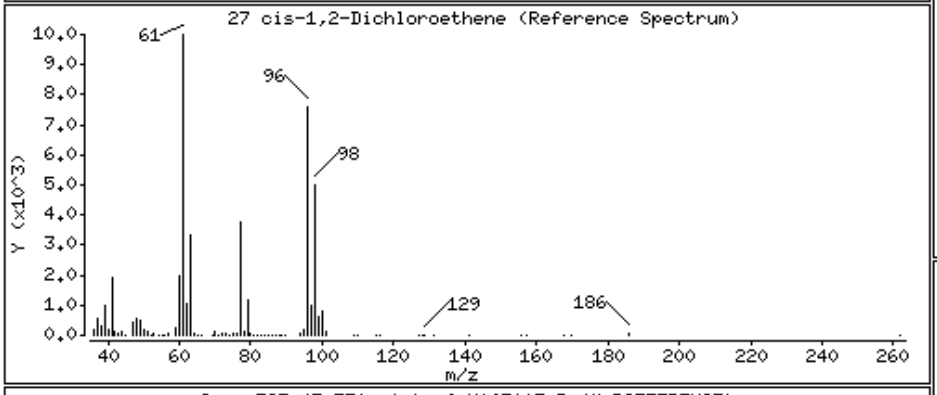
Concentration: 480.79 ug/l

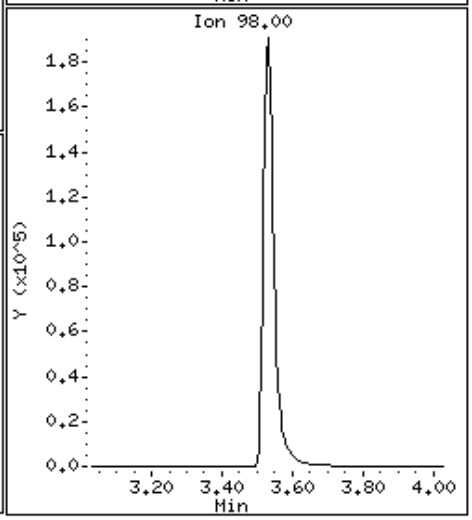


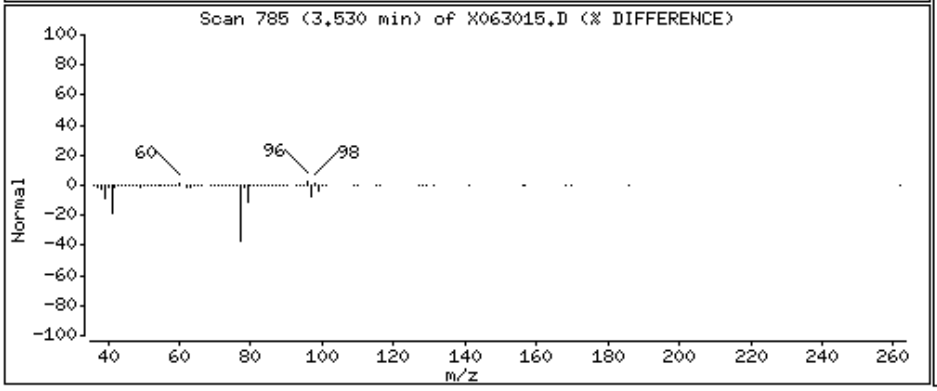












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D Page 5

Date : 30-JUN-2022 15:18

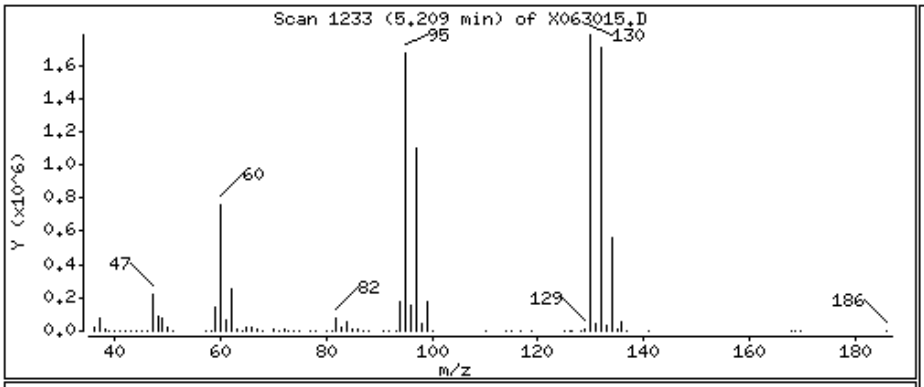
Client ID: HS22061313-06 Instrument: voa6.i

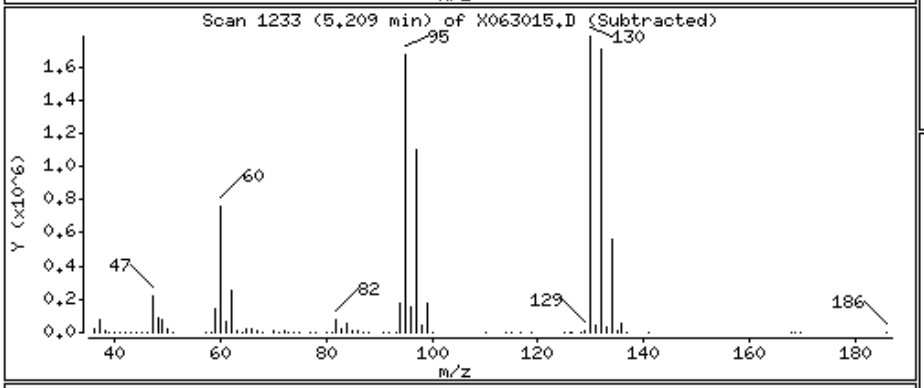
Sample Info: HS22061313-06;HS22061313-06;;;

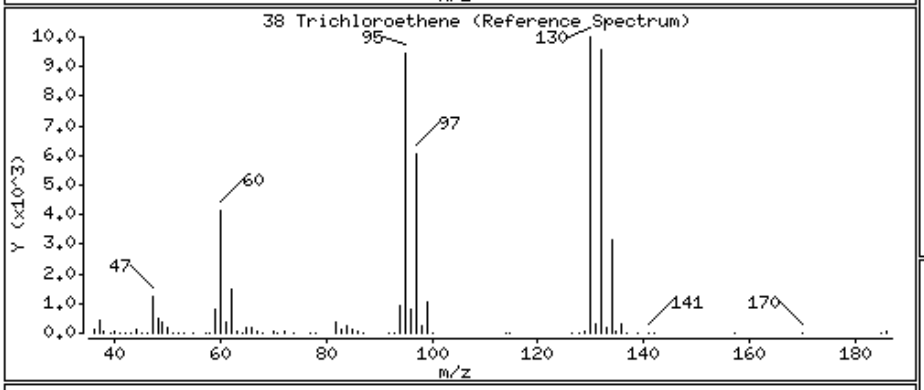
Purge Volume: 5.0 Operator: PC

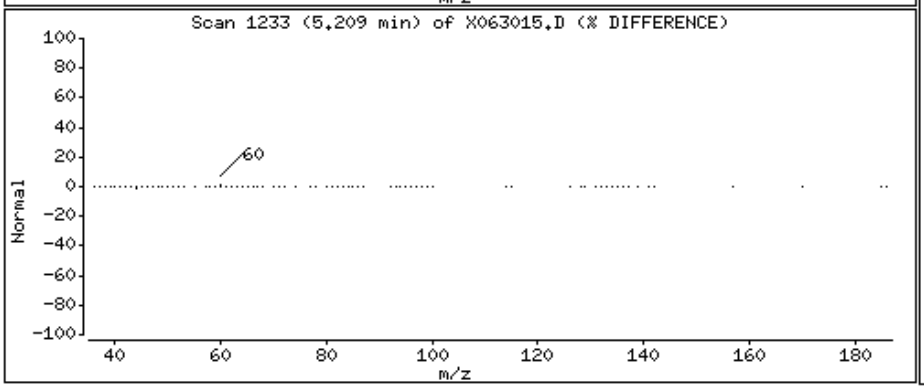
Column phase: DB624 Column diameter: 0.18

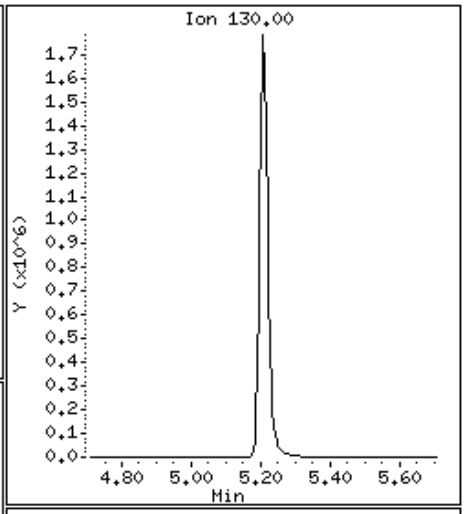
38 Trichloroethene Concentration: 2511.16 ug/l

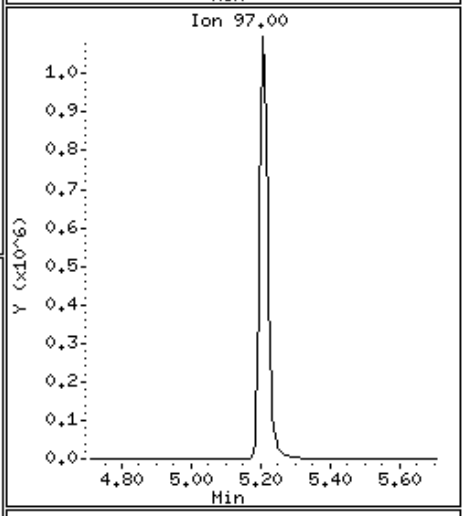


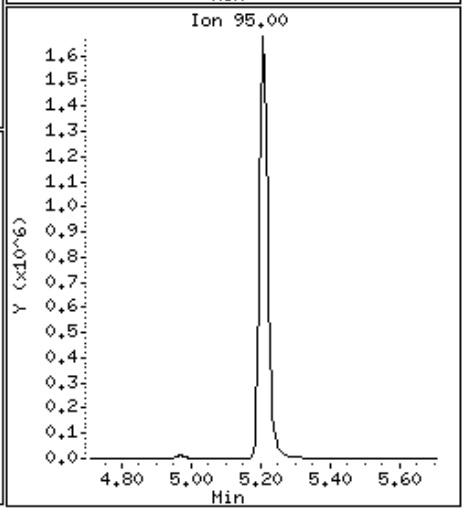












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D Page 6

Date : 30-JUN-2022 15:18

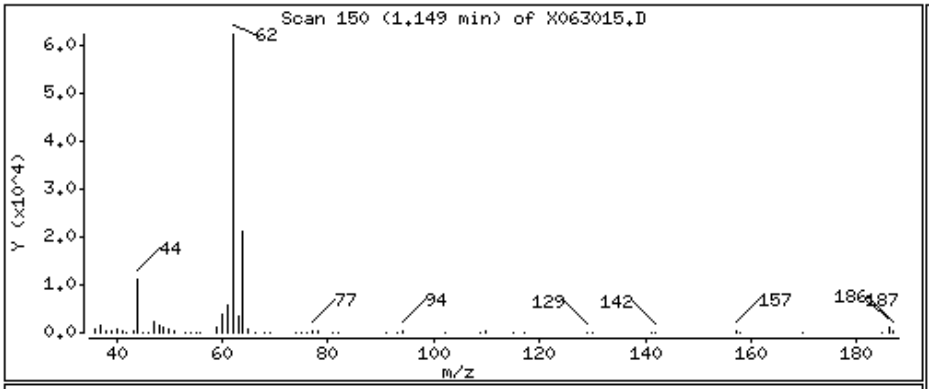
Client ID: HS22061313-06 Instrument: voa6.i

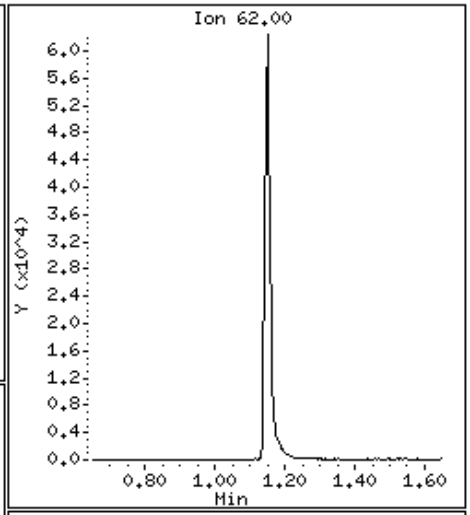
Sample Info: HS22061313-06;HS22061313-06;;;

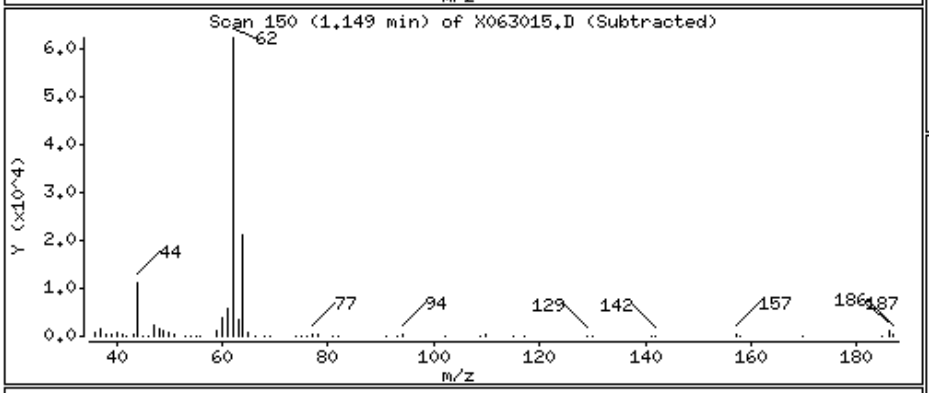
Purge Volume: 5.0 Operator: PC

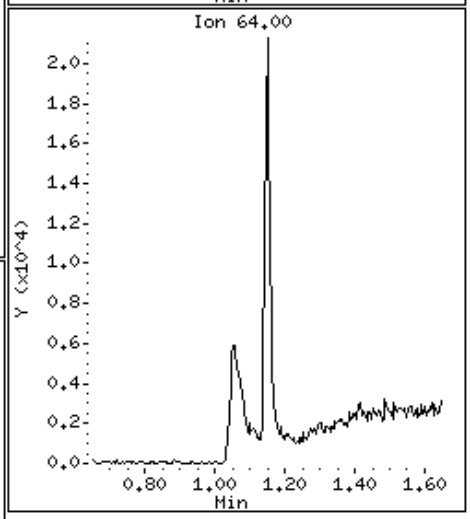
Column phase: DB624 Column diameter: 0.18

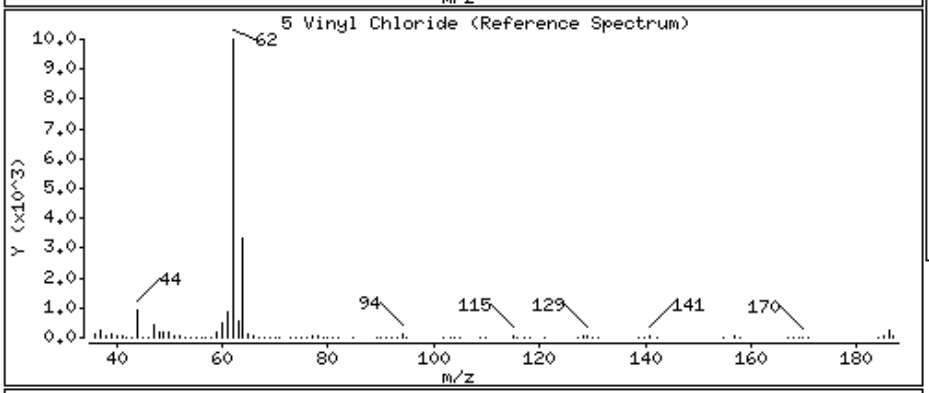
5 Vinyl Chloride Concentration: 44.49 ug/l

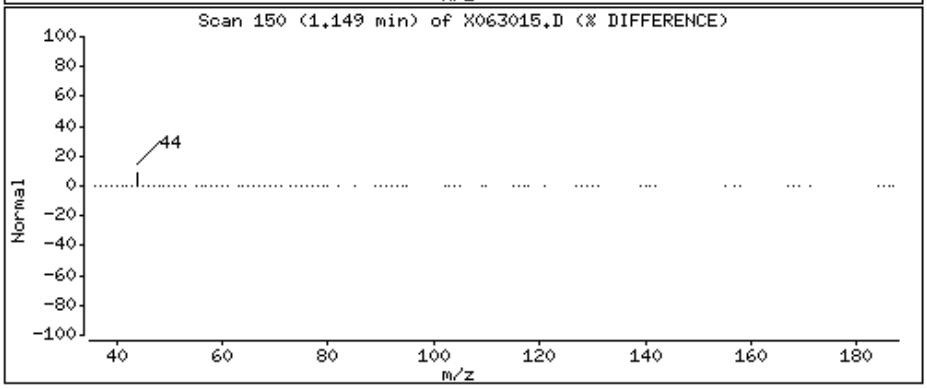












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063015.D
Inj Date : 30-JUN-2022 15:18
InstruID : voa6.i
LabSampID : HS22061313-06

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063016.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063016.D
Lab Smp Id: HS22061313-01 Client Smp ID: HS22061313-01
Inj Date : 30-JUN-2022 15:39
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-01;HS22061313-01;;;
Misc Info : HS22052000V6;WATER;0;10;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 16
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

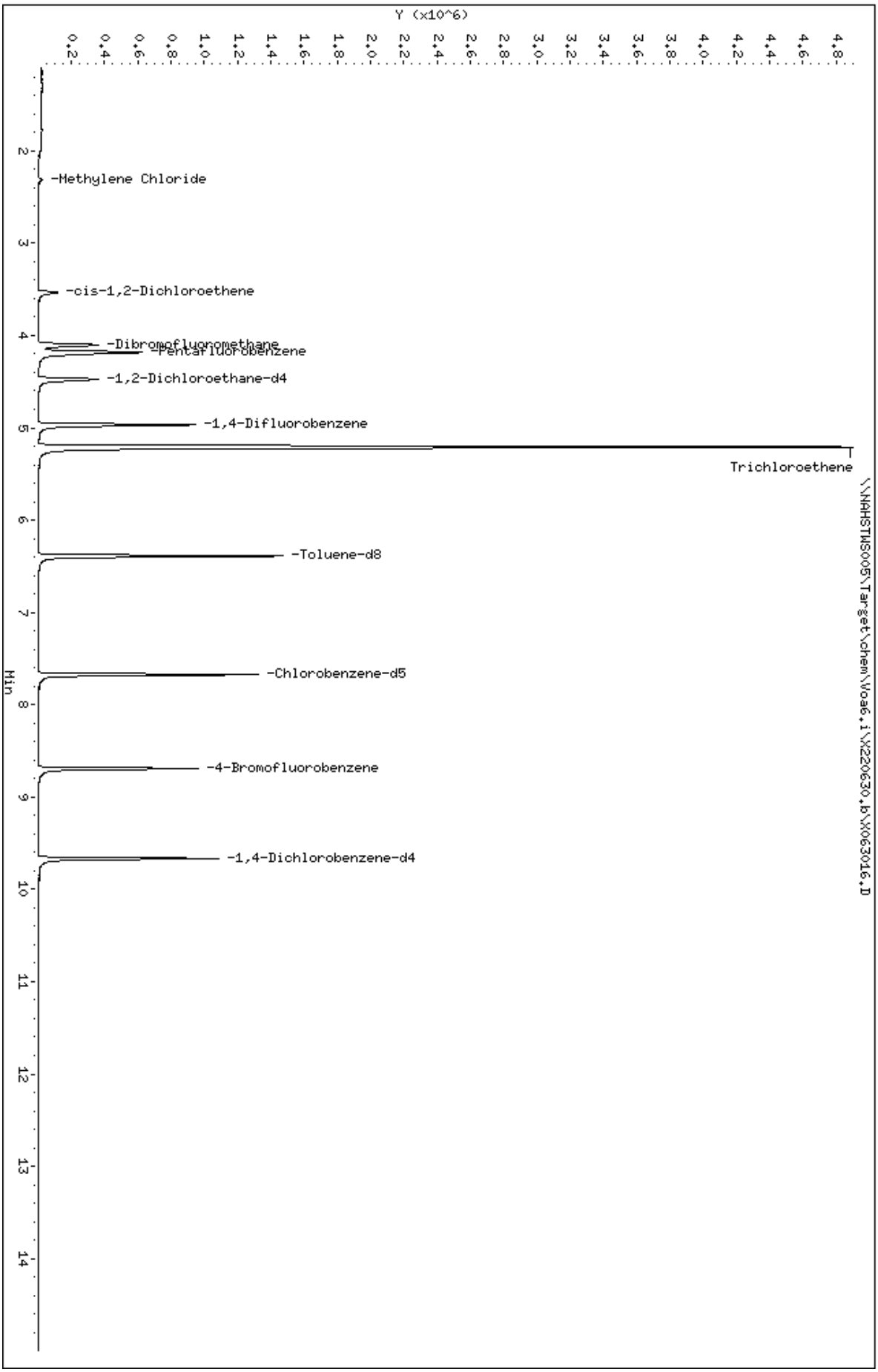
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.185	4.185	(1.000)	538814	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	793306	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	673149	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	284305	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.477	4.474	(1.070)	278383	41.8846	41.88
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	291745	45.9669	45.96
$ 30 Dibromofluoromethane	113	4.102	4.103	(0.980)	251366	44.3761	44.37
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	920532	51.7825	51.78
27 cis-1,2-Dichloroethene	96	3.536	3.529	(0.845)	62042	9.54732	95.47
17 Methylene Chloride	84	2.314	2.307	(0.553)	8743	1.28510	12.85(a)
38 Trichloroethene	130	5.208	5.208	(1.048)	1595747	267.746	2677.45(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\Voa6,i\X220630,b\X063016,D
Date : 30-JUN-2022 15:39
Client ID: HS22061313-01
Sample Info: HS22061313-01;HS22061313-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063016.D Page 2

Date : 30-JUN-2022 15:39

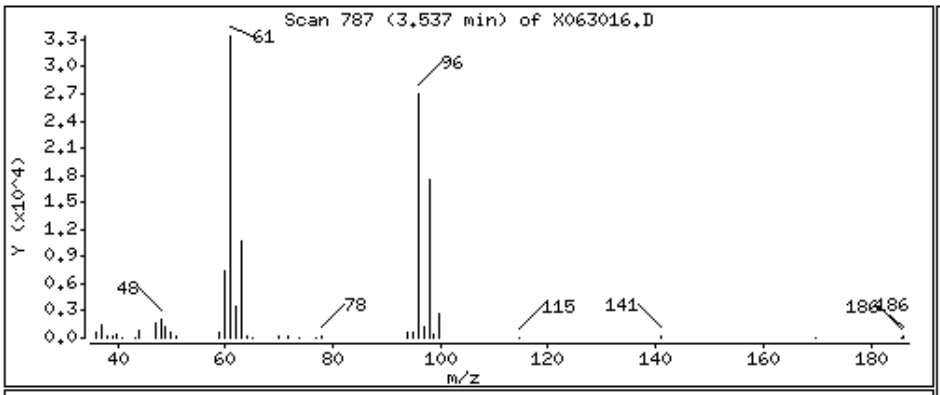
Client ID: HS22061313-01 Instrument: voa6.i

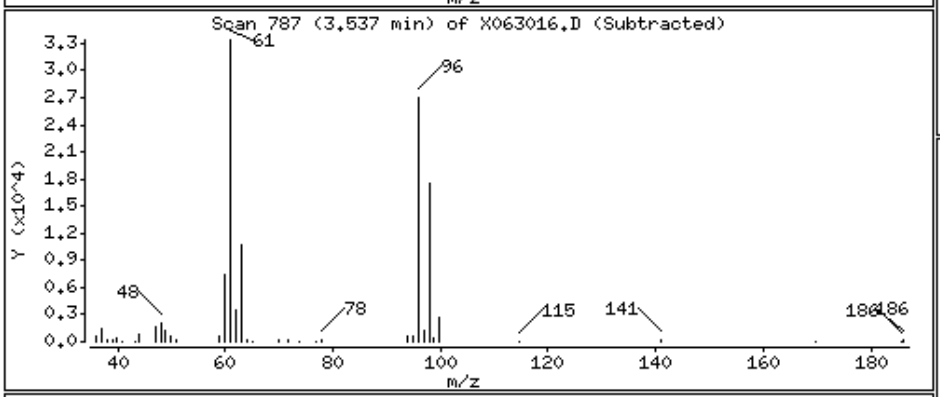
Sample Info: HS22061313-01;HS22061313-01;;;

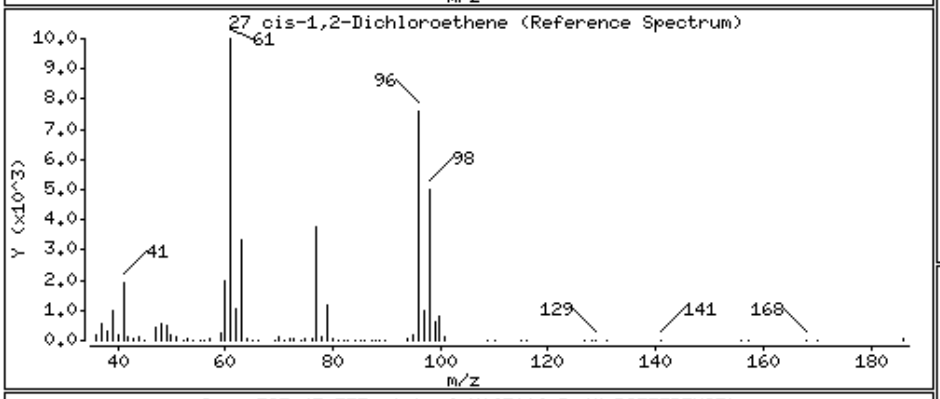
Purge Volume: 5.0 Operator: PC

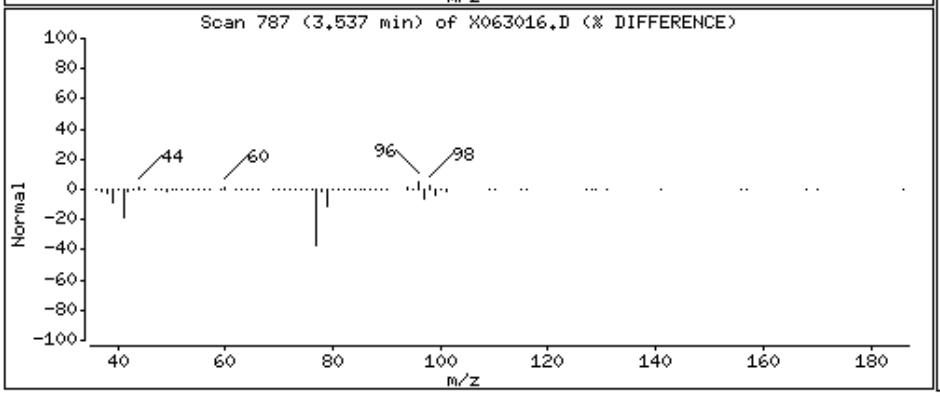
Column phase: DB624 Column diameter: 0.18

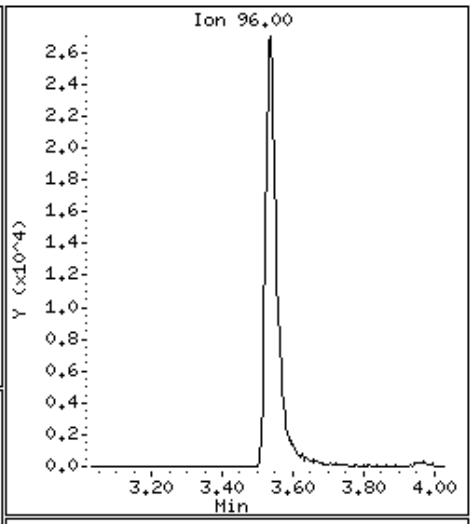
27 cis-1,2-Dichloroethene Concentration: 95.47 ug/l

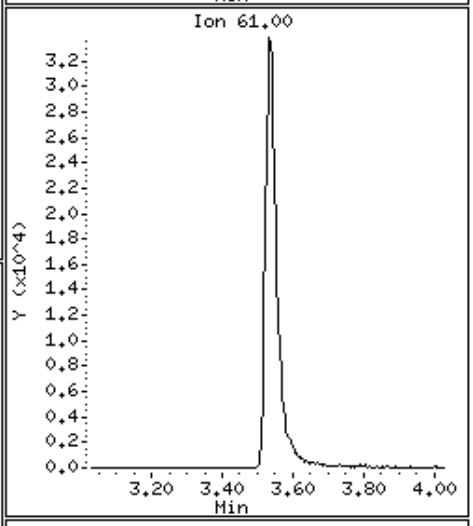


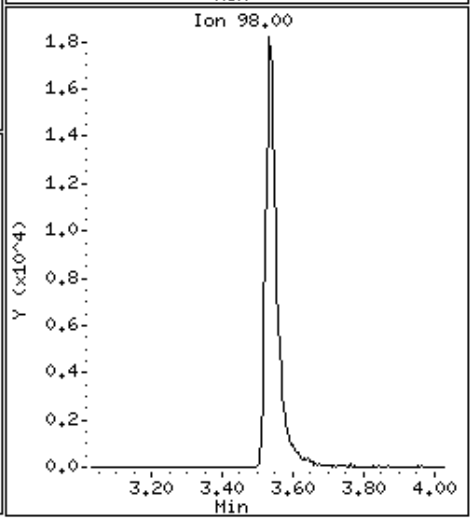












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063016.D Page 3

Date : 30-JUN-2022 15:39

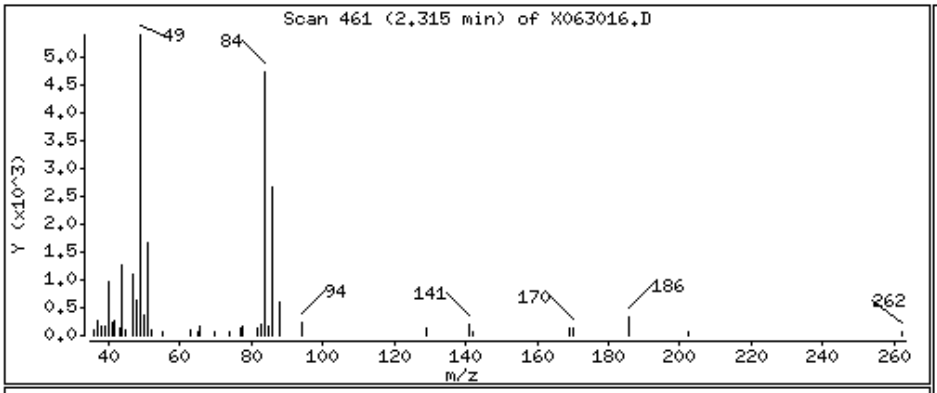
Client ID: HS22061313-01 Instrument: voa6.i

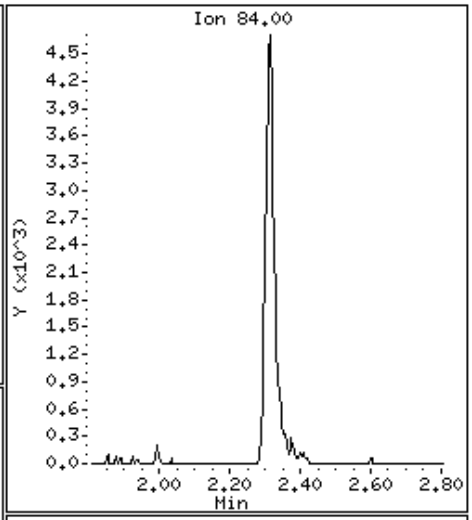
Sample Info: HS22061313-01;HS22061313-01;;;

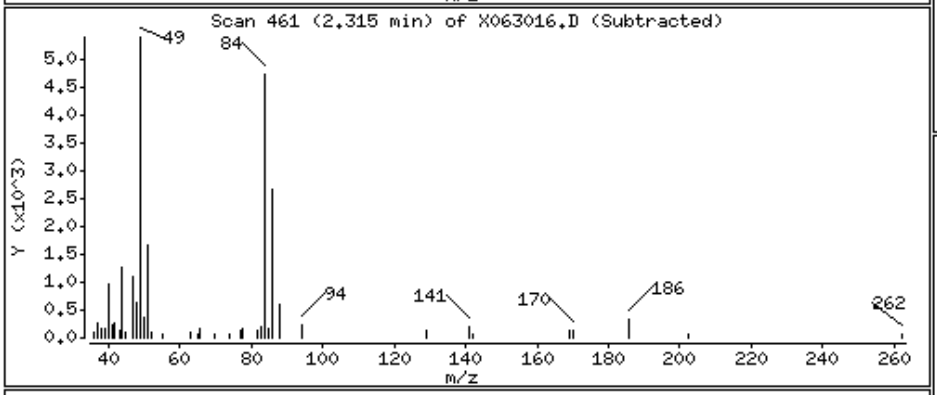
Purge Volume: 5.0 Operator: PC

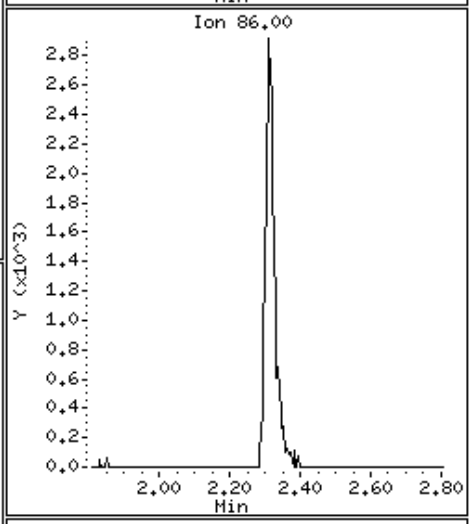
Column phase: DB624 Column diameter: 0.18

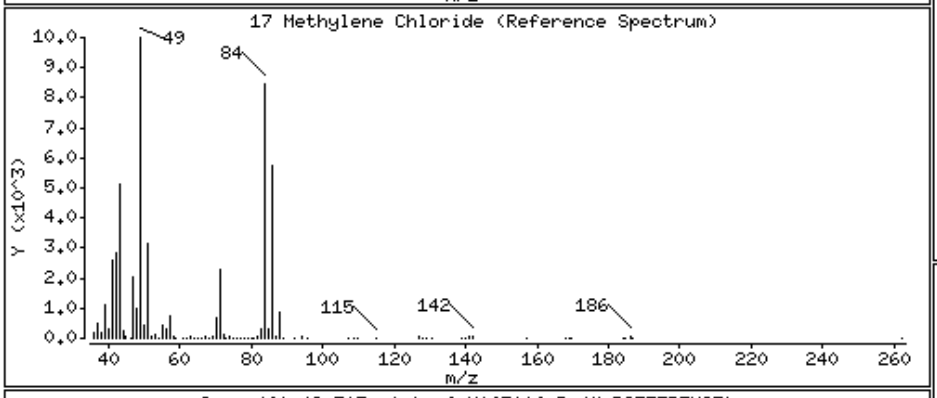
17 Methylene Chloride Concentration: 12.85 ug/l

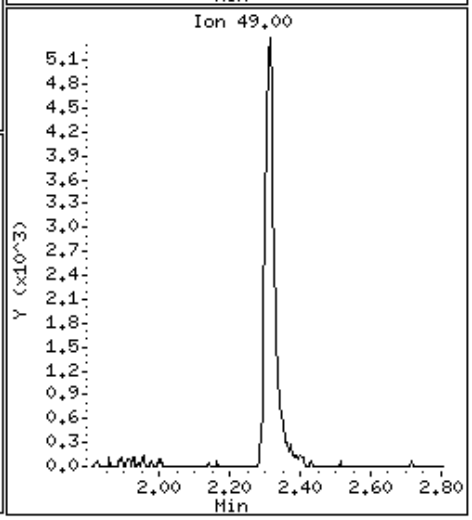


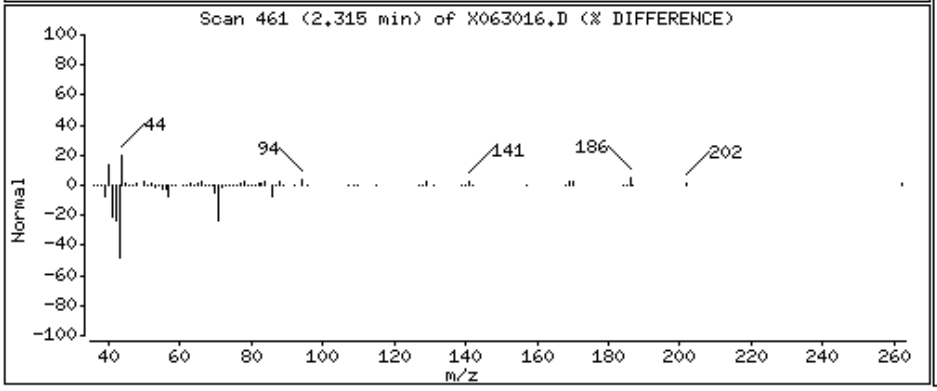












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063016.D Page 4

Date : 30-JUN-2022 15:39

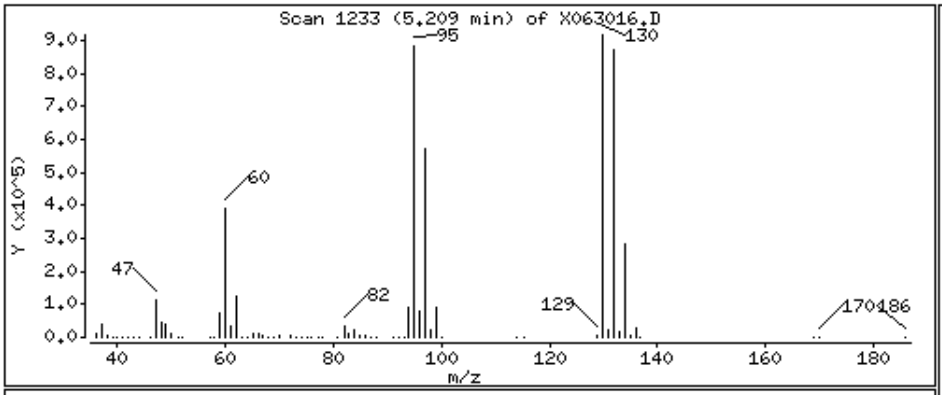
Client ID: HS22061313-01 Instrument: voa6.i

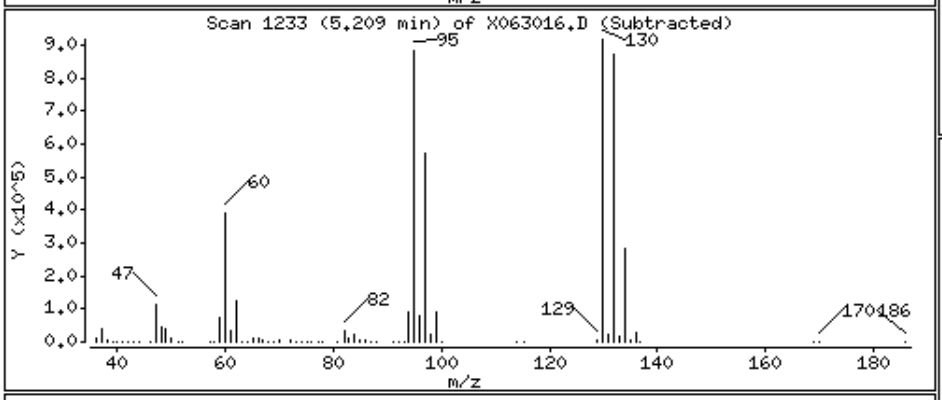
Sample Info: HS22061313-01;HS22061313-01;;;

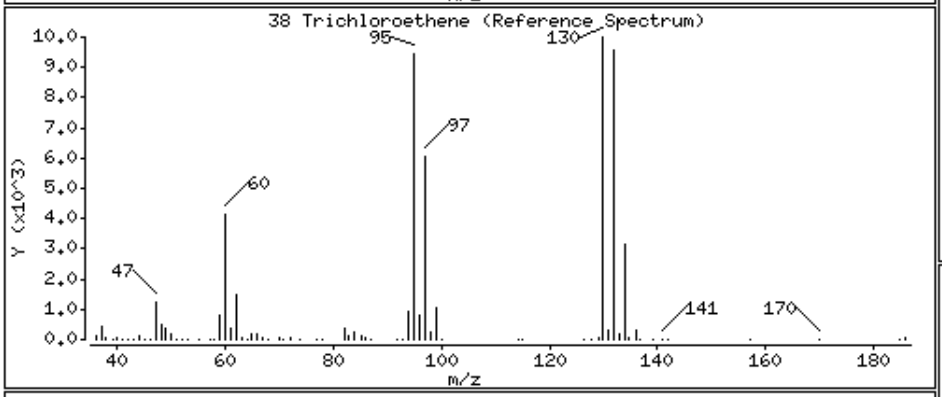
Purge Volume: 5.0 Operator: PC

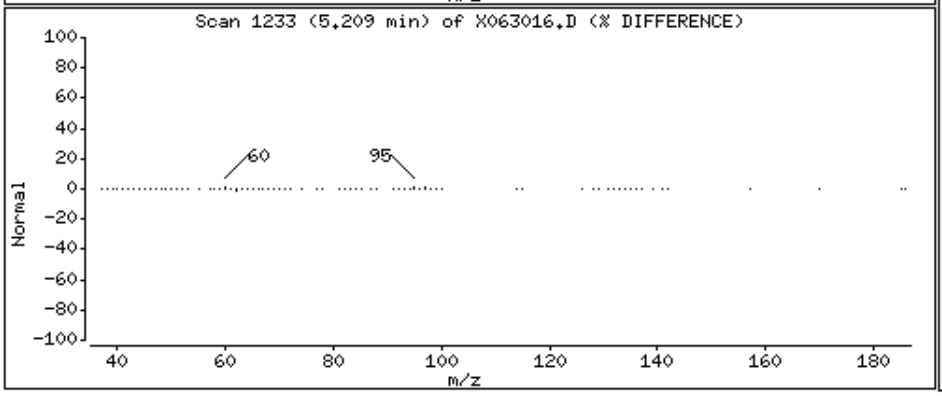
Column phase: DB624 Column diameter: 0.18

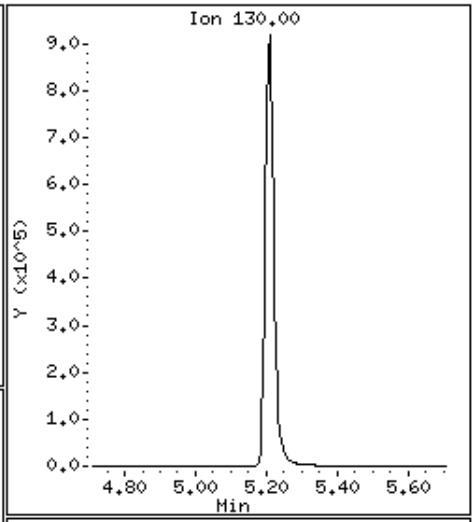
38 Trichloroethene Concentration: 2677.45 ug/l

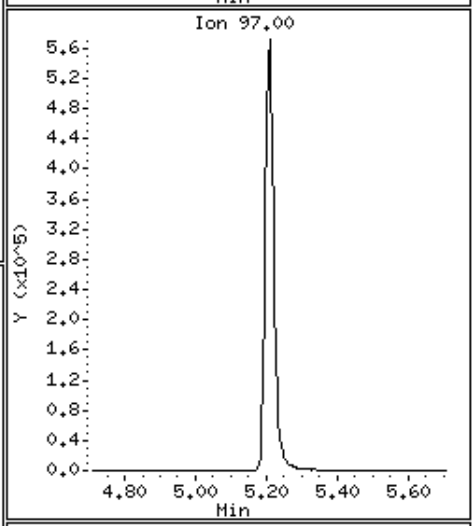


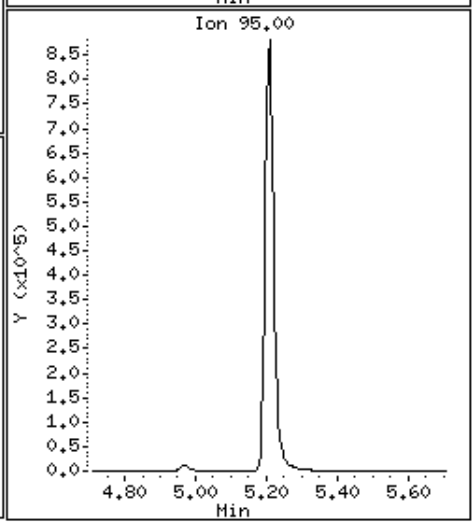












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063016.D
Inj Date : 30-JUN-2022 15:39
InstruID : voa6.i
LabSampID : HS22061313-01

NO MANUAL INTEGRATIONS

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D
Lab Smp Id: HS22061313-07 Client Smp ID: HS22061313-07
Inj Date : 30-JUN-2022 16:00
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-07;HS22061313-07;;;
Misc Info : HS22052000V6;WATER;0;10;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 17
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

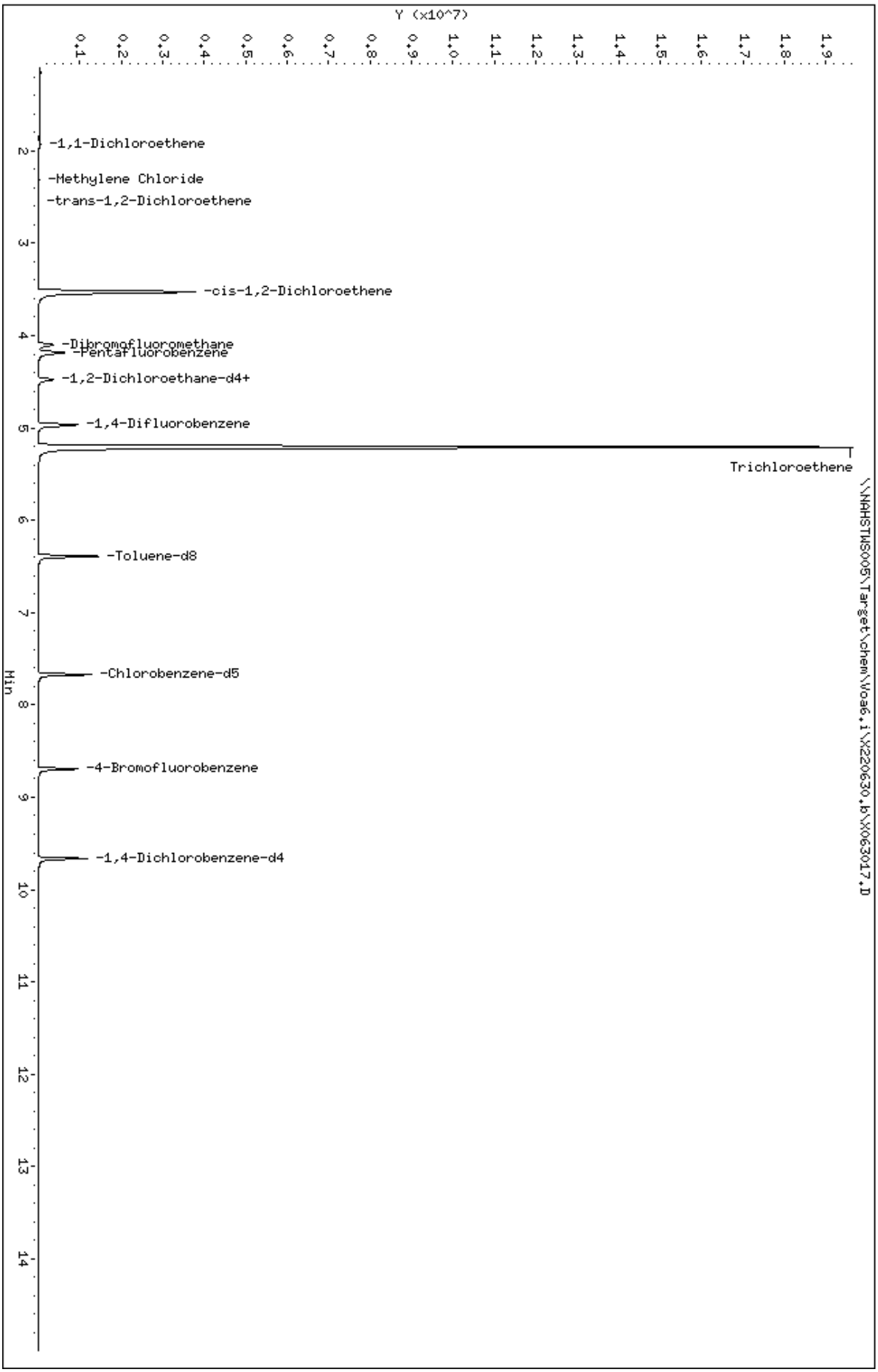
Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.185	4.185	(1.000)	538037	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	783321	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	667540	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	299254	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	282209	42.5267	42.52
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	298948	47.5269	47.52
$ 30 Dibromofluoromethane	113	4.102	4.103	(0.980)	249613	44.1302	44.13
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	905177	51.3466	51.34
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	6491	1.15688	11.56(a)
33 1,2-Dichloroethane	62	4.571	4.560	(0.920)	4748	0.60721	6.07(a)
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	1938000	298.660	2986.59(A)
17 Methylene Chloride	84	2.311	2.307	(0.552)	8428	1.24059	12.40(a)
38 Trichloroethene	130	5.208	5.208	(1.048)	6274304	1066.17	10661.65(A)
5 Vinyl Chloride	62	1.149	1.149	(0.275)	33132	4.36802	43.68(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\Voa6.i\X220630.b\X063017.D
Date : 30-JUN-2022 16:00
Client ID: HS22061313-07
Sample Info: HS22061313-07;HS22061313-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Page 1

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D Page 2

Date : 30-JUN-2022 16:00

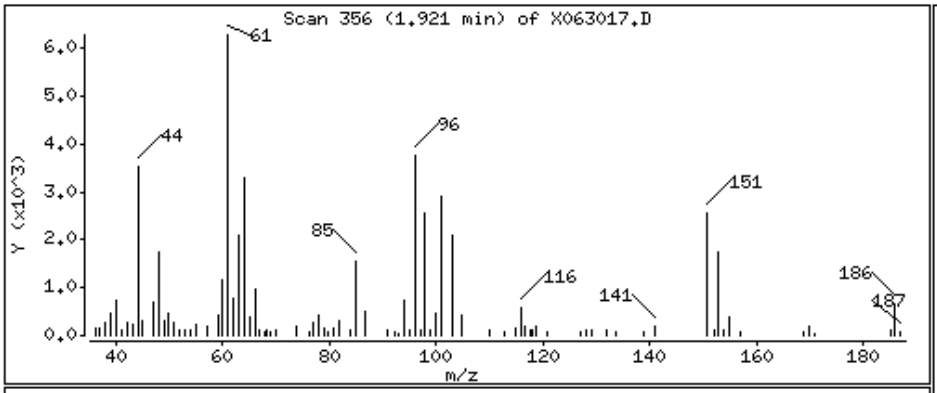
Client ID: HS22061313-07 Instrument: voa6.i

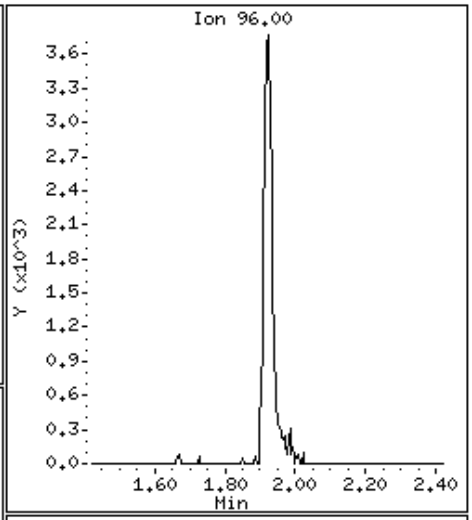
Sample Info: HS22061313-07;HS22061313-07;;;

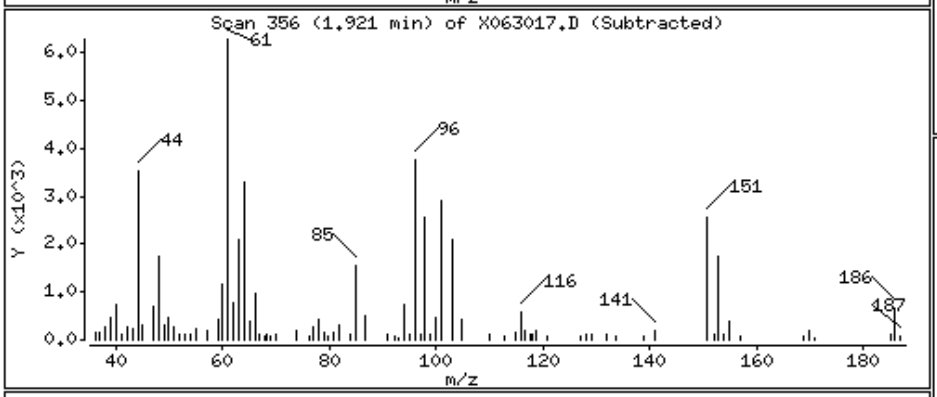
Purge Volume: 5.0 Operator: PC

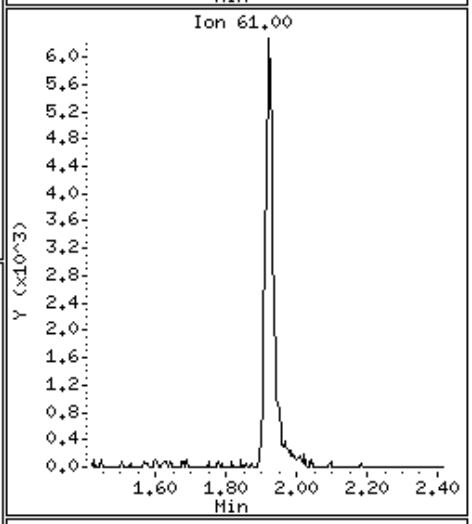
Column phase: DB624 Column diameter: 0.18

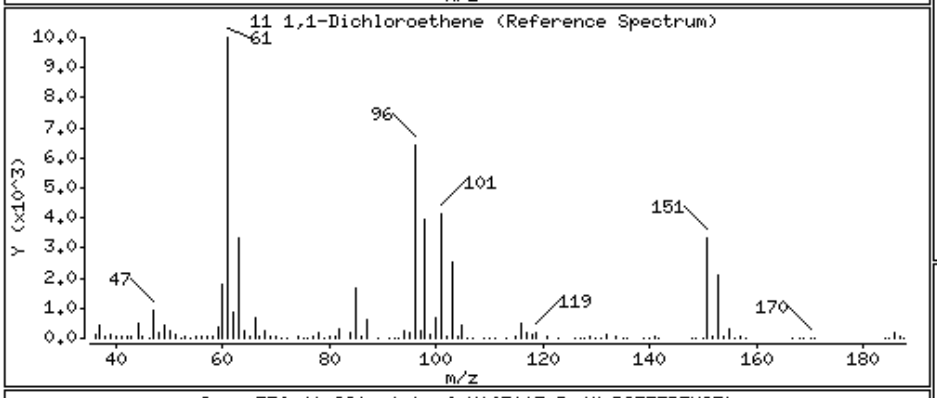
11 1,1-Dichloroethene Concentration: 11.56 ug/l

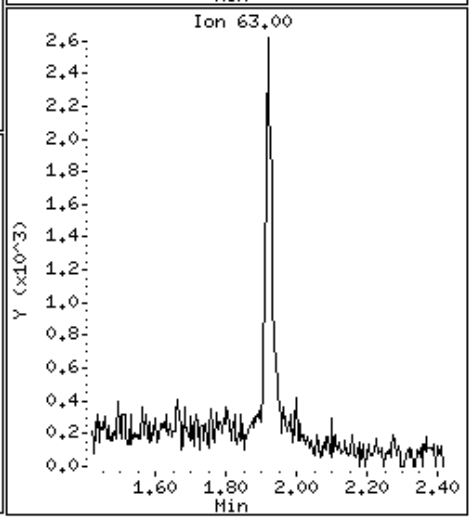


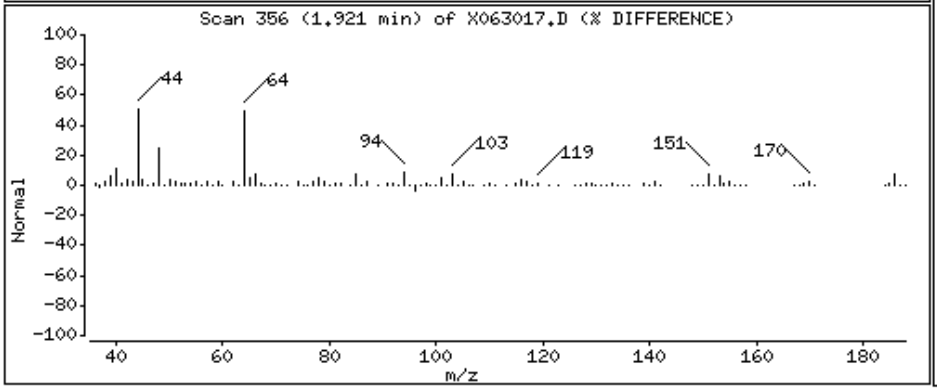












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D

Date : 30-JUN-2022 16:00

Client ID: HS22061313-07

Instrument: voa6.i

Sample Info: HS22061313-07;HS22061313-07;;;

Purge Volume: 5.0

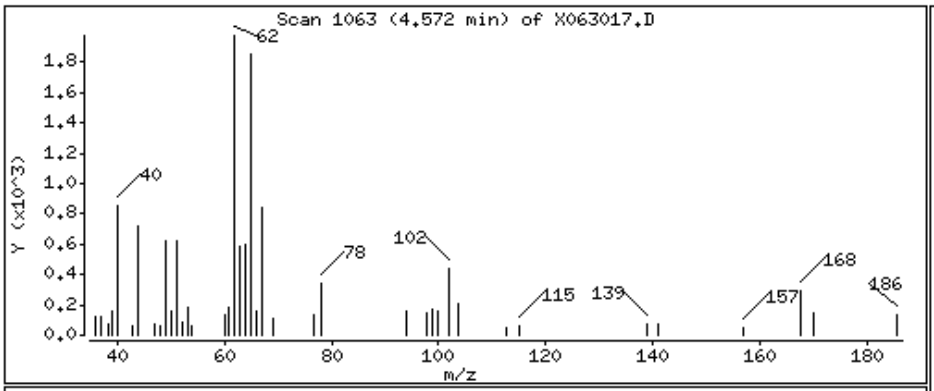
Operator: PC

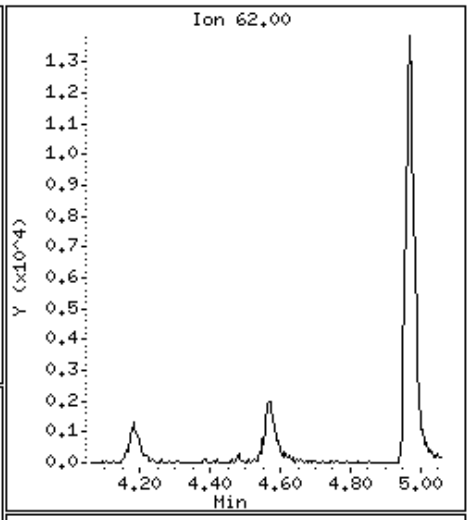
Column phase: DB624

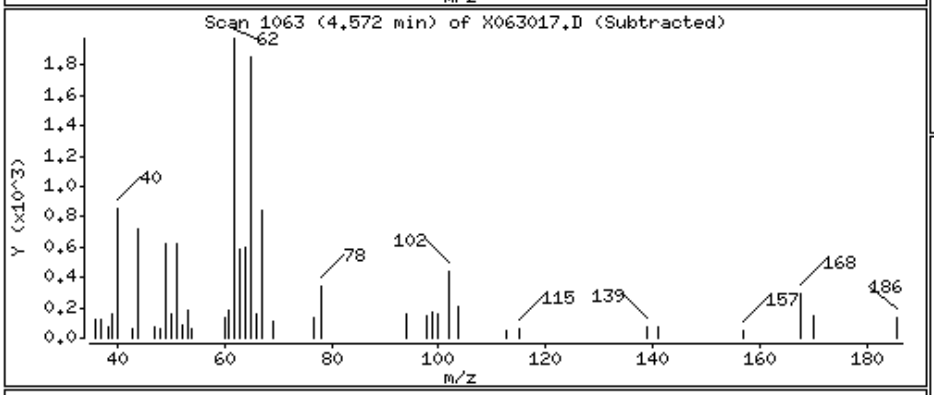
Column diameter: 0.18

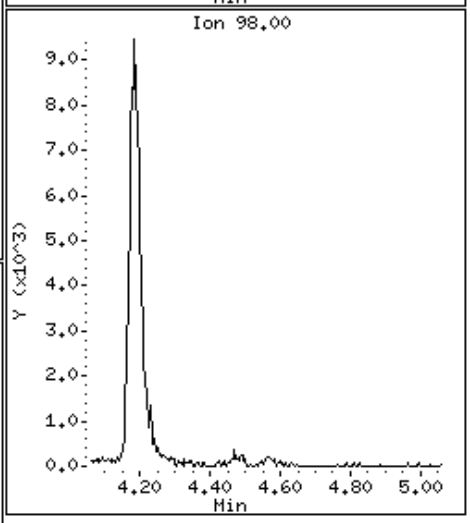
33 1,2-Dichloroethane

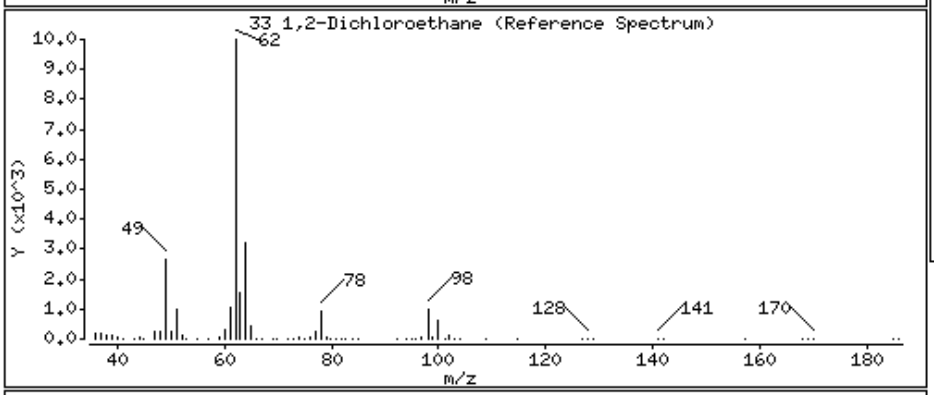
Concentration: 6.07 ug/l

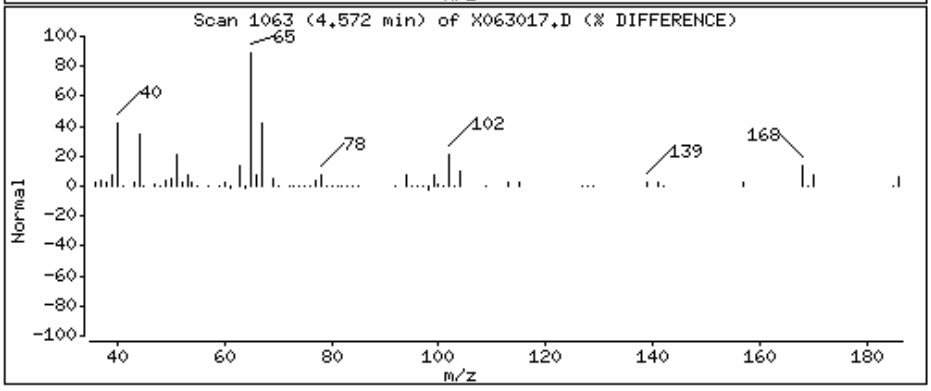












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D Page 4

Date : 30-JUN-2022 16:00

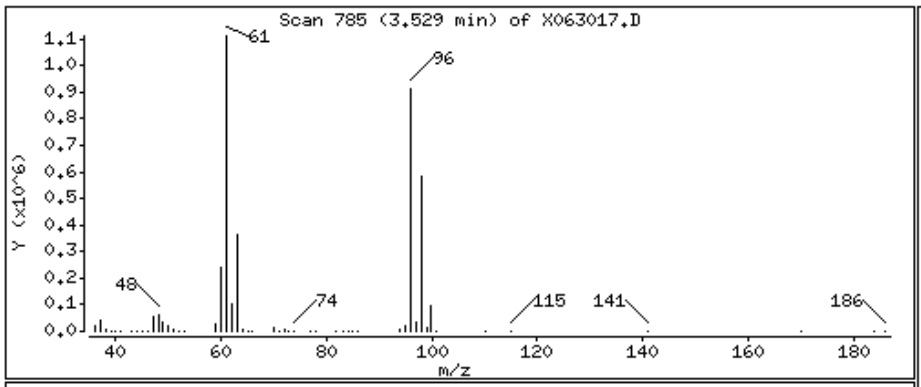
Client ID: HS22061313-07 Instrument: voa6.i

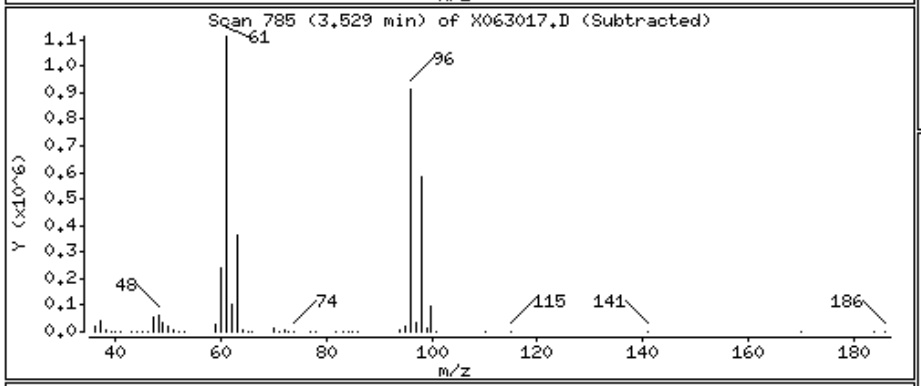
Sample Info: HS22061313-07;HS22061313-07;;;

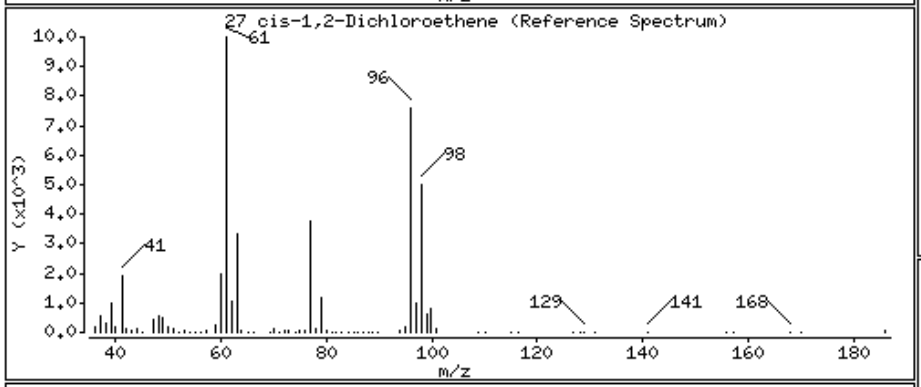
Purge Volume: 5.0 Operator: PC

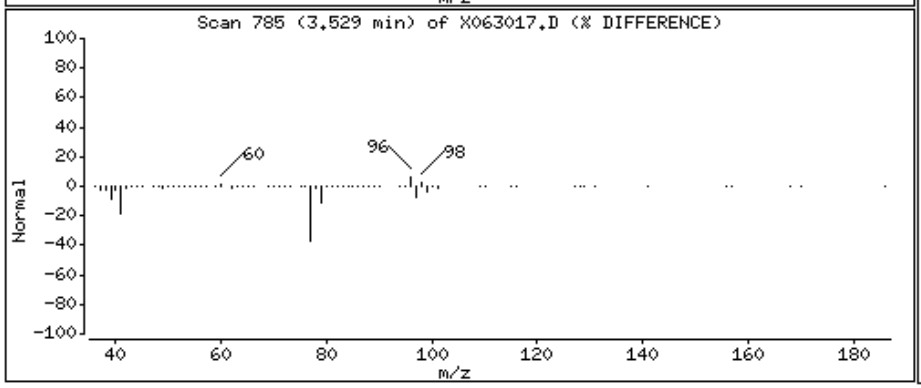
Column phase: DB624 Column diameter: 0.18

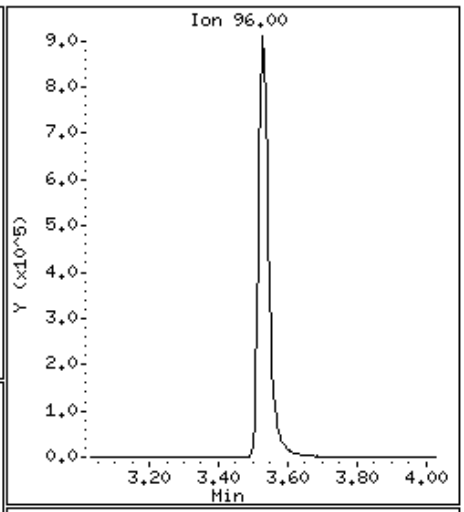
27 cis-1,2-Dichloroethene Concentration: 2986.59 ug/l

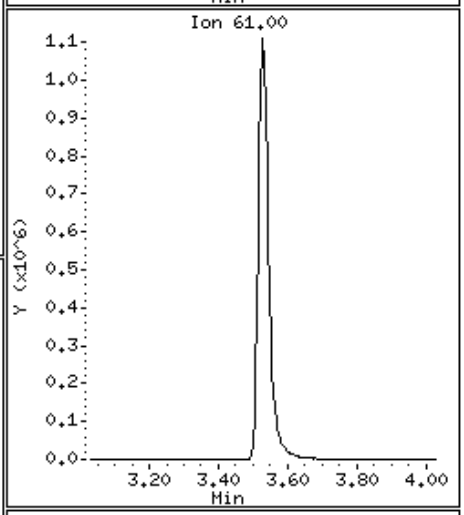


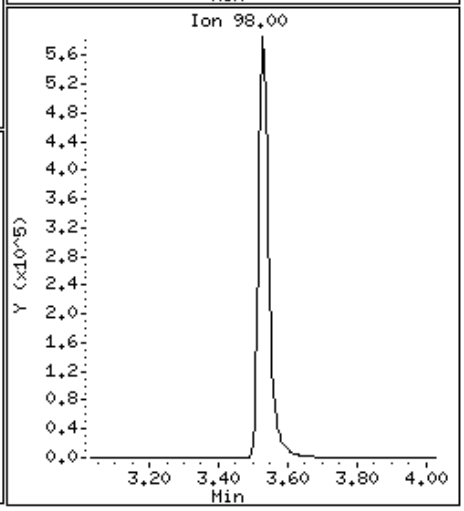












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D Page 5

Date : 30-JUN-2022 16:00

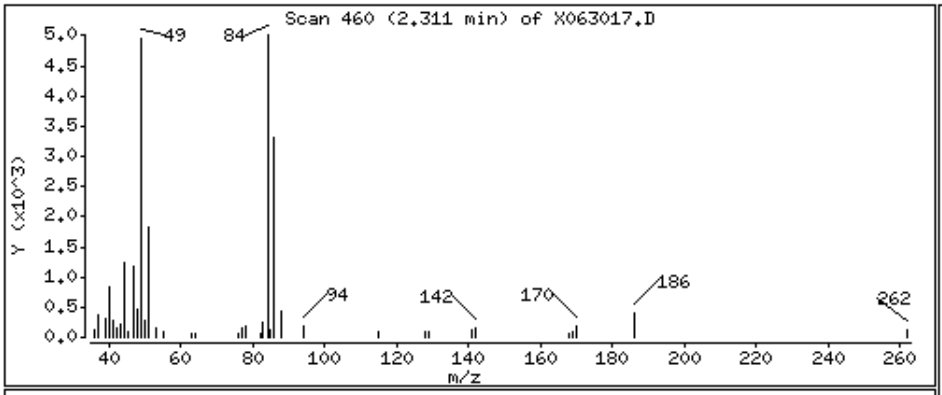
Client ID: HS22061313-07 Instrument: voa6.i

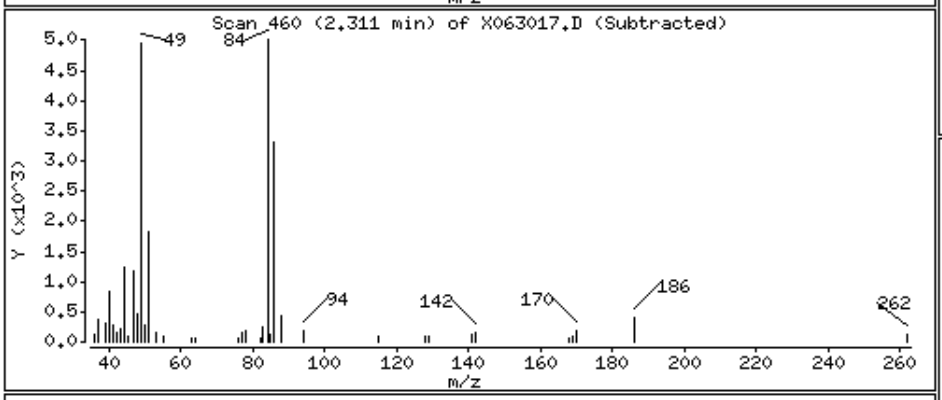
Sample Info: HS22061313-07;HS22061313-07;;;

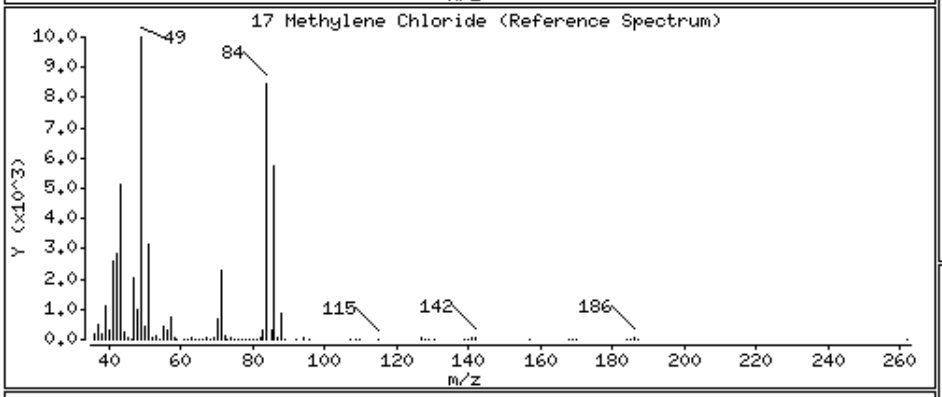
Purge Volume: 5.0 Operator: PC

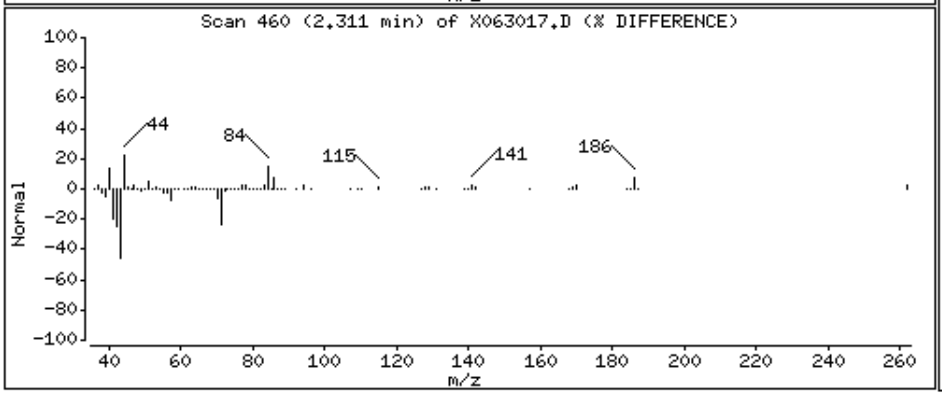
Column phase: DB624 Column diameter: 0.18

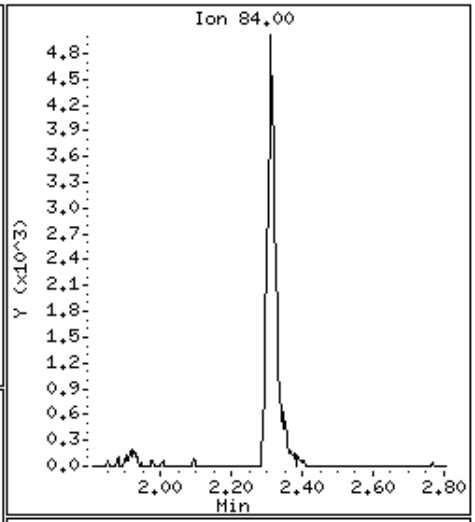
17 Methylene Chloride Concentration: 12.40 ug/l

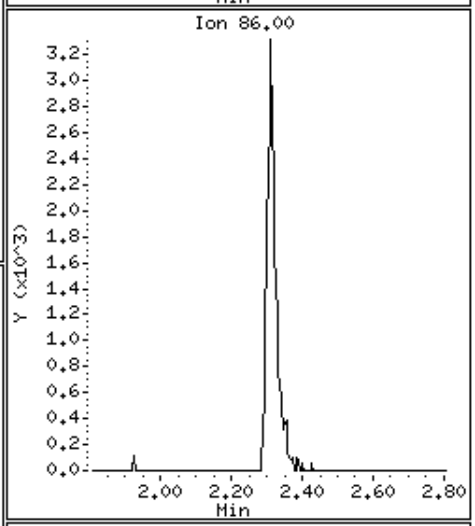


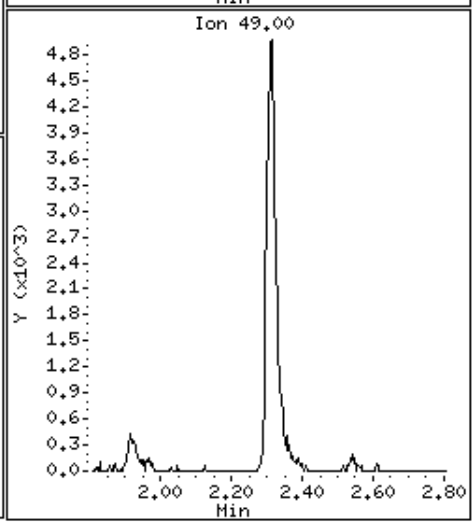












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D Page 6

Date : 30-JUN-2022 16:00

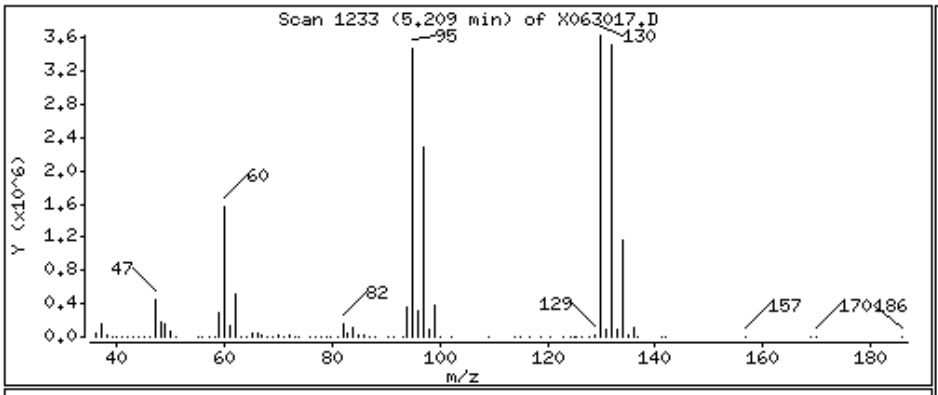
Client ID: HS22061313-07 Instrument: voa6.i

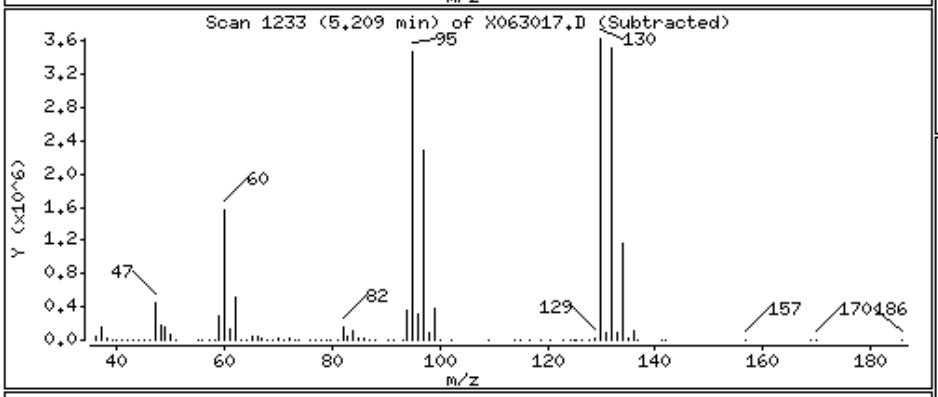
Sample Info: HS22061313-07;HS22061313-07;;;

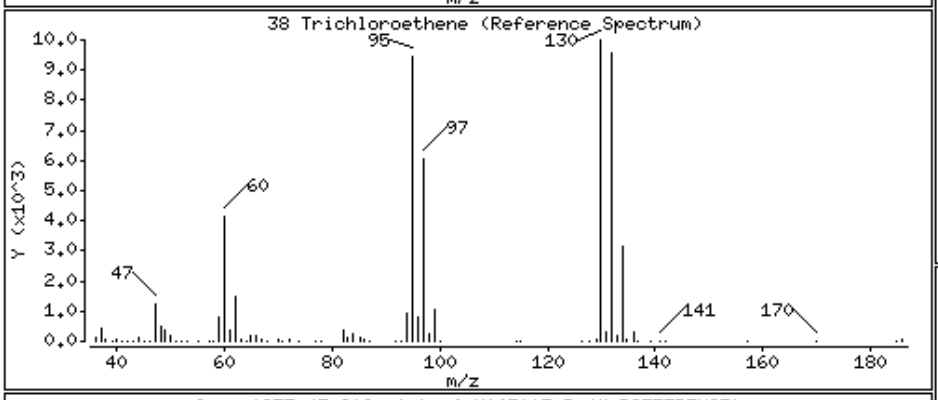
Purge Volume: 5.0 Operator: PC

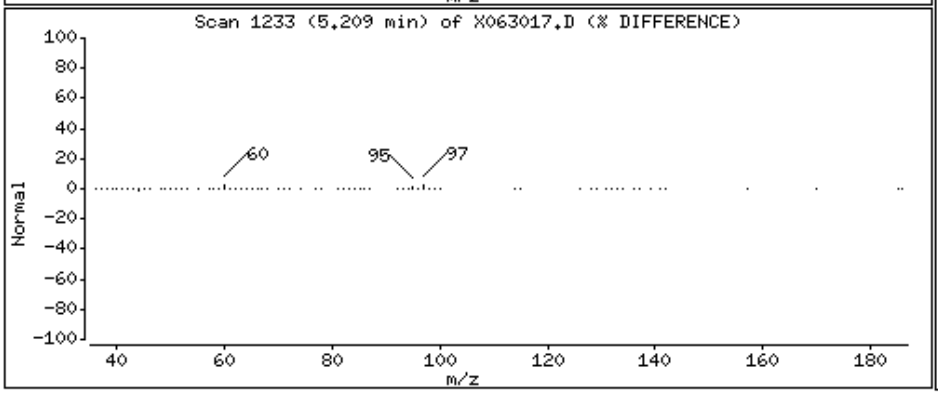
Column phase: DB624 Column diameter: 0.18

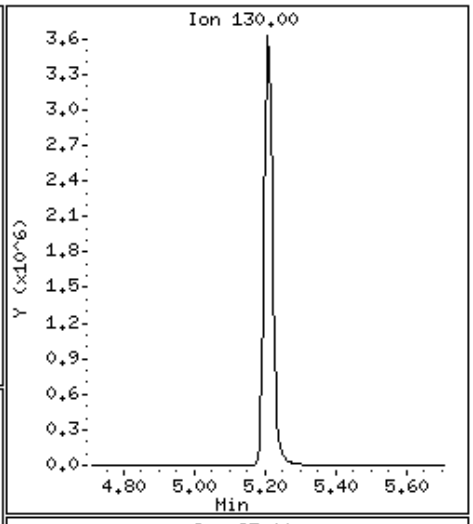
38 Trichloroethene Concentration: 10661.65 ug/l

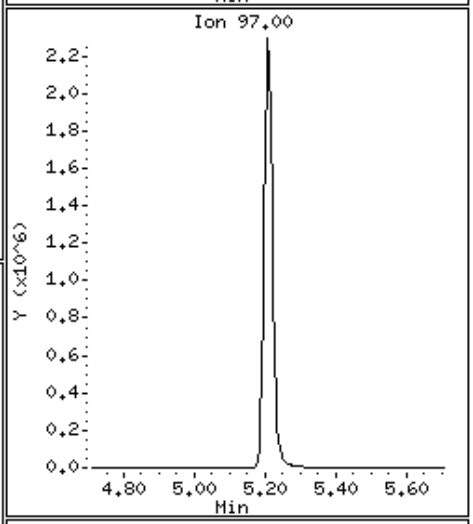


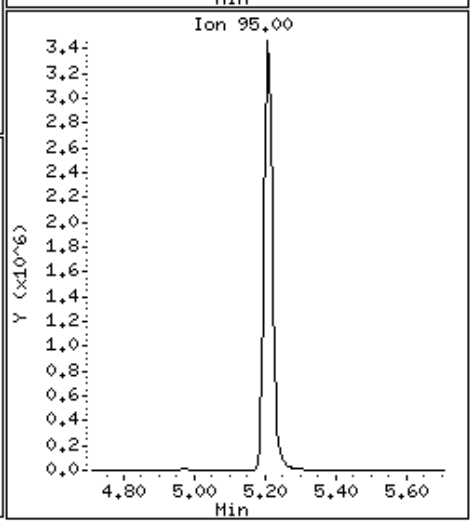












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D Page 7

Date : 30-JUN-2022 16:00

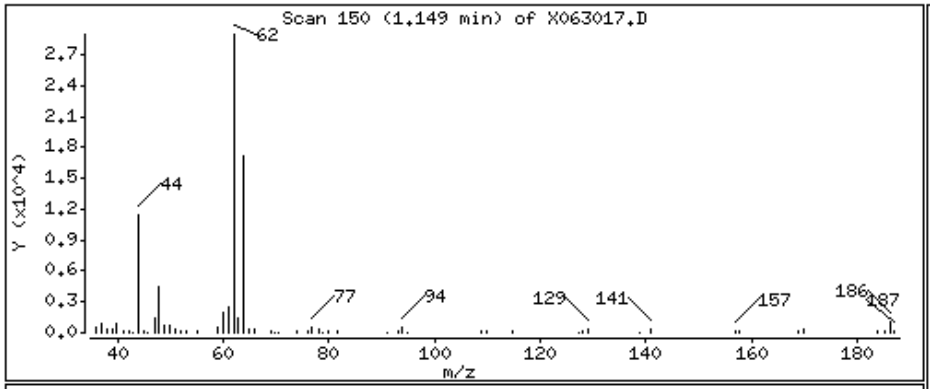
Client ID: HS22061313-07 Instrument: voa6.i

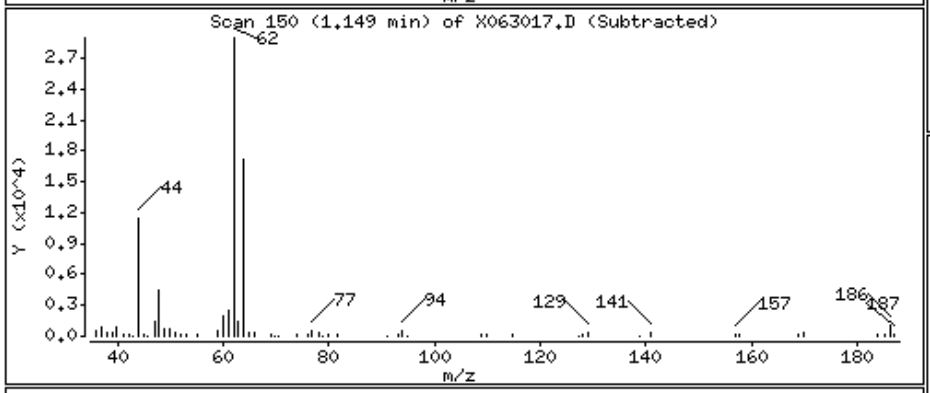
Sample Info: HS22061313-07;HS22061313-07;;;

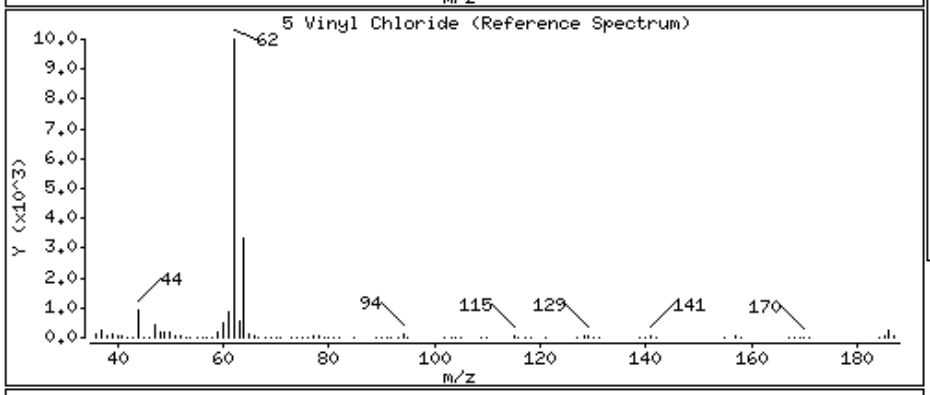
Purge Volume: 5.0 Operator: PC

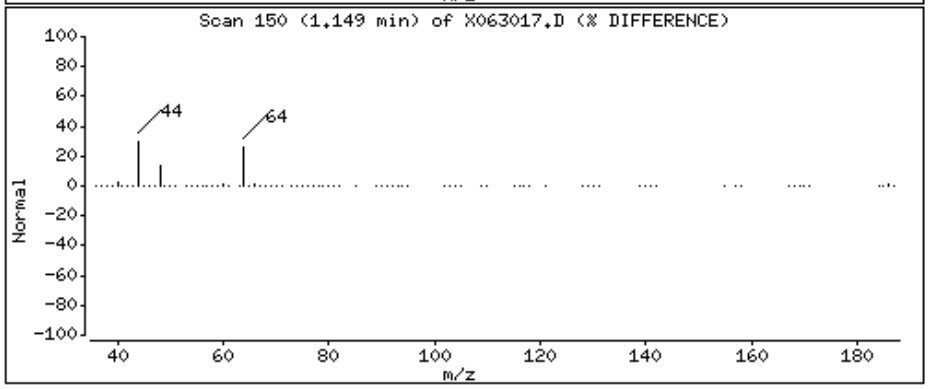
Column phase: DB624 Column diameter: 0.18

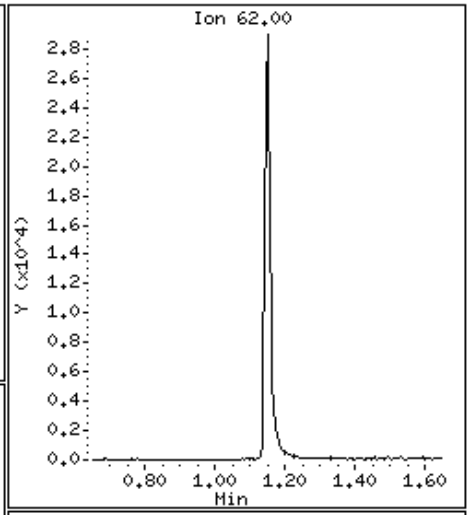
5 Vinyl Chloride Concentration: 43.68 ug/l

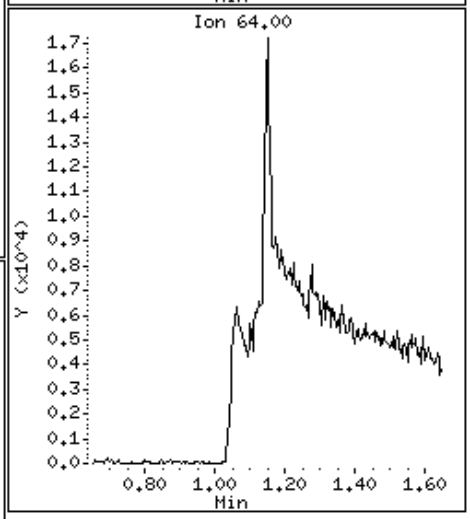












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063017.D
Inj Date : 30-JUN-2022 16:00
InstruID : voa6.i
LabSampID : HS22061313-07

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063018.D Page 1
Report Date: 15-Jul-2022 13:54

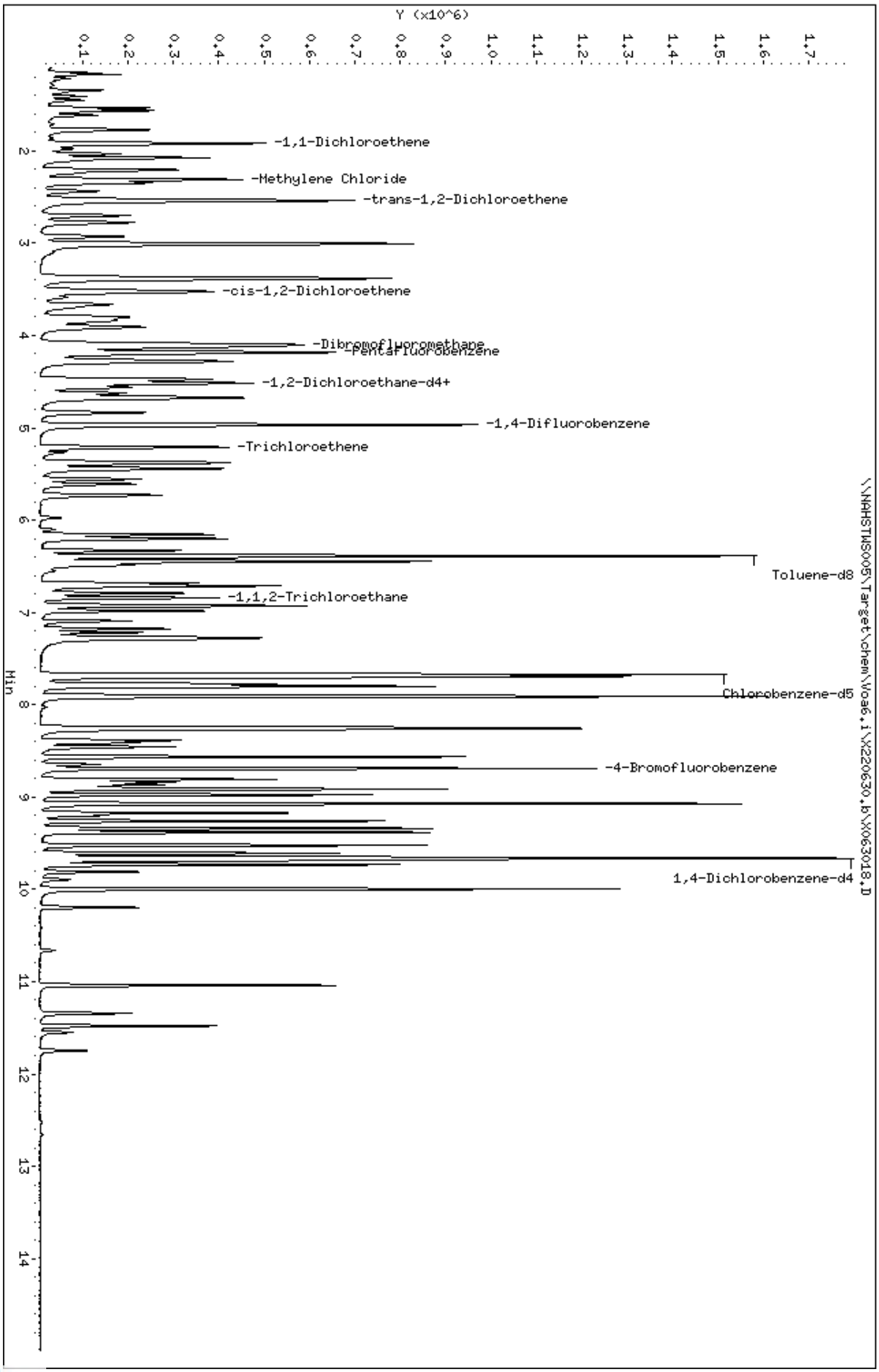
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063018.D
Lab Smp Id: HS22061605-02MS Client Smp ID: HS22061605-02MS
Inj Date : 30-JUN-2022 16:21
Operator : PC Inst ID: voa6.i
Smp Info : HS22061605-02MS;HS22061605-02MS;3;;MS
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 18 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	554187	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	797230	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	700109	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	330506	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	289699	42.3820	42.38
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	318027	48.2207	48.22
$ 30 Dibromofluoromethane	113	4.102	4.103	(0.980)	257081	44.1259	44.12
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	943680	51.0404	51.04
53 1,1,2-Trichloroethane	83	6.843	6.839	(0.892)	86455	19.9710	19.97
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	86789	15.0175	15.01
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	155925	19.5930	19.59
27 cis-1,2-Dichloroethene	96	3.529	3.529	(0.843)	126236	18.8869	18.88
17 Methylene Chloride	84	2.307	2.307	(0.551)	109243	15.6118	15.61
38 Trichloroethene	130	5.208	5.208	(1.048)	140158	23.4009	23.40
5 Vinyl Chloride	62	1.149	1.149	(0.275)	55177	7.06238	7.06



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220630.b\X063018.D
Date : 30-JUN-2022 16:21
Client ID: HS22061605-02MS
Sample Info: HS22061605-02MS;HS22061605-02MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063018.D
Inj Date : 30-JUN-2022 16:21
InstruID : voa6.i
LabSampID : HS22061605-02MS

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063019.D Page 1
Report Date: 15-Jul-2022 13:54

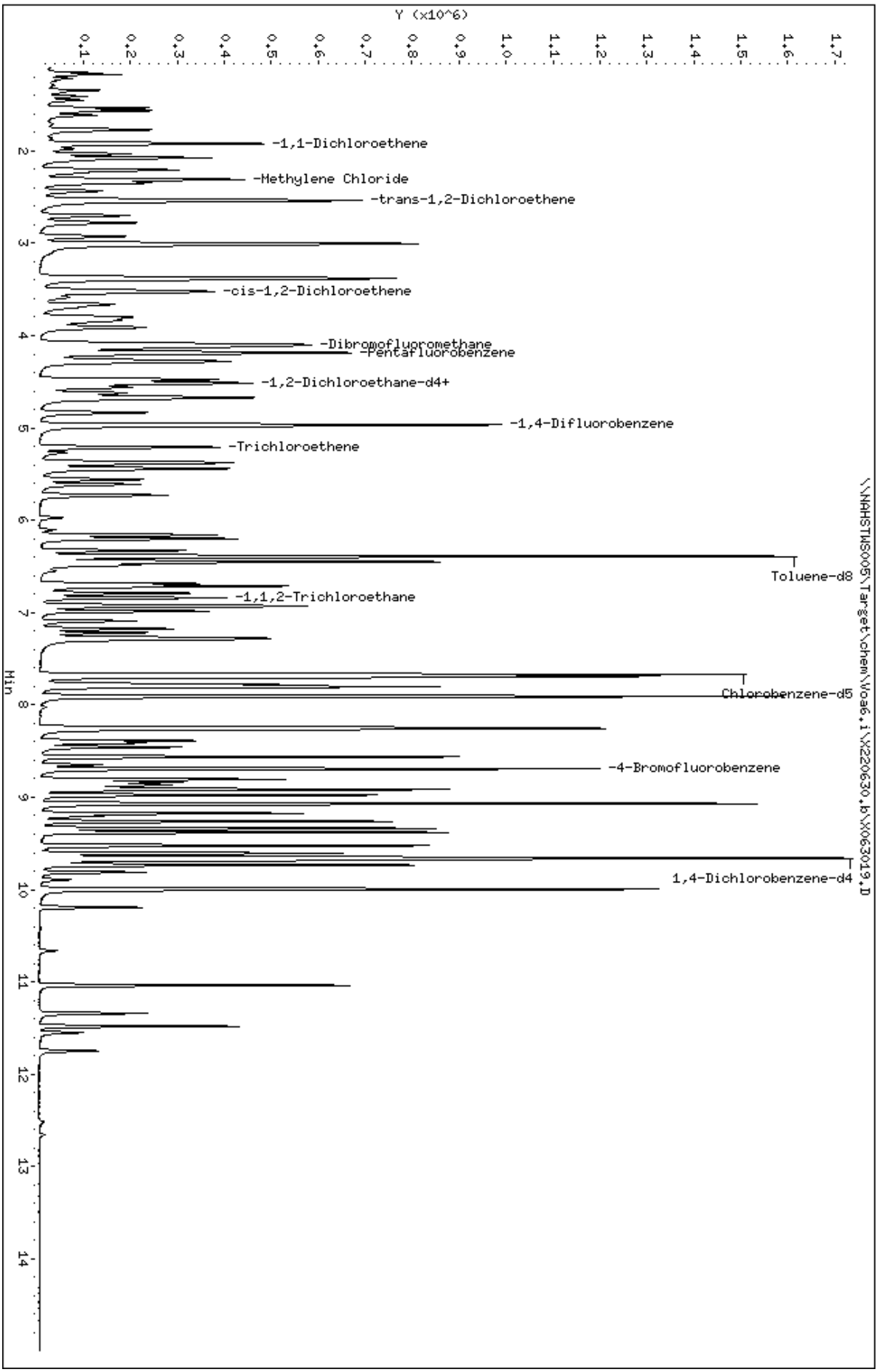
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063019.D
Lab Smp Id: HS22061605-02MSD Client Smp ID: HS22061605-02MSD
Inj Date : 30-JUN-2022 16:42
Operator : PC Inst ID: voa6.i
Smp Info : HS22061605-02MSD;HS22061605-02MSD;3;;MSD
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 18 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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	4.185	4.185	(1.000)	558427	50.0000	
* 36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	813172	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	712430	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.665	9.666	(1.000)	326188	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	286217	41.5481	41.54
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	320546	47.7537	47.75
$ 30 Dibromofluoromethane	113	4.099	4.103	(0.979)	261072	44.4709	44.47
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	951977	50.5987	50.59
53 1,1,2-Trichloroethane	83	6.843	6.839	(0.892)	87721	19.9130	19.91
11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	82835	14.2245	14.22
33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	153458	18.9050	18.90
27 cis-1,2-Dichloroethene	96	3.533	3.529	(0.844)	121662	18.0644	18.06
17 Methylene Chloride	84	2.307	2.307	(0.551)	108226	15.3491	15.34
38 Trichloroethene	130	5.208	5.208	(1.048)	129176	21.1445	21.14
5 Vinyl Chloride	62	1.148	1.149	(0.275)	53283	6.76818	6.76



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063019.D
Date : 30-JUN-2022 16:42
Client ID: HS22061605-02HSD
Sample Info: HS22061605-02HSD;HS22061605-02HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Page 1

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063019.D
Inj Date : 30-JUN-2022 16:42
InstruID : voa6.i
LabSampID : HS22061605-02MSD

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D
Lab Smp Id: HS22061313-06 Client Smp ID: HS22061313-06
Inj Date : 30-JUN-2022 17:03
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-06;HS22061313-06;;;
Misc Info : HS22052000V6;WATER;0;50;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 19
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

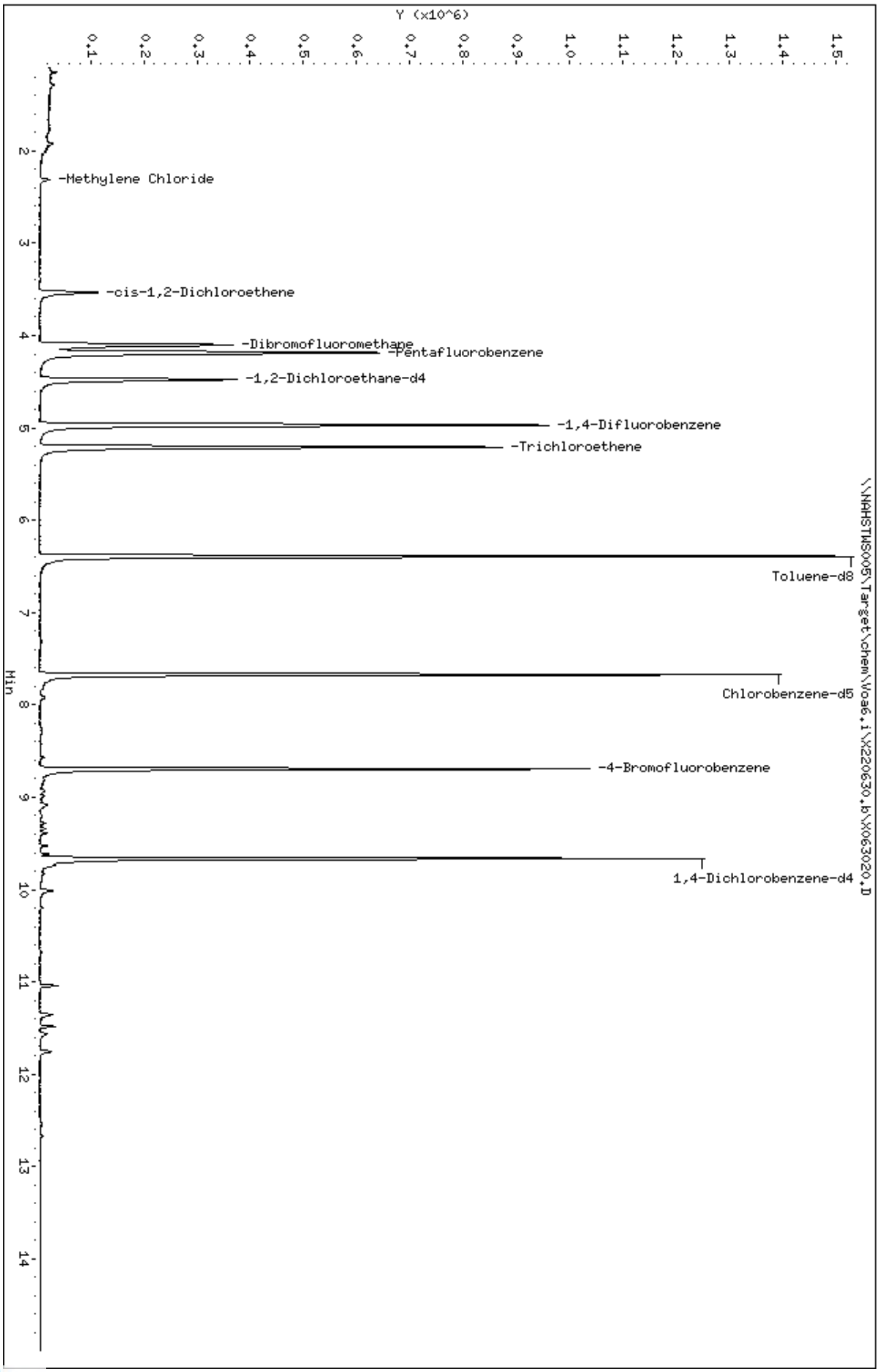
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	50.000	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	4.185	4.185	(1.000)	554966	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	805046	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	704658	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	313982	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	281752	41.1519	41.15
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	313831	47.2600	47.26
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	255643	43.8174	43.81
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	946831	50.8803	50.88
27 cis-1,2-Dichloroethene	96	3.537	3.529	(0.845)	60905	9.09958	454.97
17 Methylene Chloride	84	2.311	2.307	(0.552)	8147	1.16265	58.13(a)
38 Trichloroethene	130	5.208	5.208	(1.048)	292114	48.2982	2414.90
5 Vinyl Chloride	62	1.149	1.149	(0.275)	7117	0.90966	45.48(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa6.i\X220630.b\X063020.D
Date : 30-JUN-2022 17:03
Client ID: HS22061313-06
Sample Info: HS22061313-06;HS22061313-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D Page 2

Date : 30-JUN-2022 17:03

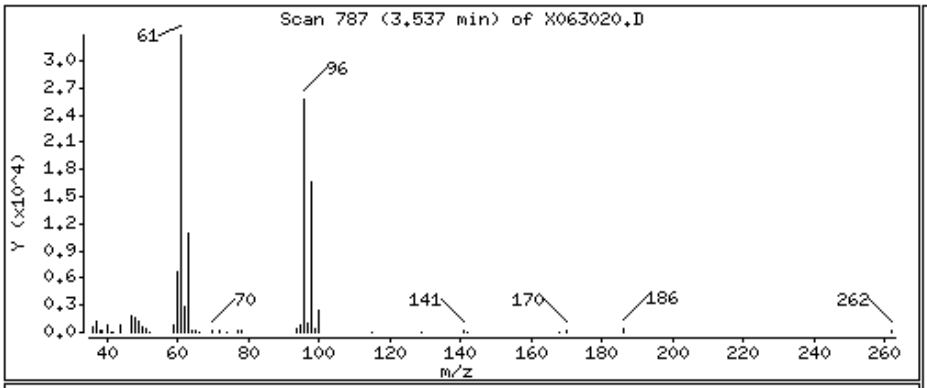
Client ID: HS22061313-06 Instrument: voa6.i

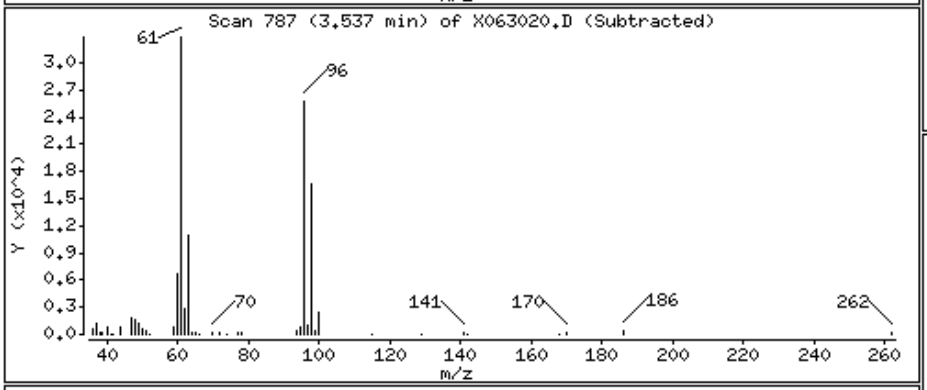
Sample Info: HS22061313-06;HS22061313-06;;;

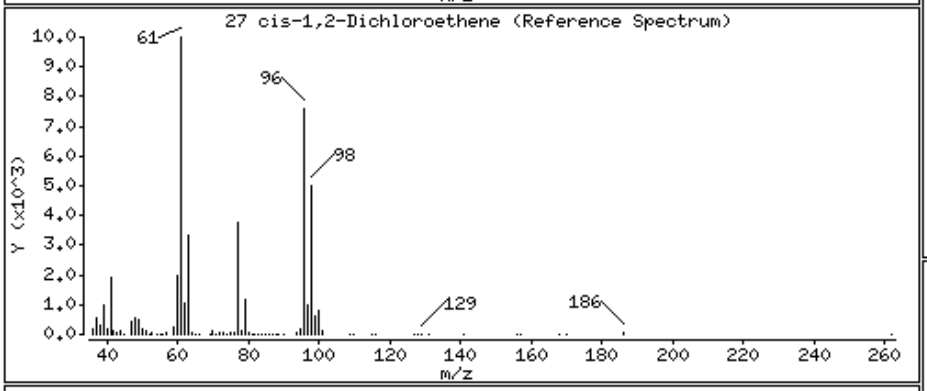
Purge Volume: 5.0 Operator: PC

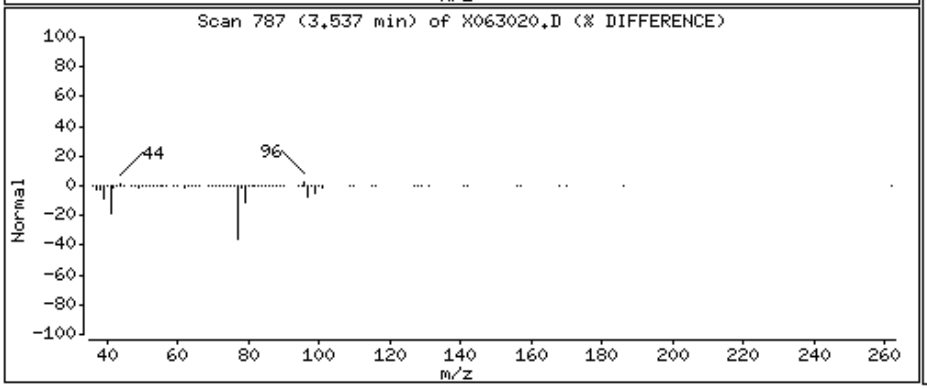
Column phase: DB624 Column diameter: 0.18

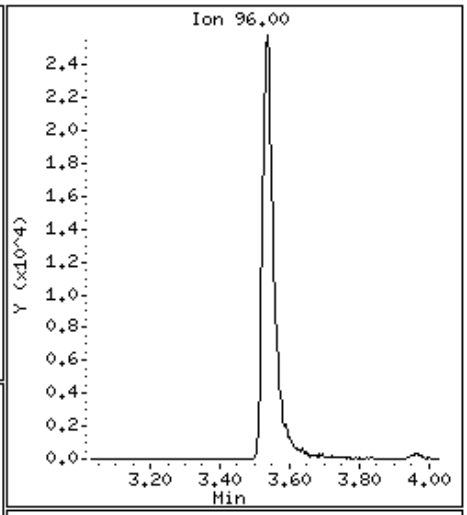
27 cis-1,2-Dichloroethene Concentration: 454.97 ug/l

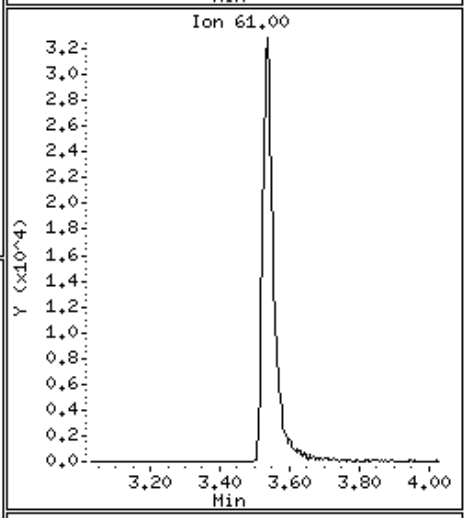


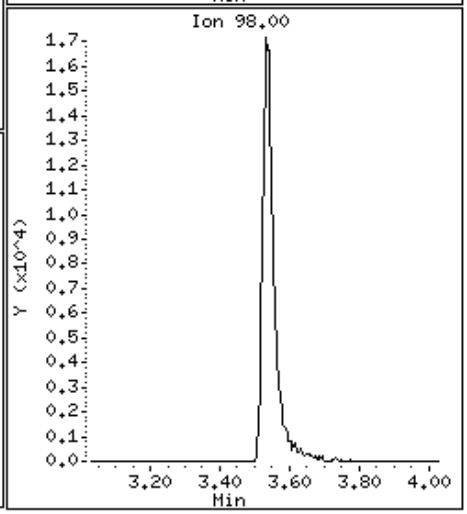












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D Page 3

Date : 30-JUN-2022 17:03

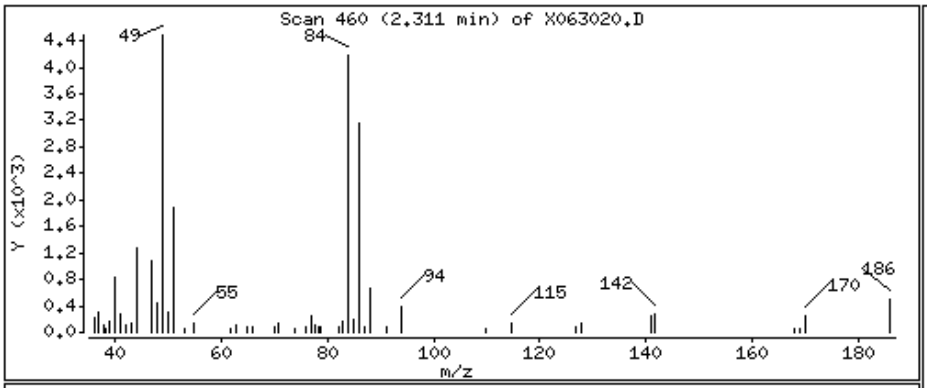
Client ID: HS22061313-06 Instrument: voa6.i

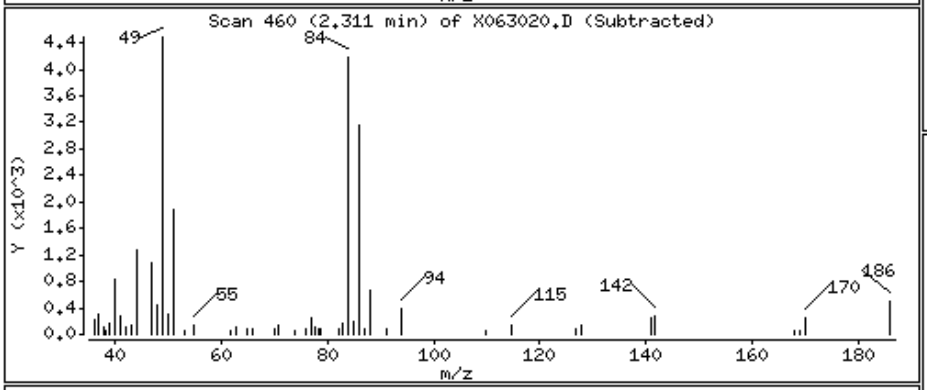
Sample Info: HS22061313-06;HS22061313-06;;;

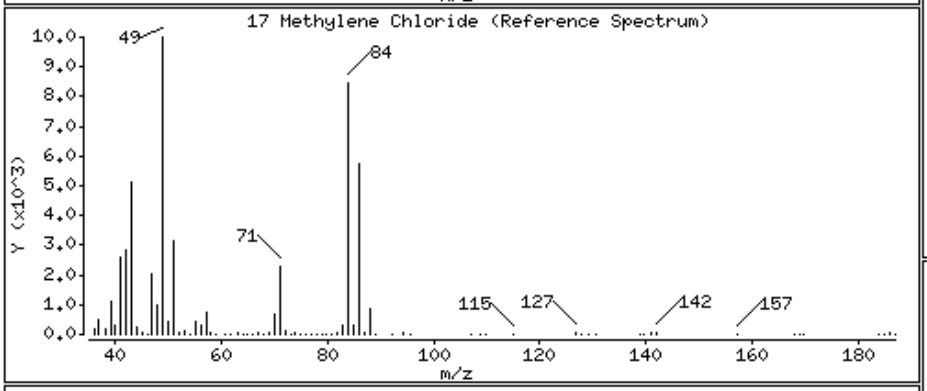
Purge Volume: 5.0 Operator: PC

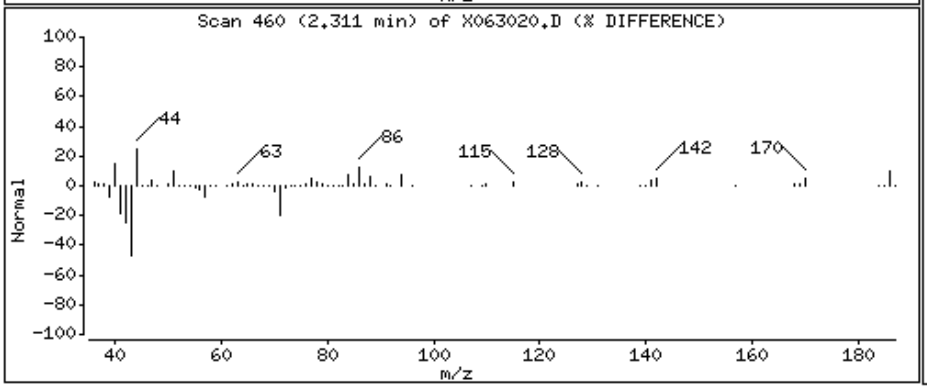
Column phase: DB624 Column diameter: 0.18

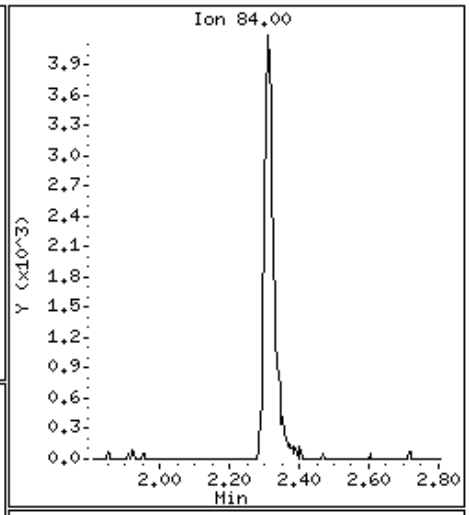
17 Methylene Chloride Concentration: 58.13 ug/l

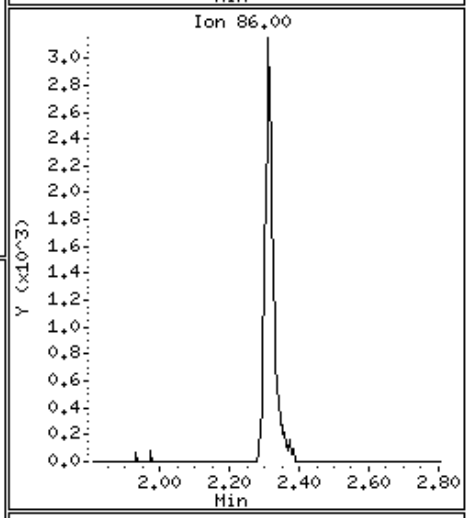


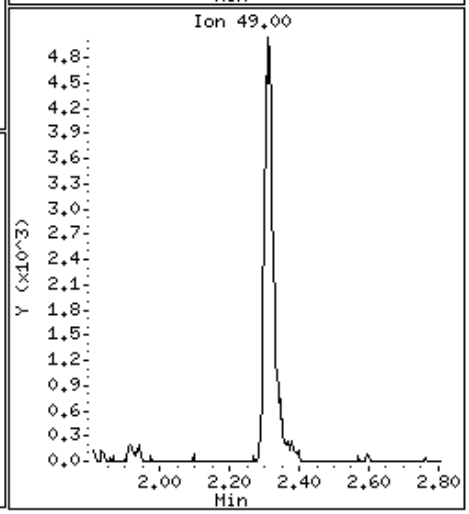












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D Page 4

Date : 30-JUN-2022 17:03

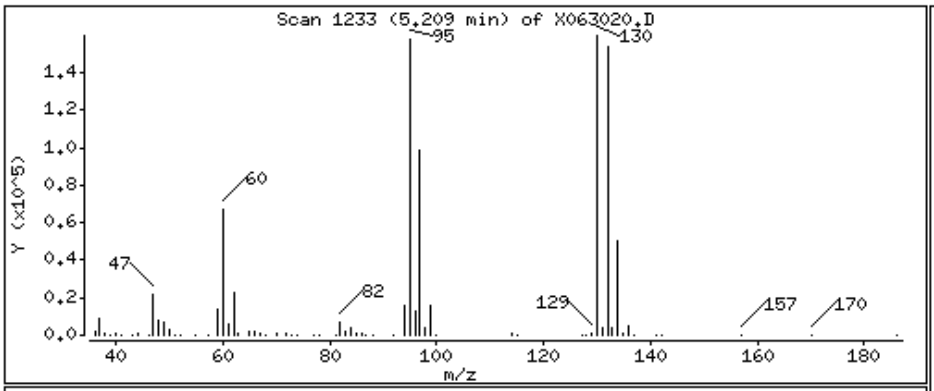
Client ID: HS22061313-06 Instrument: voa6.i

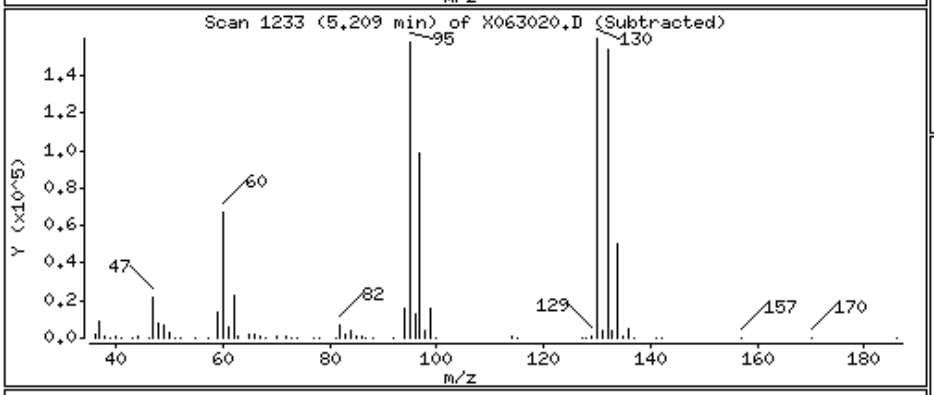
Sample Info: HS22061313-06;HS22061313-06;;;

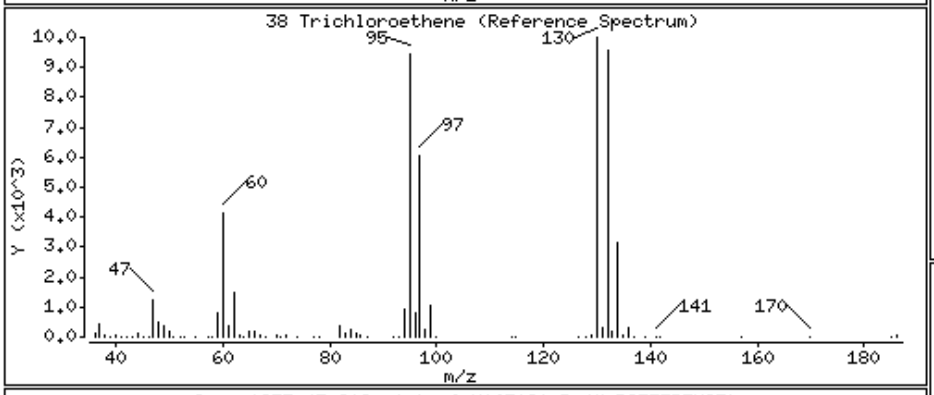
Purge Volume: 5.0 Operator: PC

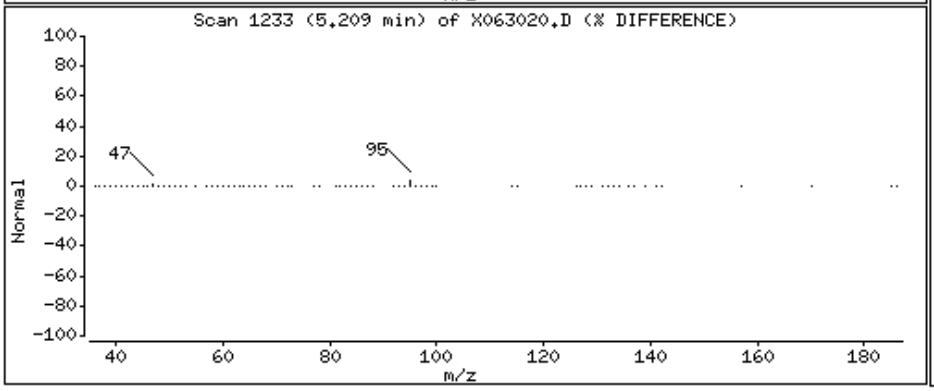
Column phase: DB624 Column diameter: 0.18

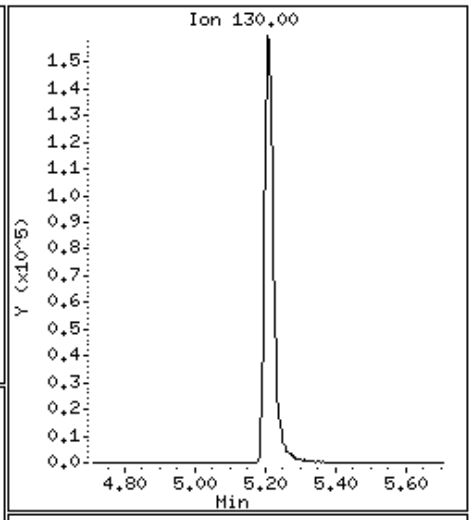
38 Trichloroethene Concentration: 2414.90 ug/l

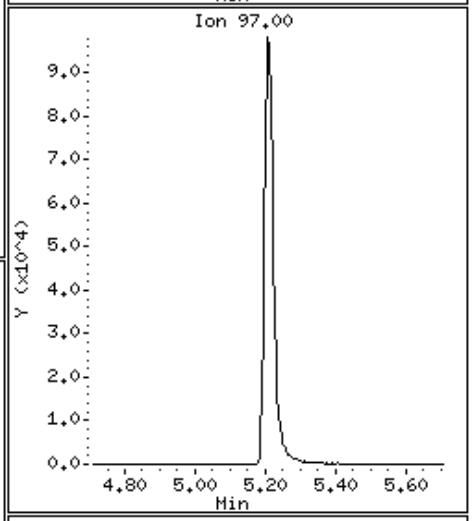


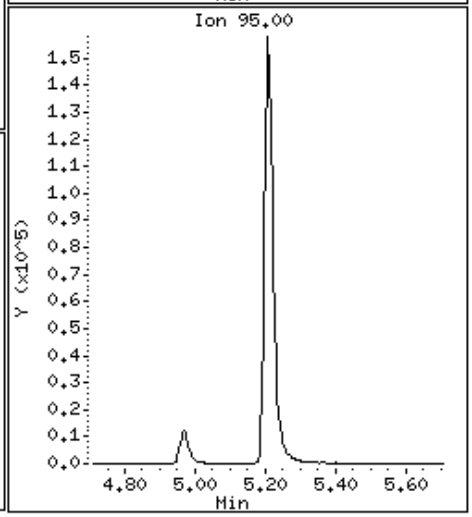












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D Page 5

Date : 30-JUN-2022 17:03

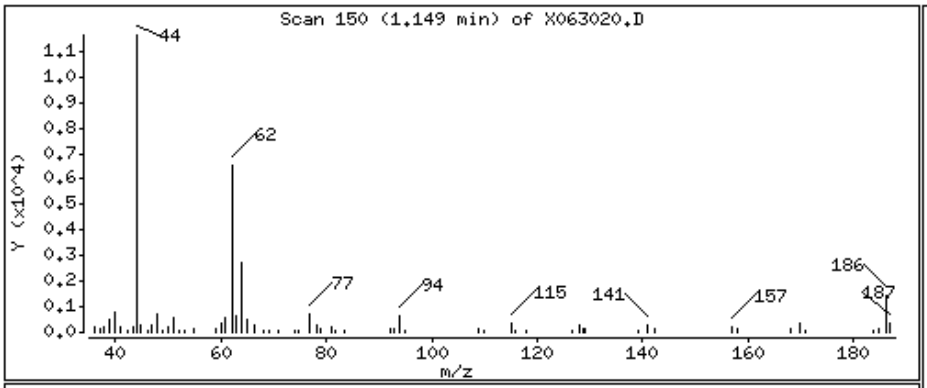
Client ID: HS22061313-06 Instrument: voa6.i

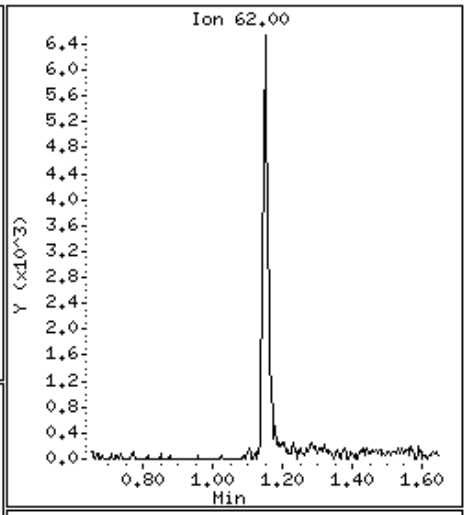
Sample Info: HS22061313-06;HS22061313-06;;;

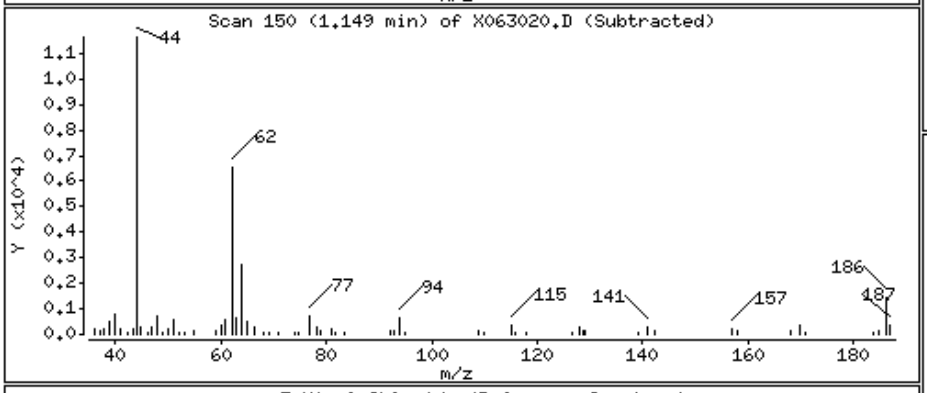
Purge Volume: 5.0 Operator: PC

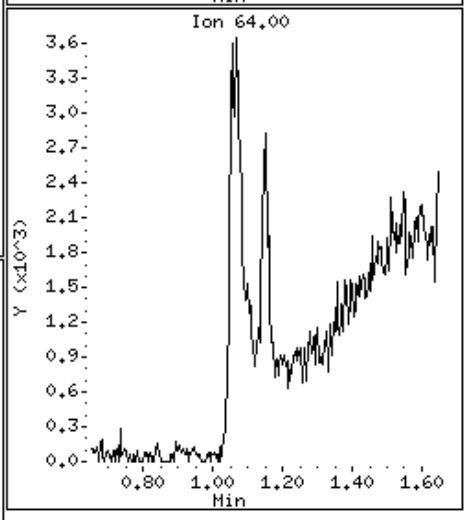
Column phase: DB624 Column diameter: 0.18

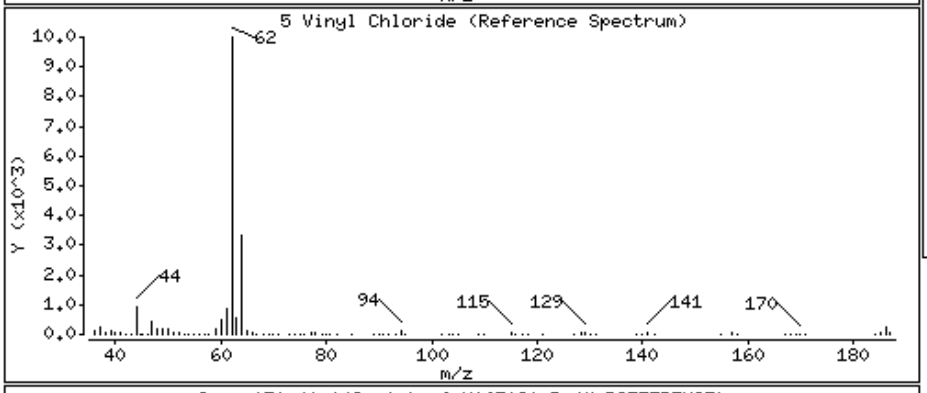
5 Vinyl Chloride Concentration: 45.48 ug/l

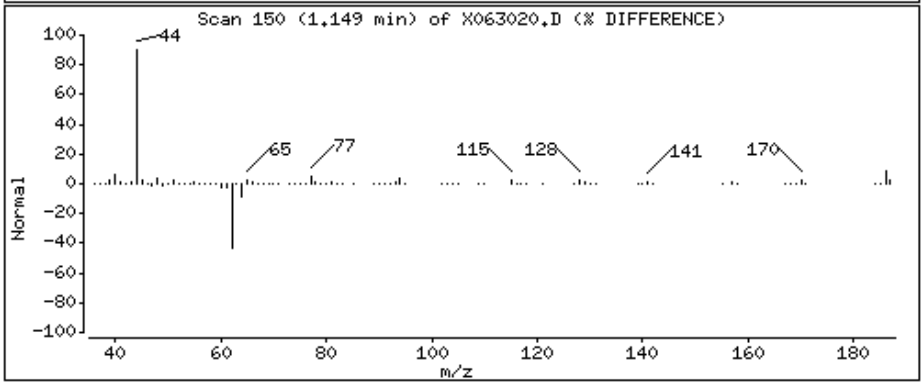












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063020.D
Inj Date : 30-JUN-2022 17:03
InstruID : voa6.i
LabSampID : HS22061313-06

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063021.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063021.D
Lab Smp Id: HS22061313-01 Client Smp ID: HS22061313-01
Inj Date : 30-JUN-2022 17:24
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-01;HS22061313-01;;;
Misc Info : HS22052000V6;WATER;0;100;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 20
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

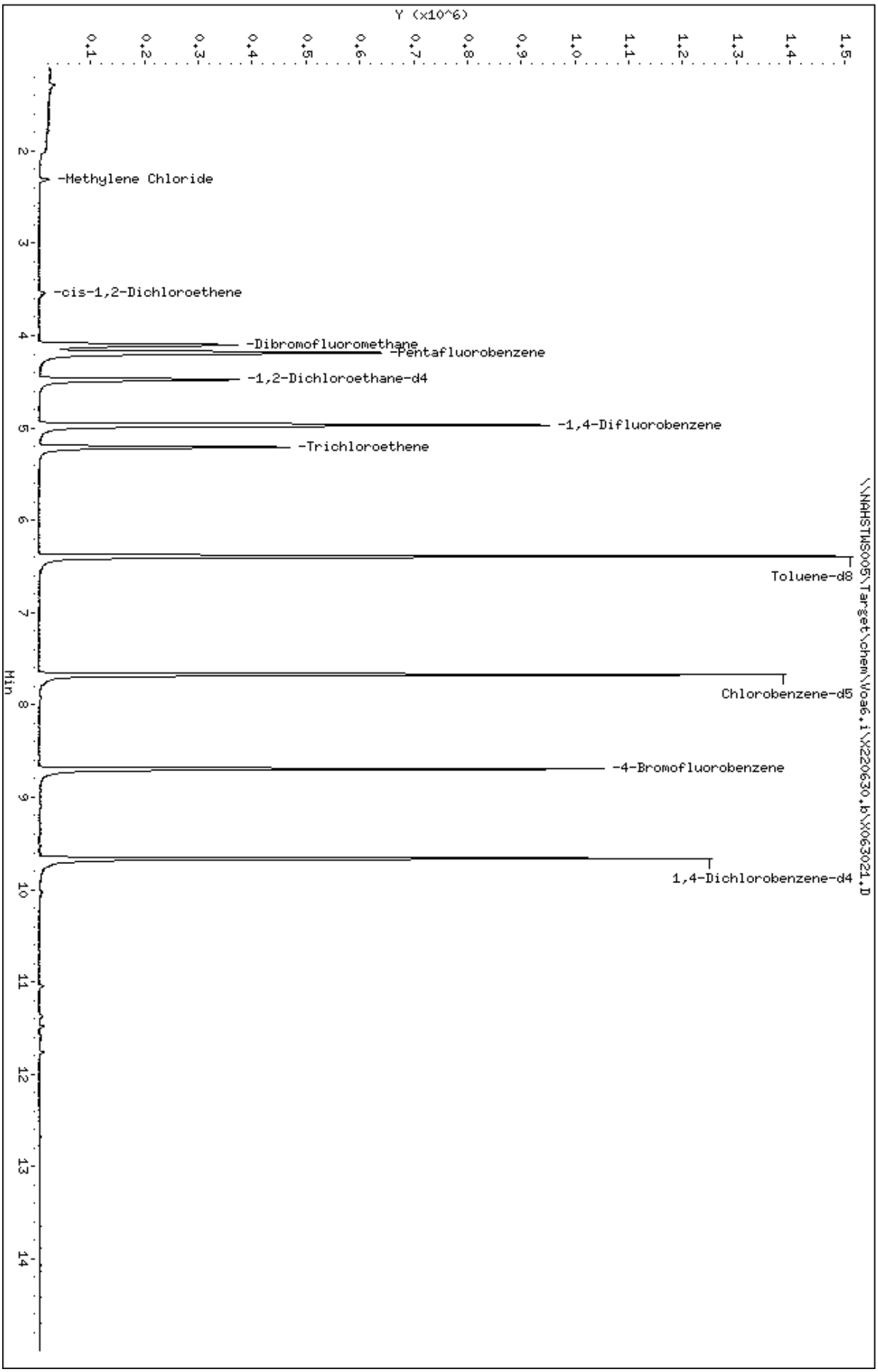
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	100.000	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	4.185	4.185	(1.000)	560617	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	812576	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	713356	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	322206	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.477	4.474	(1.070)	288853	41.7688	41.76
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	315315	46.8979	46.89
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	257294	43.6557	43.65
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	943839	50.1011	50.10
27 cis-1,2-Dichloroethene	96	3.544	3.529	(0.847)	6419	0.94937	94.93(a)
17 Methylene Chloride	84	2.311	2.307	(0.552)	8738	1.23442	123.44(a)
38 Trichloroethene	130	5.208	5.208	(1.048)	157705	25.8333	2583.33

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



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Date : 30-JUN-2022 17:24
Client ID: HS22061313-01
Sample Info: HS22061313-01;HS22061313-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063021.D Page 2

Date : 30-JUN-2022 17:24

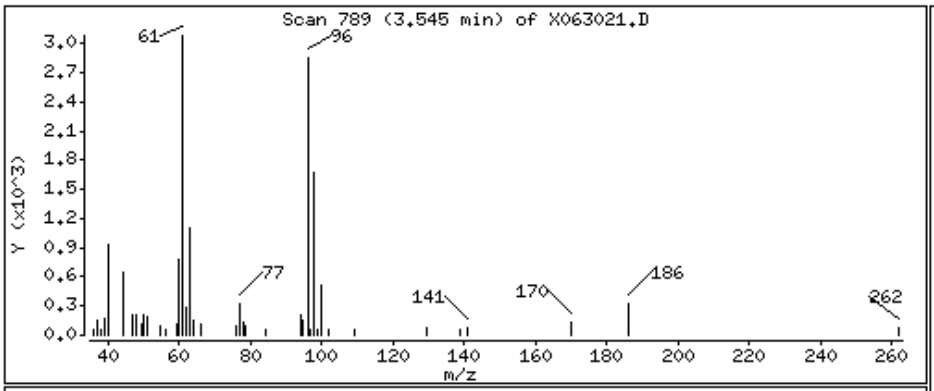
Client ID: HS22061313-01 Instrument: voa6.i

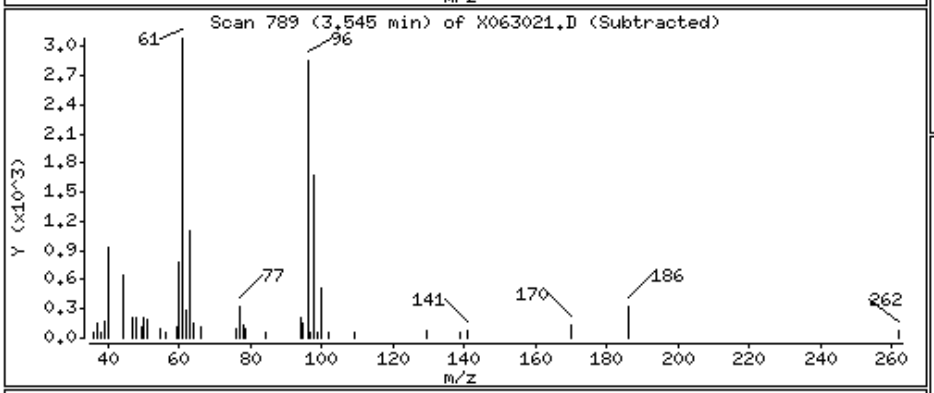
Sample Info: HS22061313-01;HS22061313-01;;;

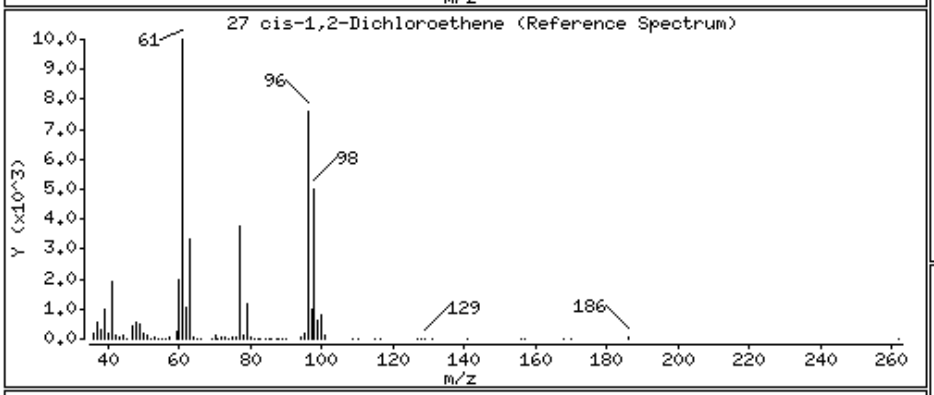
Purge Volume: 5.0 Operator: PC

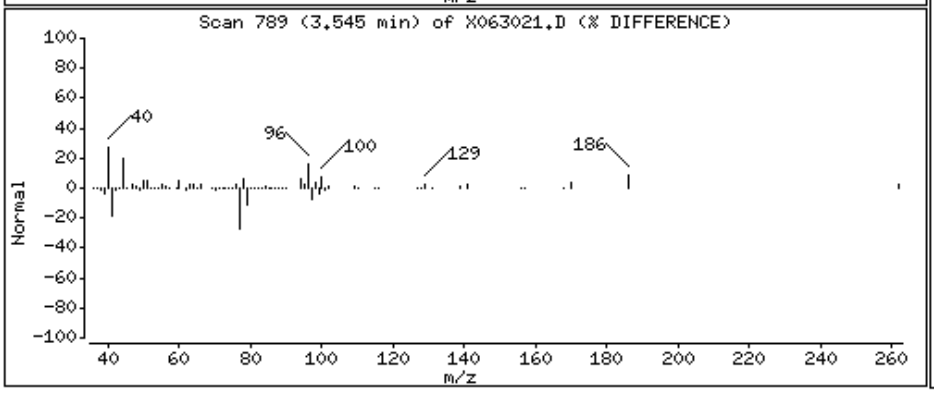
Column phase: DB624 Column diameter: 0.18

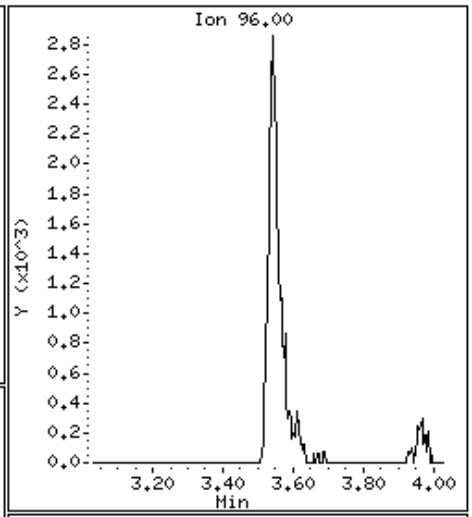
27 cis-1,2-Dichloroethene Concentration: 94.93 ug/l

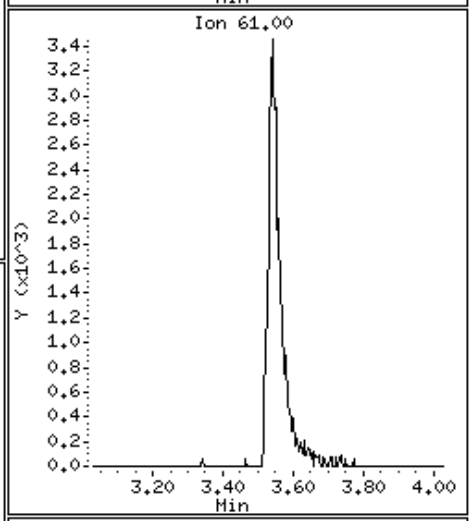


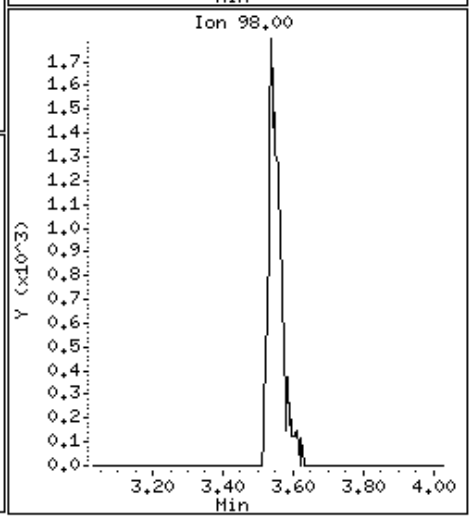












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063021.D

Date : 30-JUN-2022 17:24

Client ID: HS22061313-01

Instrument: voa6.i

Sample Info: HS22061313-01;HS22061313-01;;;

Purge Volume: 5.0

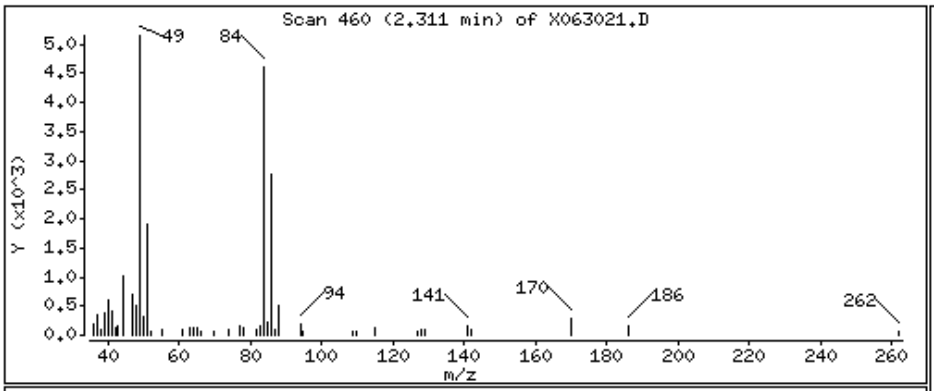
Operator: PC

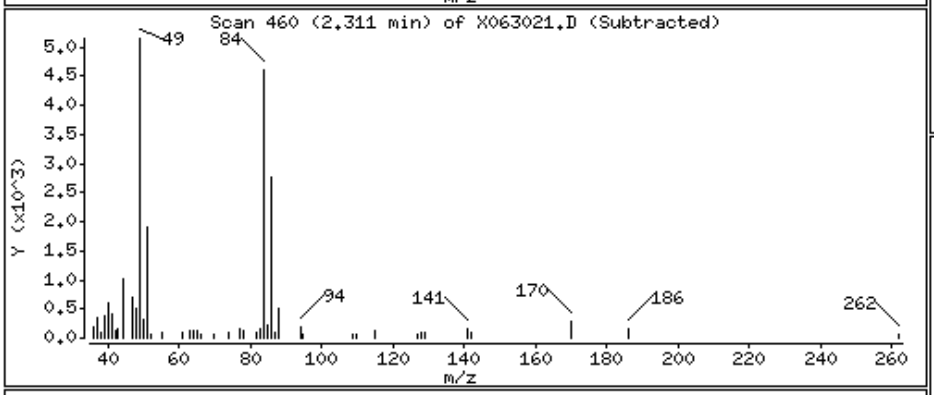
Column phase: DB624

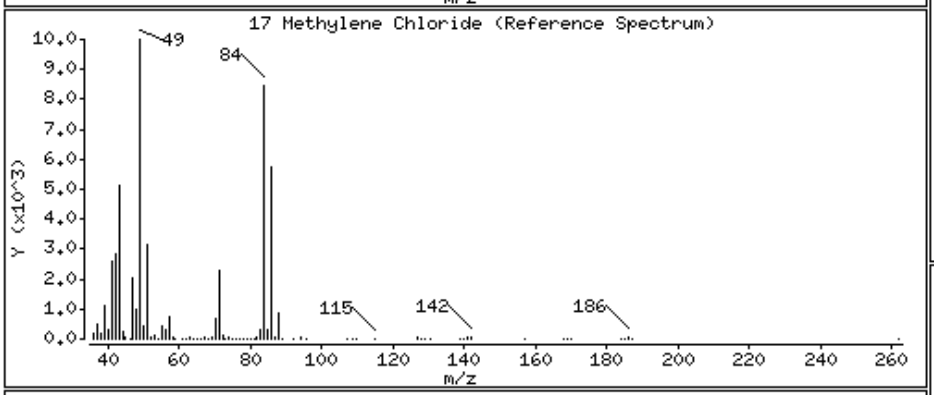
Column diameter: 0.18

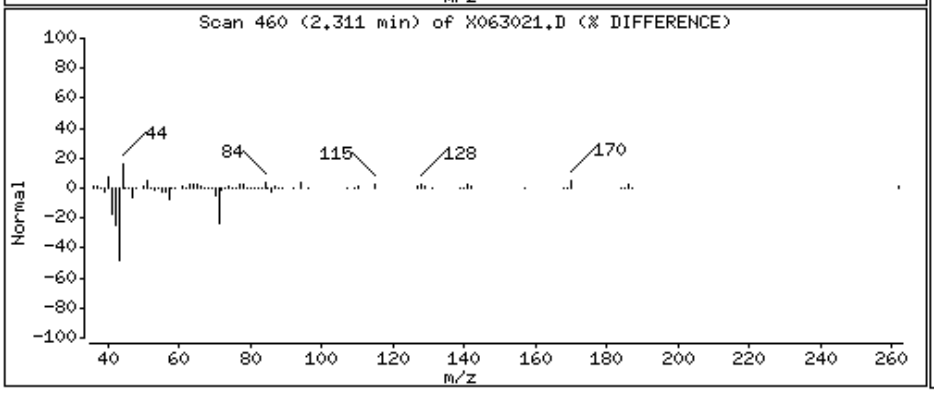
17 Methylene Chloride

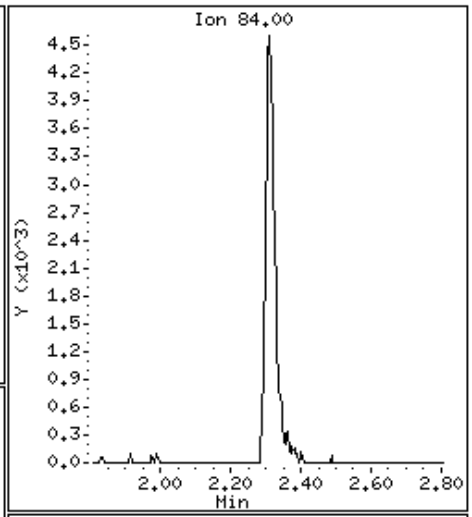
Concentration: 123.44 ug/l

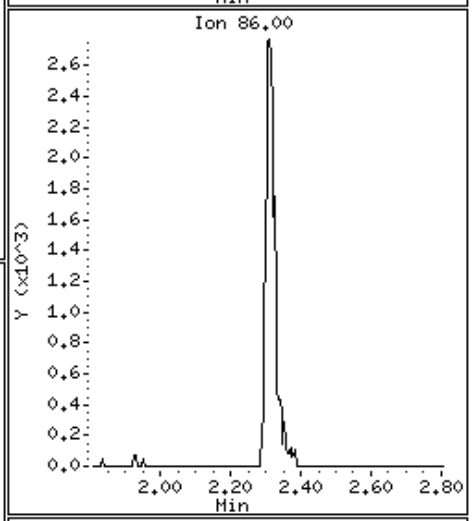


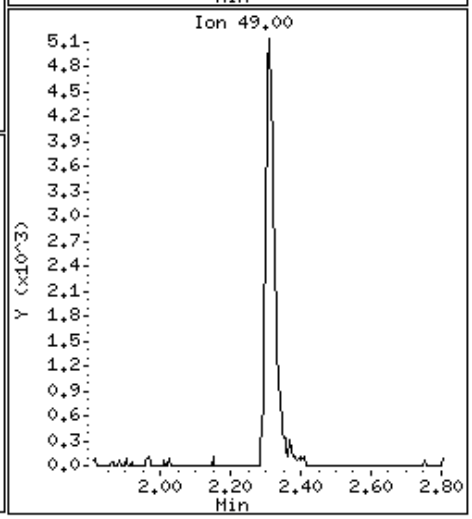












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063021.D Page 4

Date : 30-JUN-2022 17:24

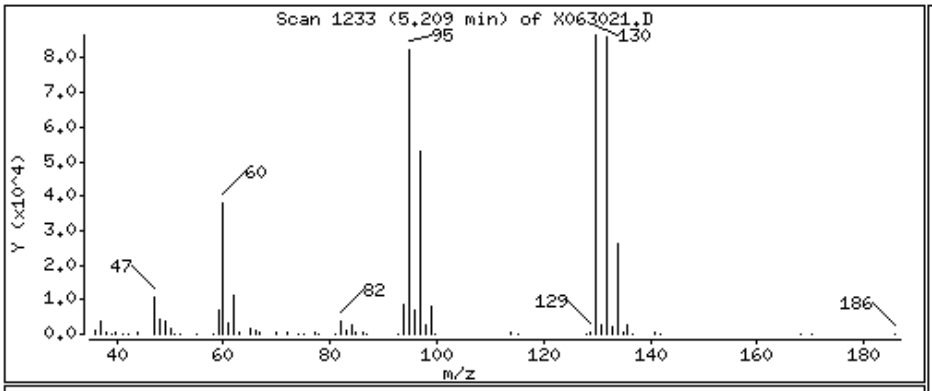
Client ID: HS22061313-01 Instrument: voa6.i

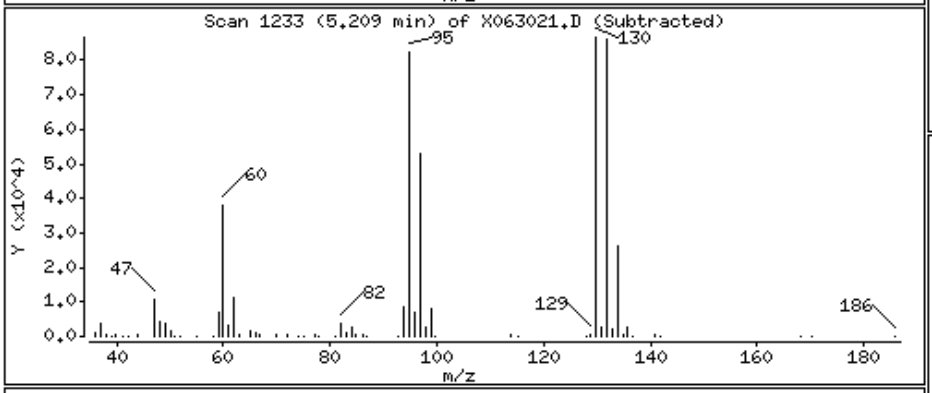
Sample Info: HS22061313-01;HS22061313-01;;;

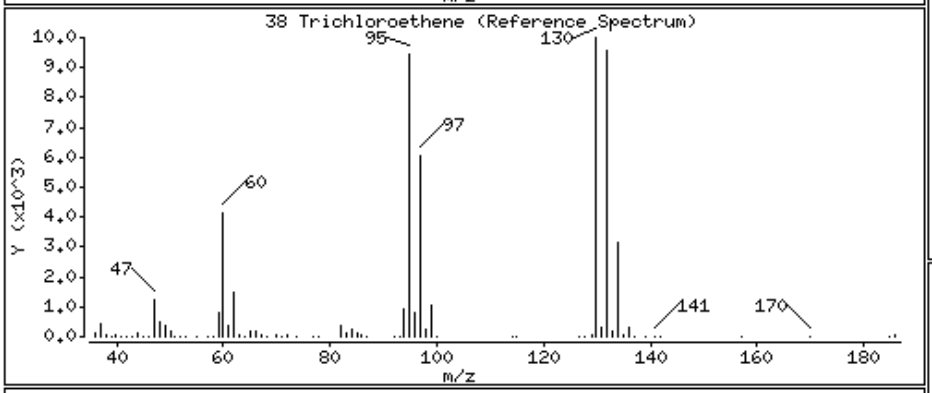
Purge Volume: 5.0 Operator: PC

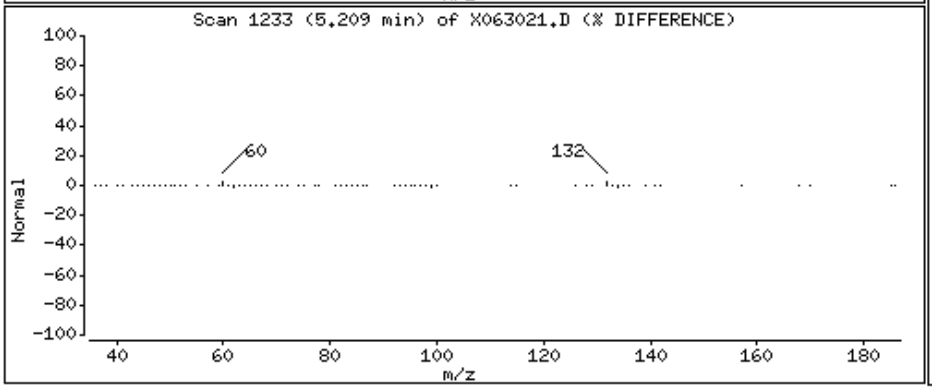
Column phase: DB624 Column diameter: 0.18

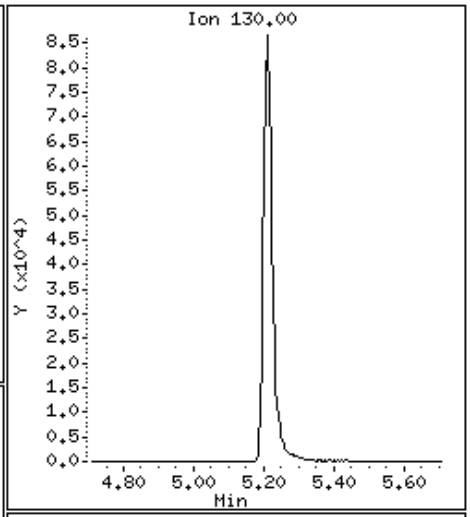
38 Trichloroethene Concentration: 2583.33 ug/l

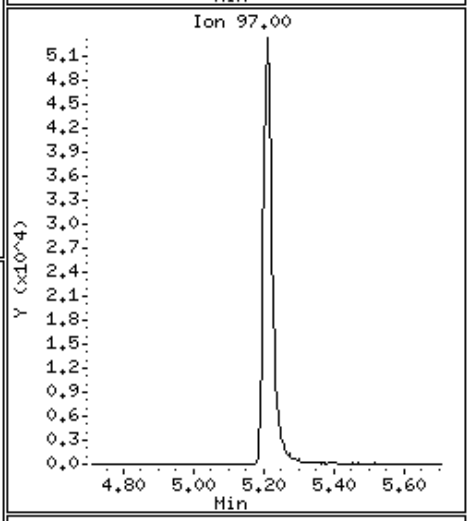


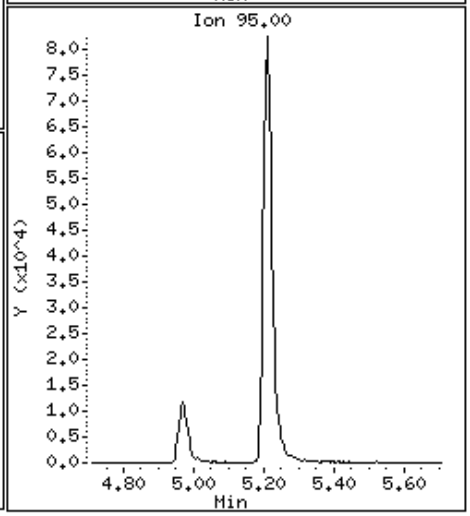












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Inj Date : 30-JUN-2022 17:24
InstruID : voa6.i
LabSampID : HS22061313-01

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D Page 1
Report Date: 15-Jul-2022 13:54

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D
Lab Smp Id: HS22061313-07 Client Smp ID: HS22061313-07
Inj Date : 30-JUN-2022 17:46
Operator : PC Inst ID: voa6.i
Smp Info : HS22061313-07;HS22061313-07;;;
Misc Info : HS22052000V6;WATER;0;100;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:53 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 21
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.sub
Target Version: 4.14
Processing Host: NAHSTW7056

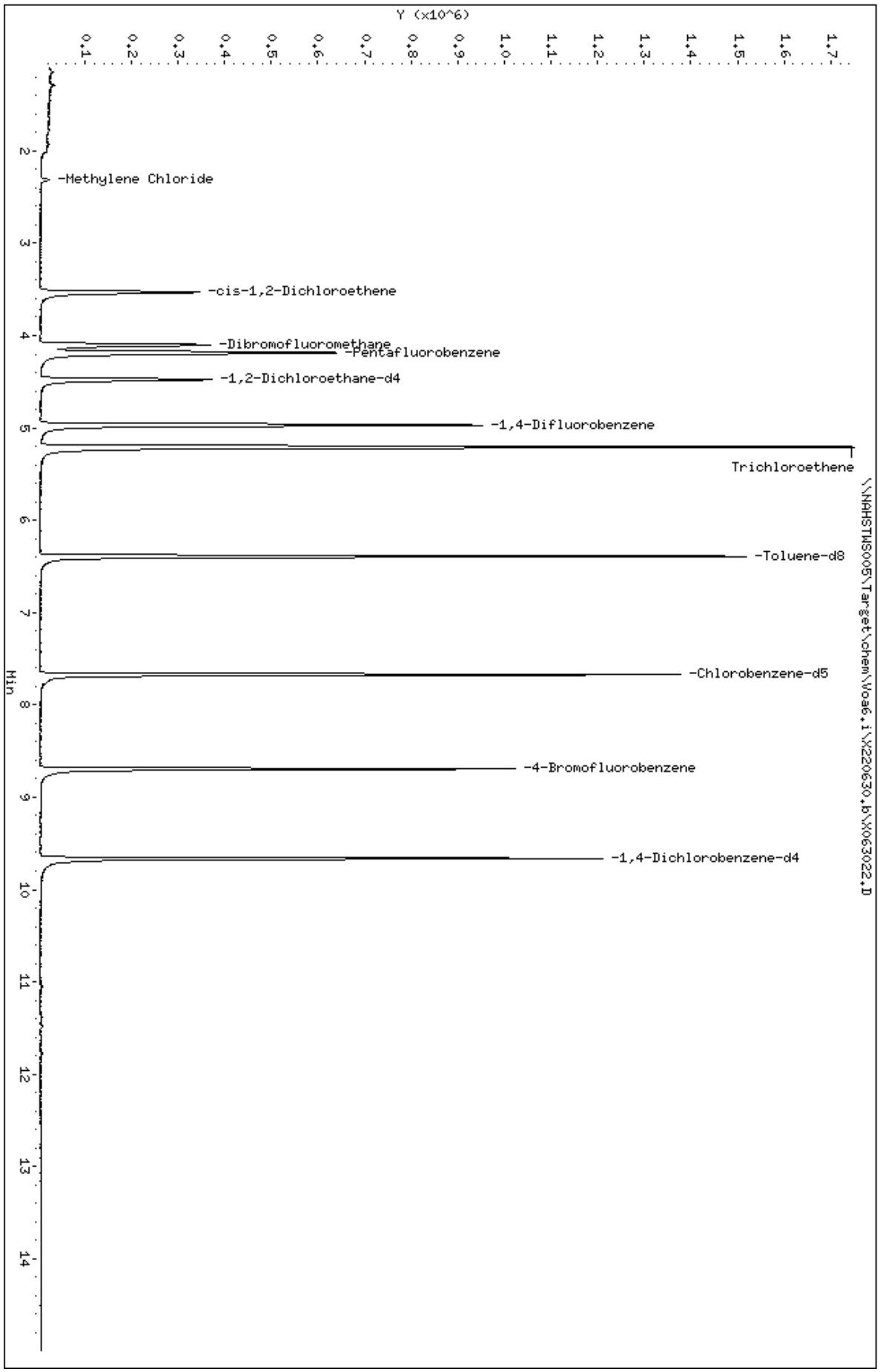
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	100.000	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	4.185	4.185	(1.000)	550995	50.0000	
* 36 1,4-Difluorobenzene	114	4.969	4.968	(1.000)	805785	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	698714	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.666	9.666	(1.000)	313598	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	285724	42.0400	42.03
$ 69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	302405	45.9019	45.90
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.980)	256640	44.3055	44.30
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	935767	50.7135	50.71
27 cis-1,2-Dichloroethene	96	3.533	3.529	(0.844)	179439	27.0025	2700.24
17 Methylene Chloride	84	2.315	2.307	(0.553)	8567	1.23140	123.13(a)
38 Trichloroethene	130	5.209	5.208	(1.048)	593875	98.1013	9810.13
5 Vinyl Chloride	62	1.149	1.149	(0.275)	3518	0.45290	45.28(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\Voa6,i\X220630,b\X063022,D
Date : 30-JUN-2022 17:46
Client ID: HS22061313-07
Sample Info: HS22061313-07;HS22061313-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D Page 2

Date : 30-JUN-2022 17:46

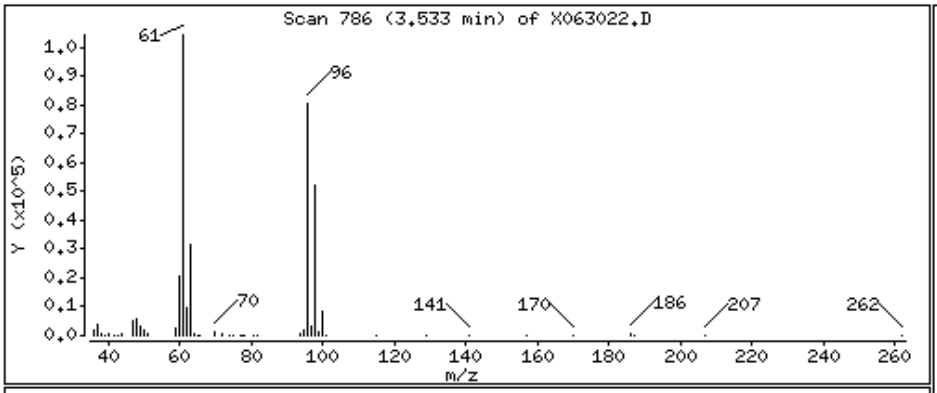
Client ID: HS22061313-07 Instrument: voa6.i

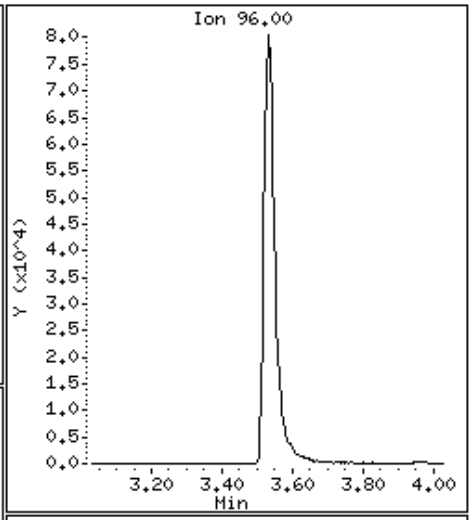
Sample Info: HS22061313-07;HS22061313-07;;;

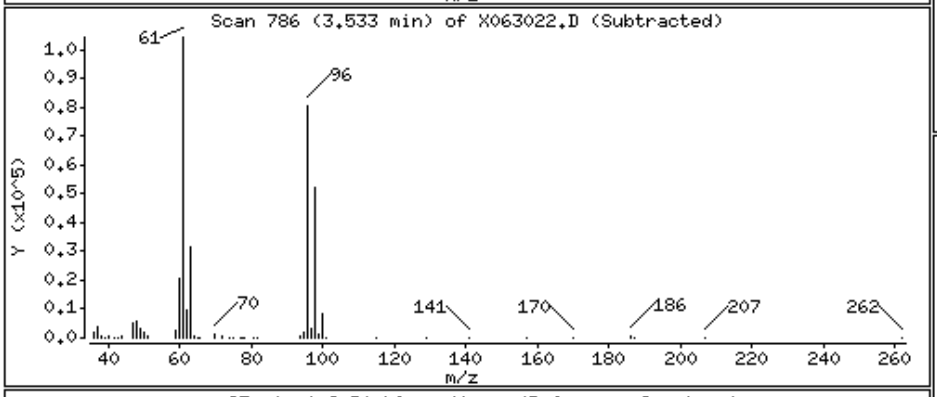
Purge Volume: 5.0 Operator: PC

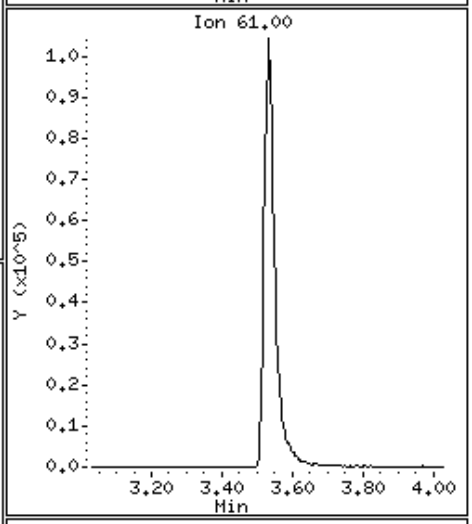
Column phase: DB624 Column diameter: 0.18

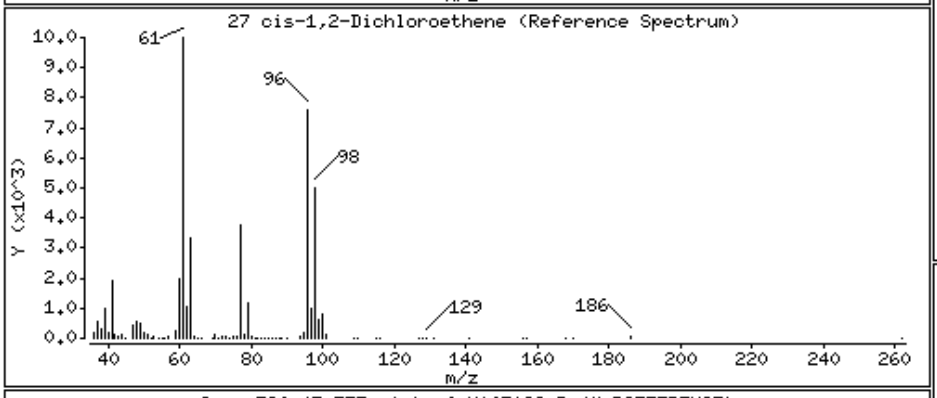
27 cis-1,2-Dichloroethene Concentration: 2700.24 ug/l

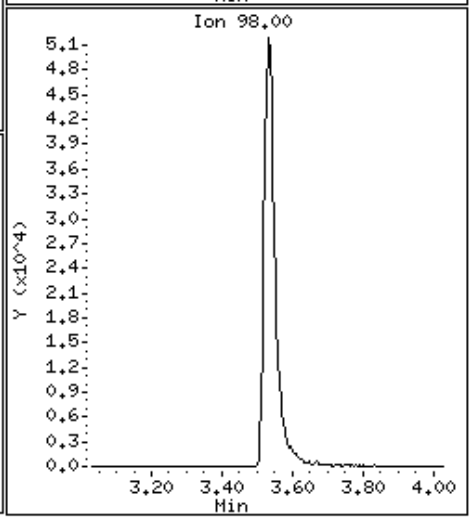


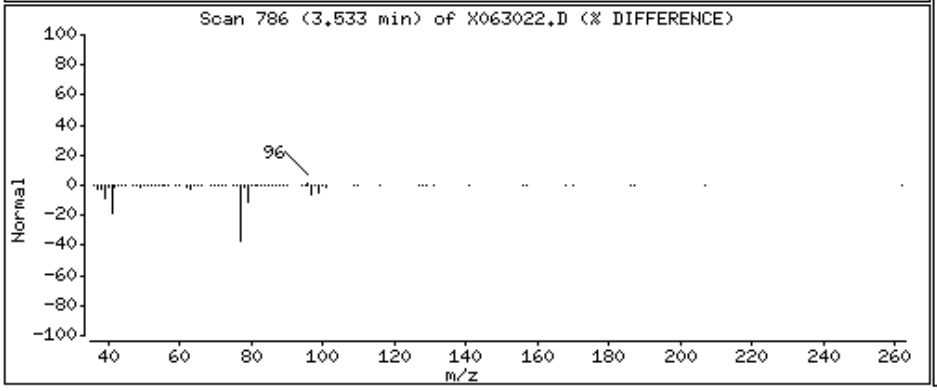












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D

Date : 30-JUN-2022 17:46

Client ID: HS22061313-07

Instrument: voa6.i

Sample Info: HS22061313-07;HS22061313-07;;;

Purge Volume: 5.0

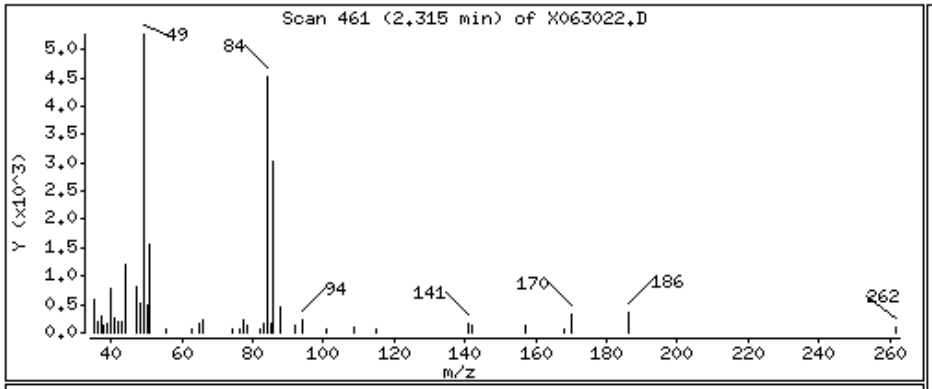
Operator: PC

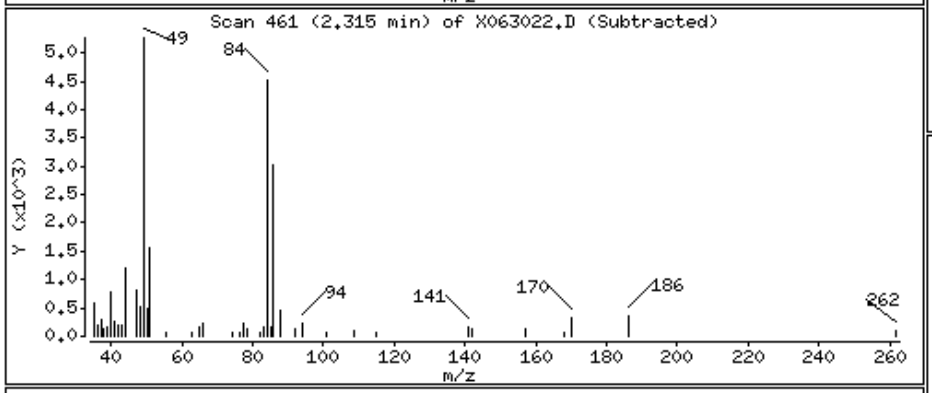
Column phase: DB624

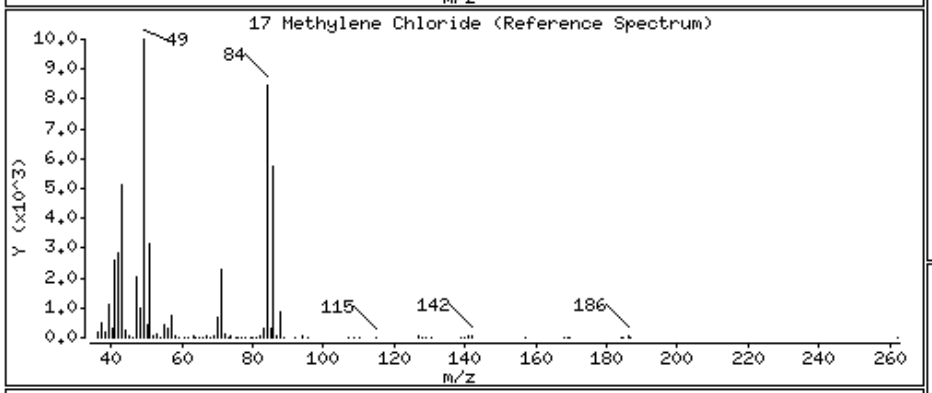
Column diameter: 0.18

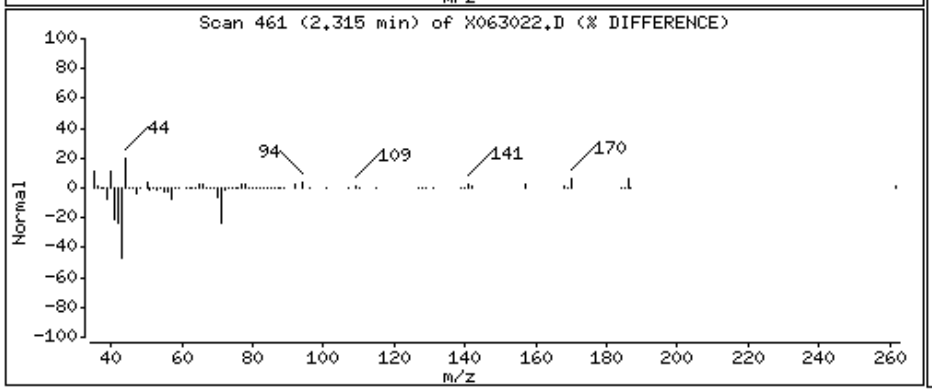
17 Methylene Chloride

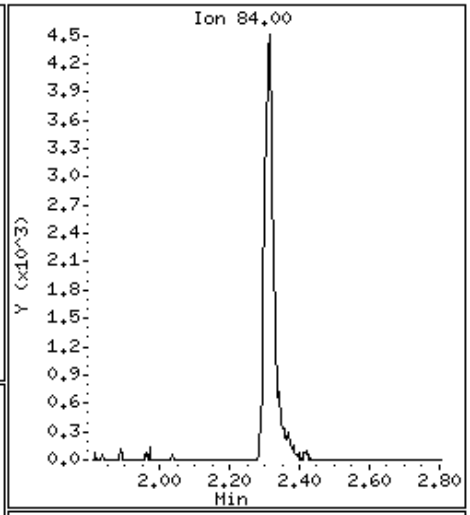
Concentration: 123.13 ug/l

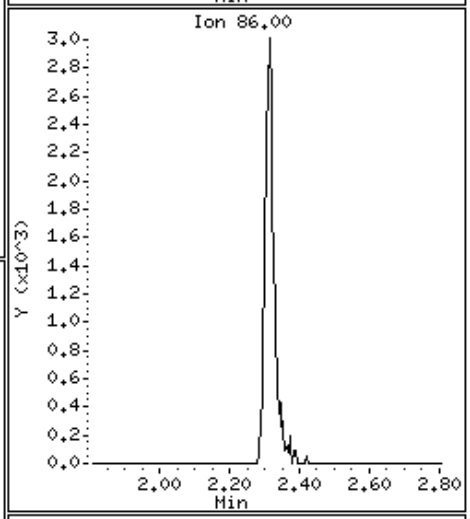


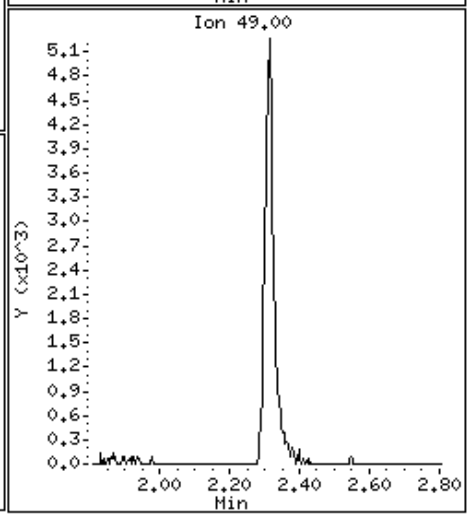












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D

Date : 30-JUN-2022 17:46

Client ID: HS22061313-07

Instrument: voa6.i

Sample Info: HS22061313-07;HS22061313-07;;;

Purge Volume: 5.0

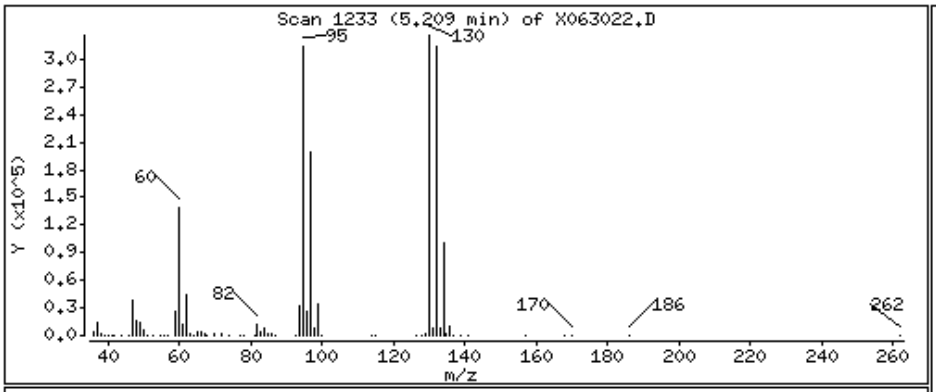
Operator: PC

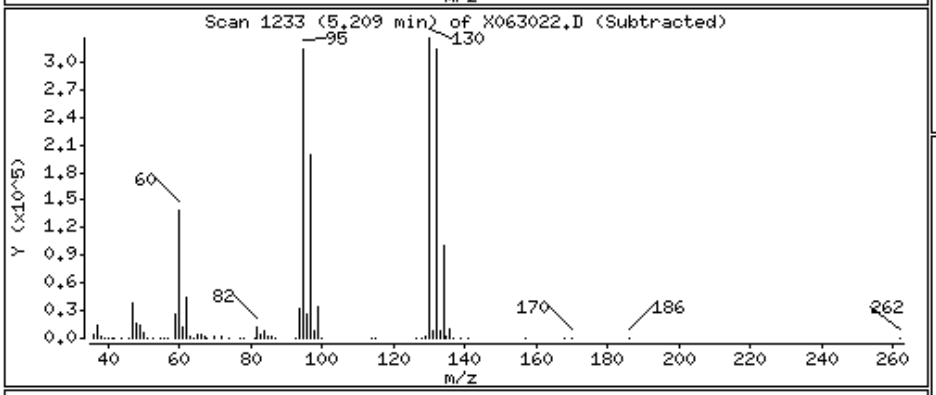
Column phase: DB624

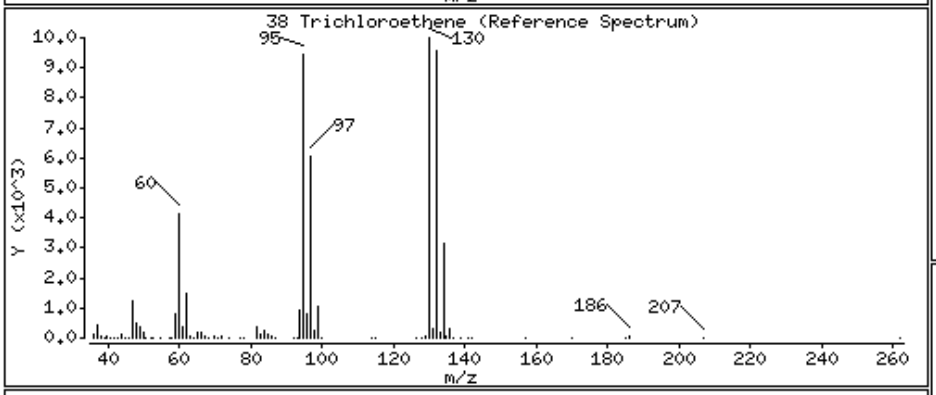
Column diameter: 0.18

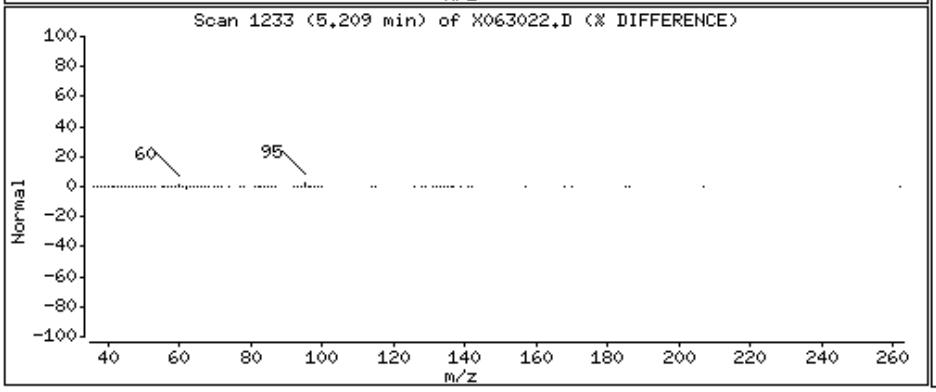
38 Trichloroethene

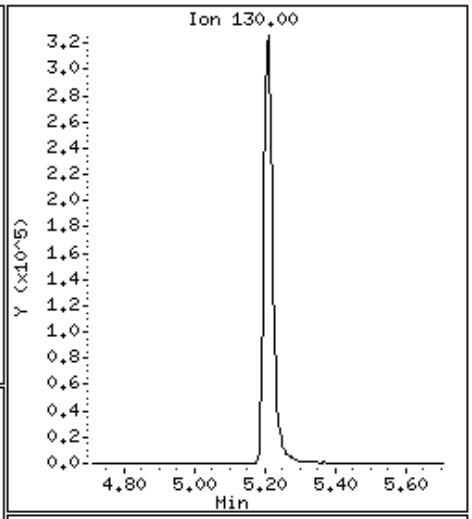
Concentration: 9810.13 ug/l

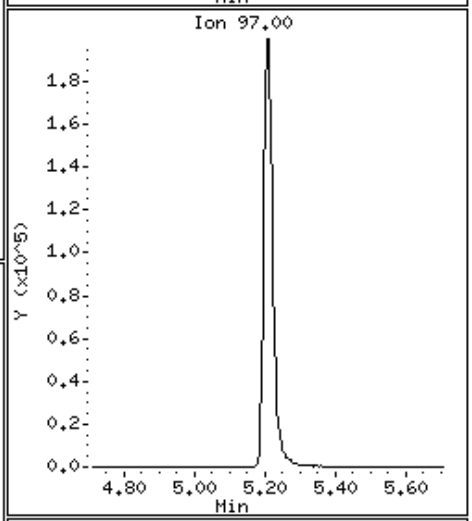


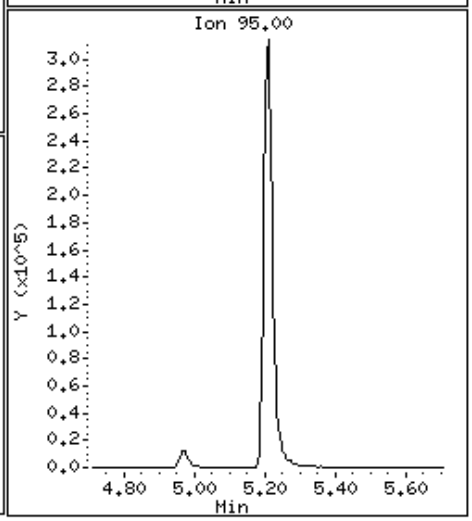












Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D

Date : 30-JUN-2022 17:46

Client ID: HS22061313-07

Instrument: voa6.i

Sample Info: HS22061313-07;HS22061313-07;;;

Purge Volume: 5.0

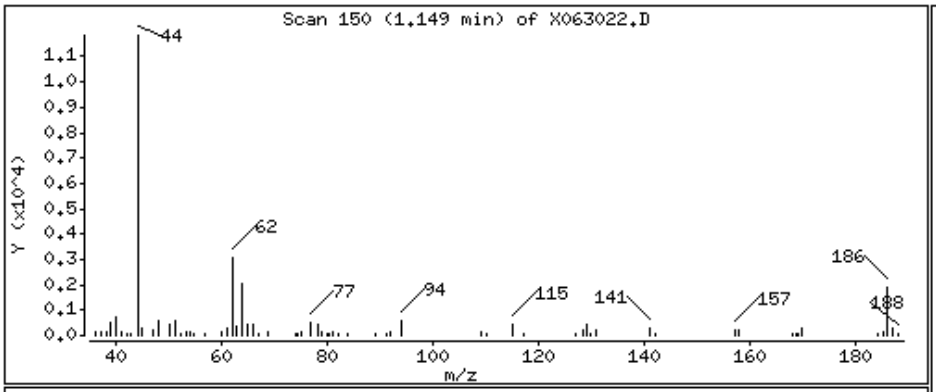
Operator: PC

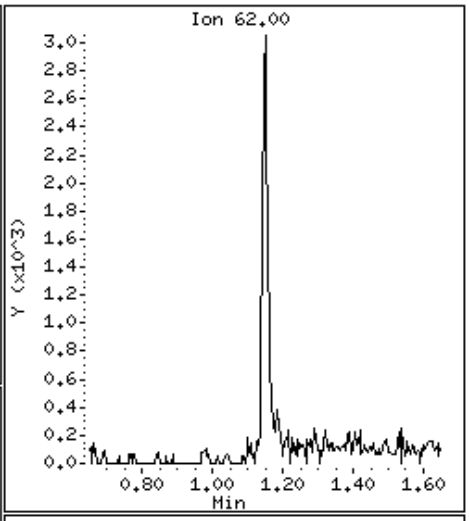
Column phase: DB624

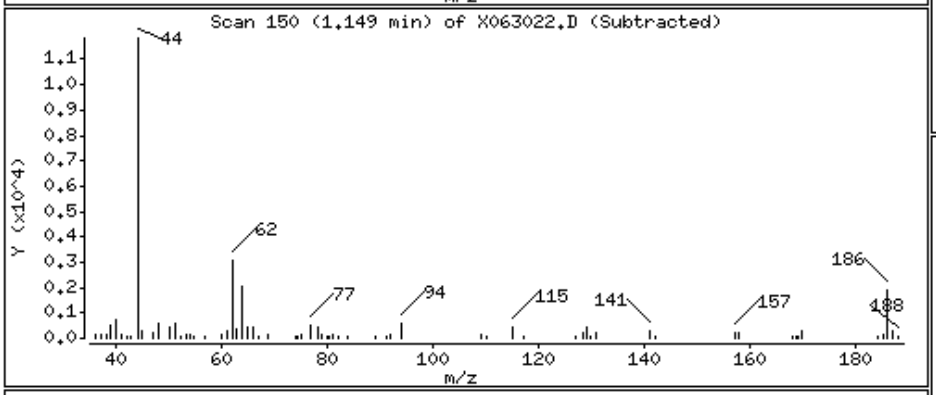
Column diameter: 0.18

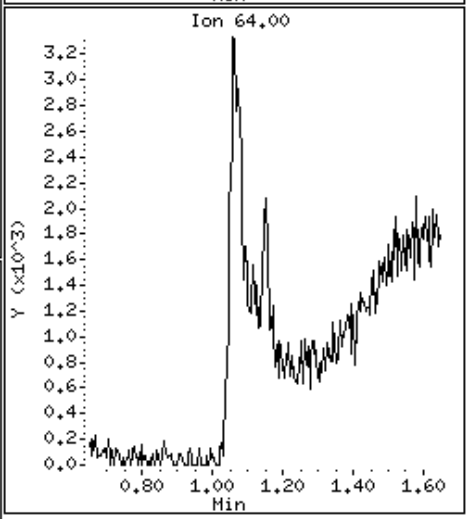
5 Vinyl Chloride

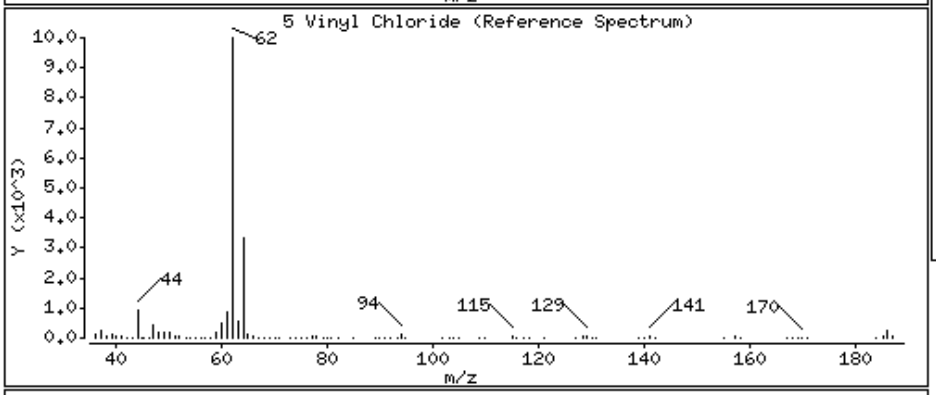
Concentration: 45.28 ug/l

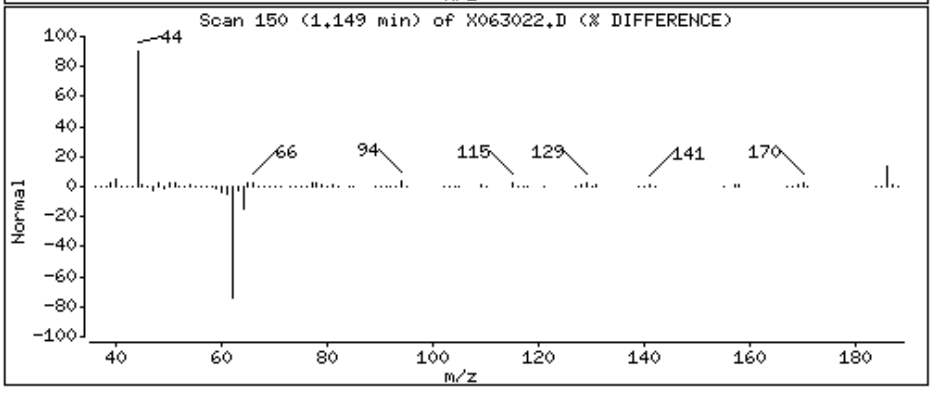












Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063022.D
Inj Date : 30-JUN-2022 17:46
InstruID : voa6.i
LabSampID : HS22061313-07

NO MANUAL INTEGRATIONS

Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063031.D Page 1
Report Date: 15-Jul-2022 13:54

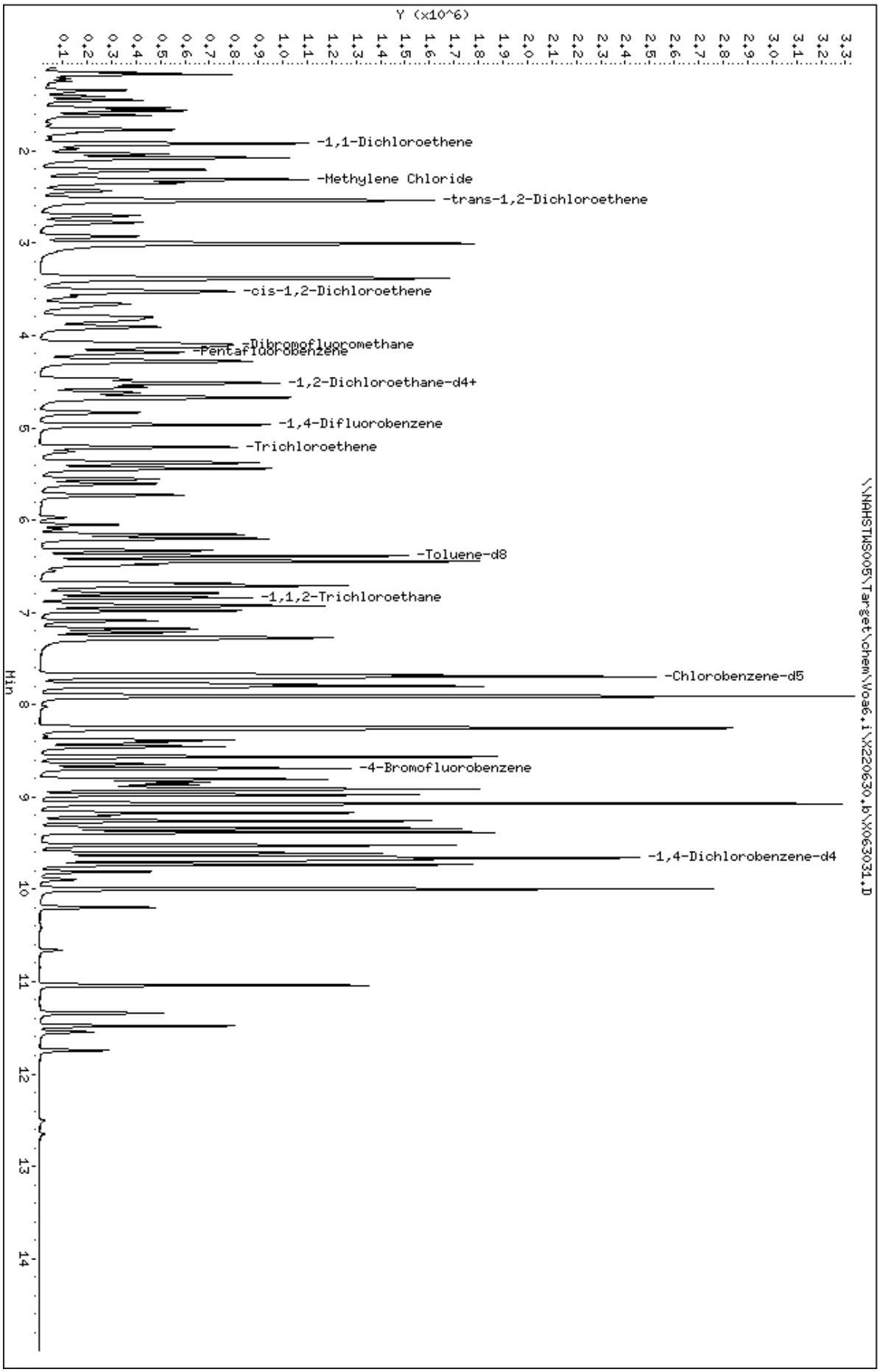
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063031.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 30-JUN-2022 20:55
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS22052000V6;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\8260W.m
Meth Date : 15-Jul-2022 13:54 voa6.i Quant Type: ISTD
Cal Date : 24-MAY-2022 13:54 Cal File: X052408.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA_short.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

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.185	4.185	(1.000)	494241	50.0000	
*	36 1,4-Difluorobenzene	114	4.968	4.968	(1.000)	772533	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	729762	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.665	9.665	(1.000)	355335	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.474	4.474	(1.069)	276221	50.0000	45.33
$	69 4-Bromofluorobenzene	95	8.691	8.691	(1.133)	330555	50.0000	48.08
$	30 Dibromofluoromethane	113	4.102	4.102	(0.980)	250301	50.0000	48.17
$	48 Toluene-d8	98	6.389	6.389	(0.833)	886468	50.0000	45.99
	53 1,1,2-Trichloroethane	83	6.839	6.839	(0.892)	193008	50.0000	42.77
	11 1,1-Dichloroethene	96	1.921	1.921	(0.459)	206293	50.0000	40.02
	33 1,2-Dichloroethane	62	4.560	4.560	(0.918)	338467	50.0000	43.89
	27 cis-1,2-Dichloroethene	96	3.533	3.533	(0.844)	266815	50.0000	44.76
	17 Methylene Chloride	84	2.307	2.307	(0.551)	259852	50.0000	41.63
	38 Trichloroethene	130	5.208	5.208	(1.048)	267967	50.0000	46.17
	5 Vinyl Chloride	62	1.149	1.149	(0.275)	249379	50.0000	35.79



Data File: \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063031.D
Date : 30-JUN-2022 20:55
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File : \\NAHSTWS005\Target\chem\Voa6.i\X220630.b\X063031.D
Inj Date : 30-JUN-2022 20:55
InstruID : voa6.i
LabSampID : CCV-END

NO MANUAL INTEGRATIONS

HS22061313 RSK175

ALS WO# HS22061313

FID04 -Logbook

Batch: 26730 **Analyst:** Nosa Izekor

Date: 01-24-2017 **Reviewer:**

Method: RSK 175 ICAL **Laboratory:** Houston

Comments: Target Sequence 170124

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	g
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.: HS22061313

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.: HS22061313

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.: HS2206131

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	M
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	
N-Butane	114164	2ORDR	2.46870151	1.834e-003	-5.54e-009	0.9980766	

FORM VI GASES

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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(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

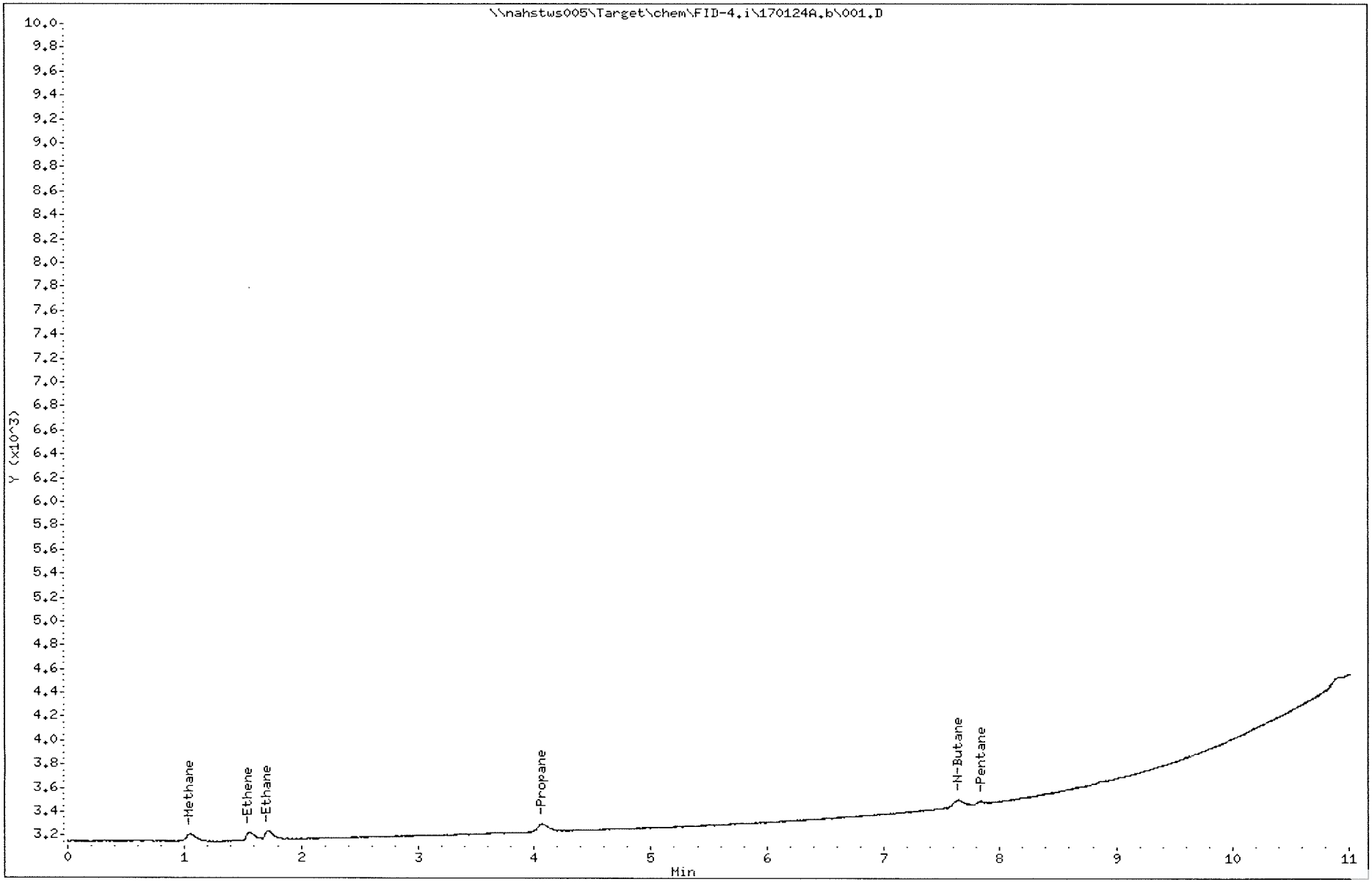
Instrument: FID-4.i

Sample Info: ICAL1;ICAL1;;;

Operator: JA

Column phase: Rtx-PLOT

Column diameter: 0.53



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

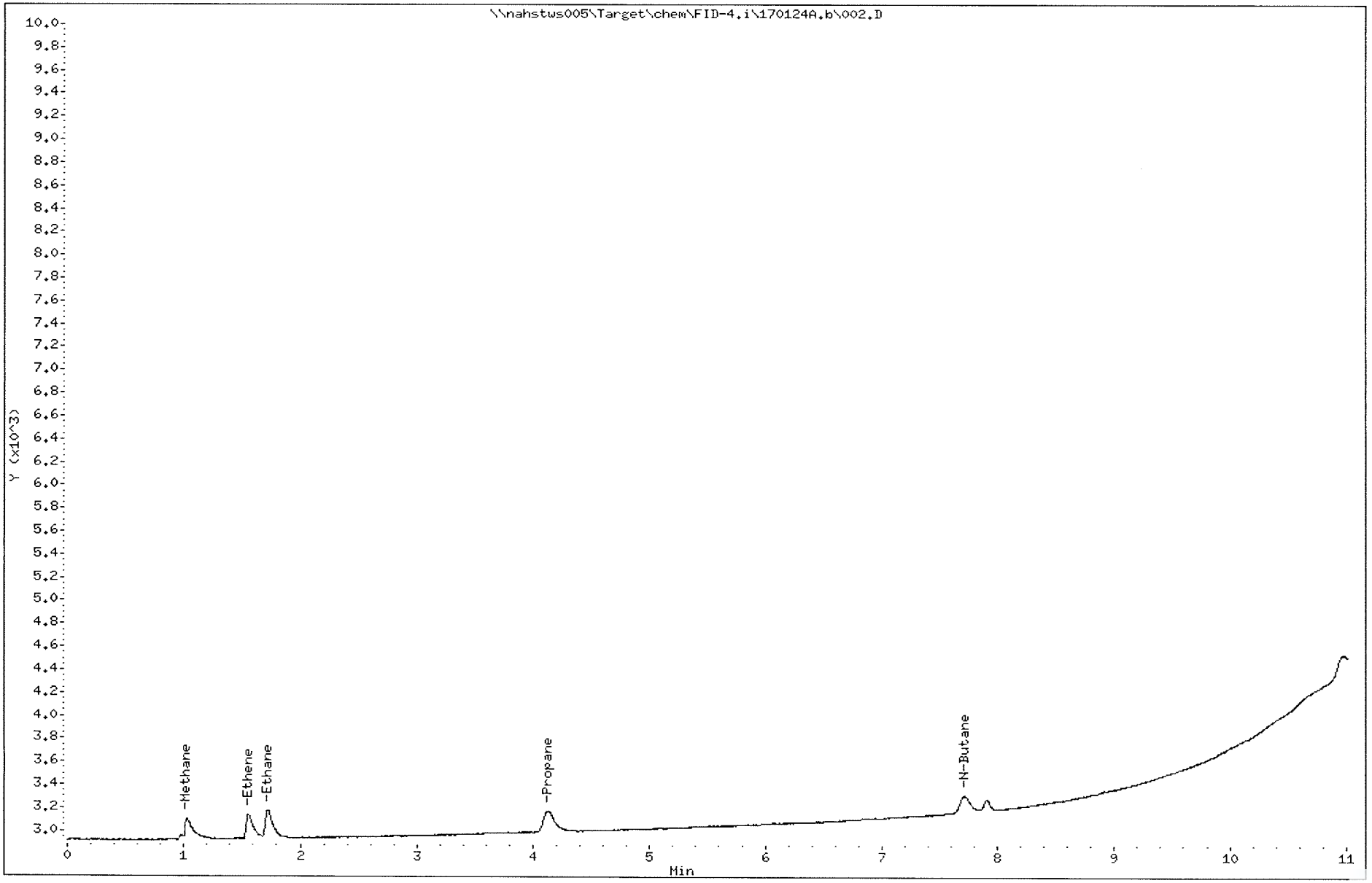
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	944	0.96500	0.968
2 Ethene	1.560	1.556	0.004	956	1.68500	1.630
3 Ethane	1.723	1.723	0.000	1209	1.80400	1.641
4 Propane	4.123	4.113	0.010	1279	2.64600	2.927
5 N-Butane	7.716	7.690	0.026	936	3.49600	4.180

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



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

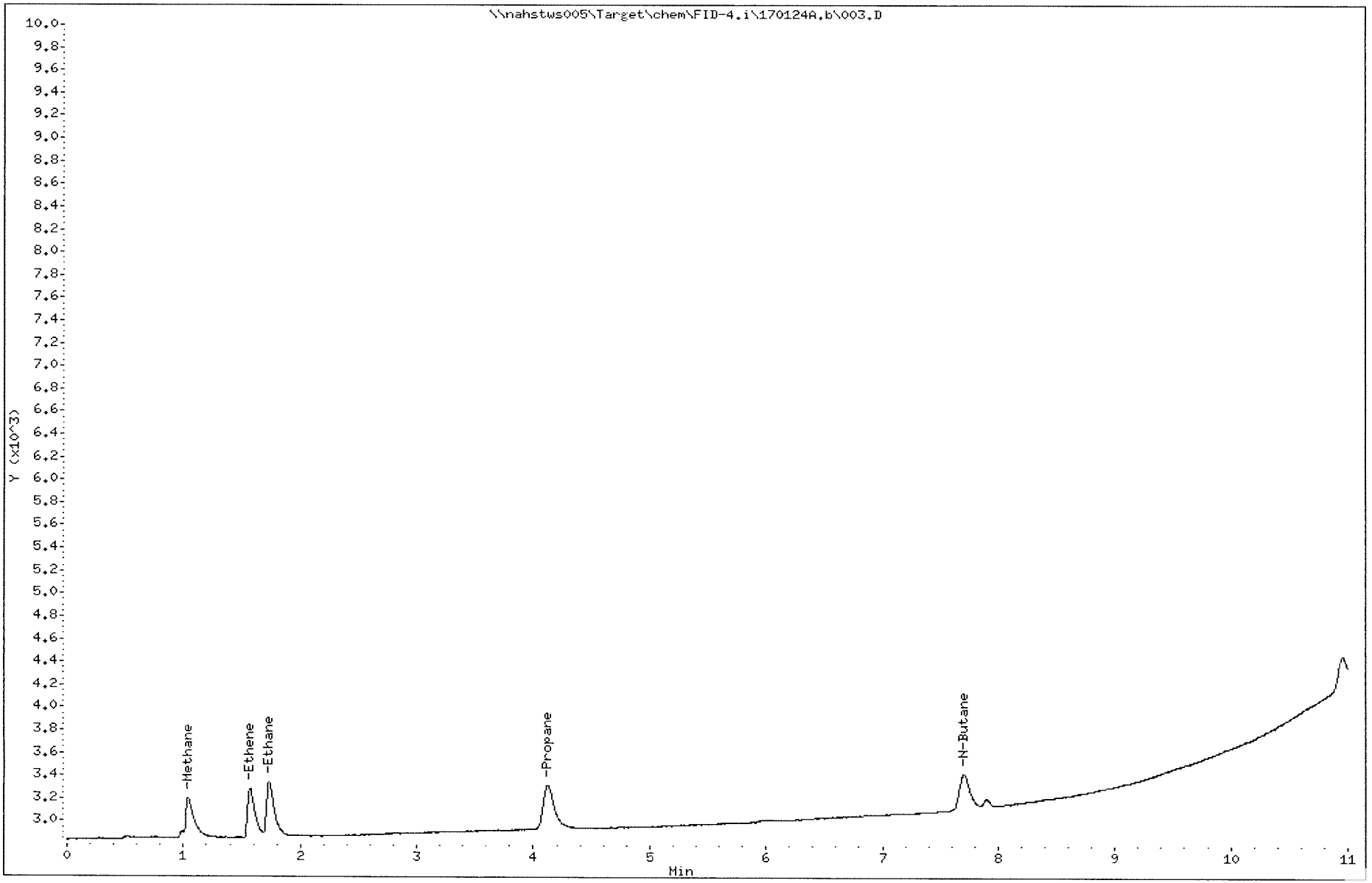
Sample Info: ICAL3;ICAL3;;;

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: 27-Dec-2021 13:16

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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(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

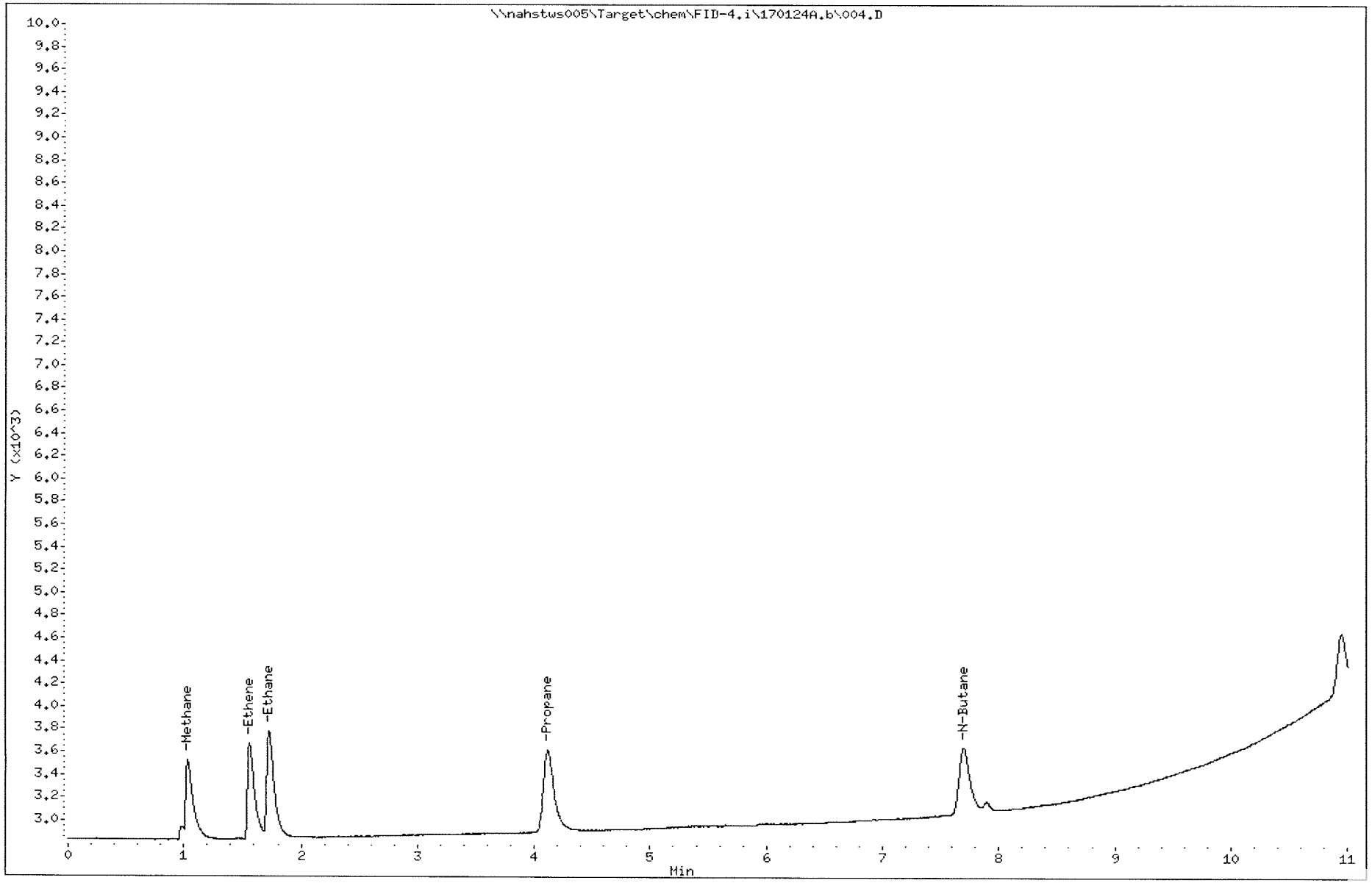
Sample Info: ICAL4;ICAL4;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



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

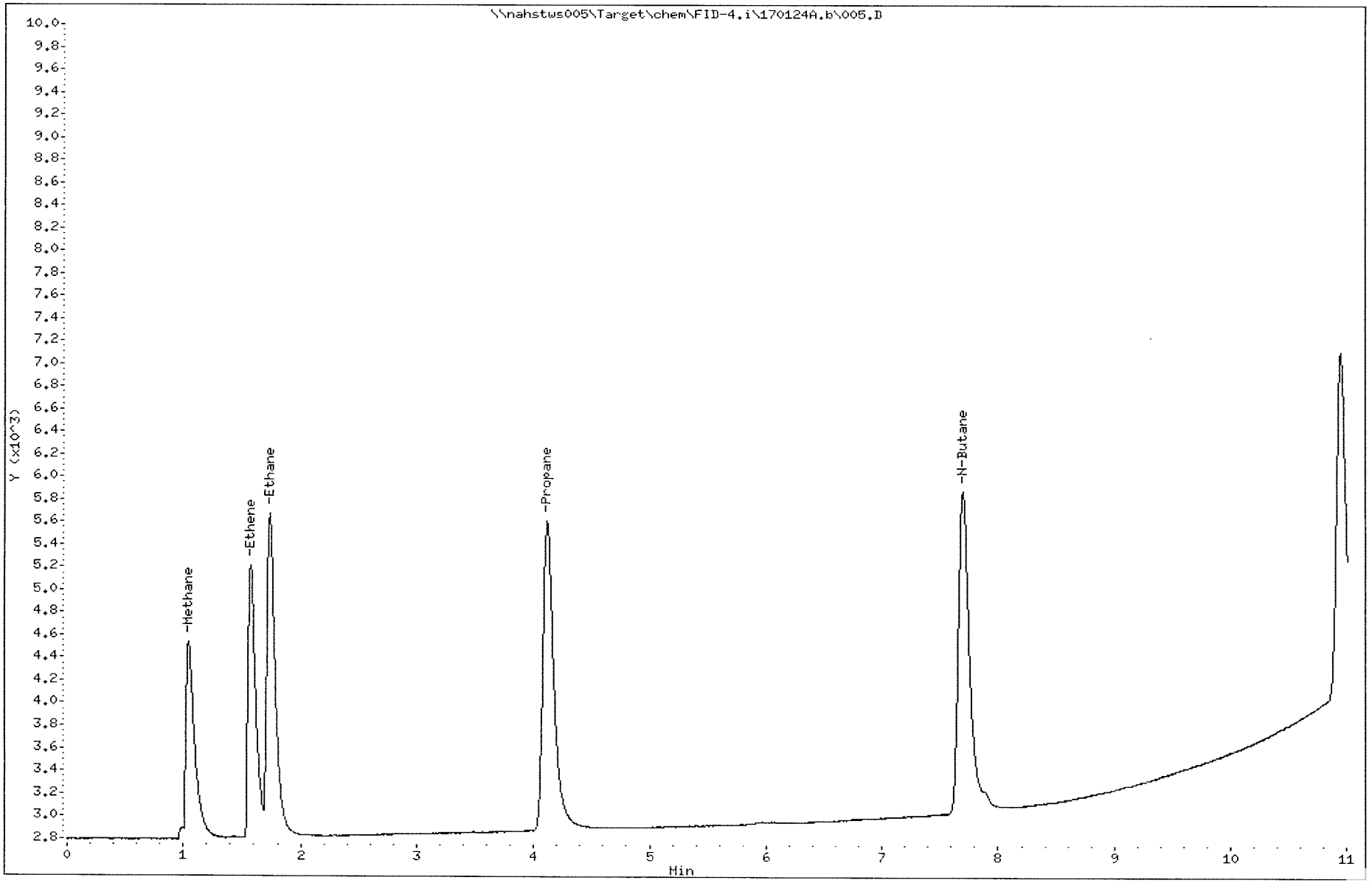
Sample Info: ICAL5;ICAL5;;;

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: 27-Dec-2021 13:16

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

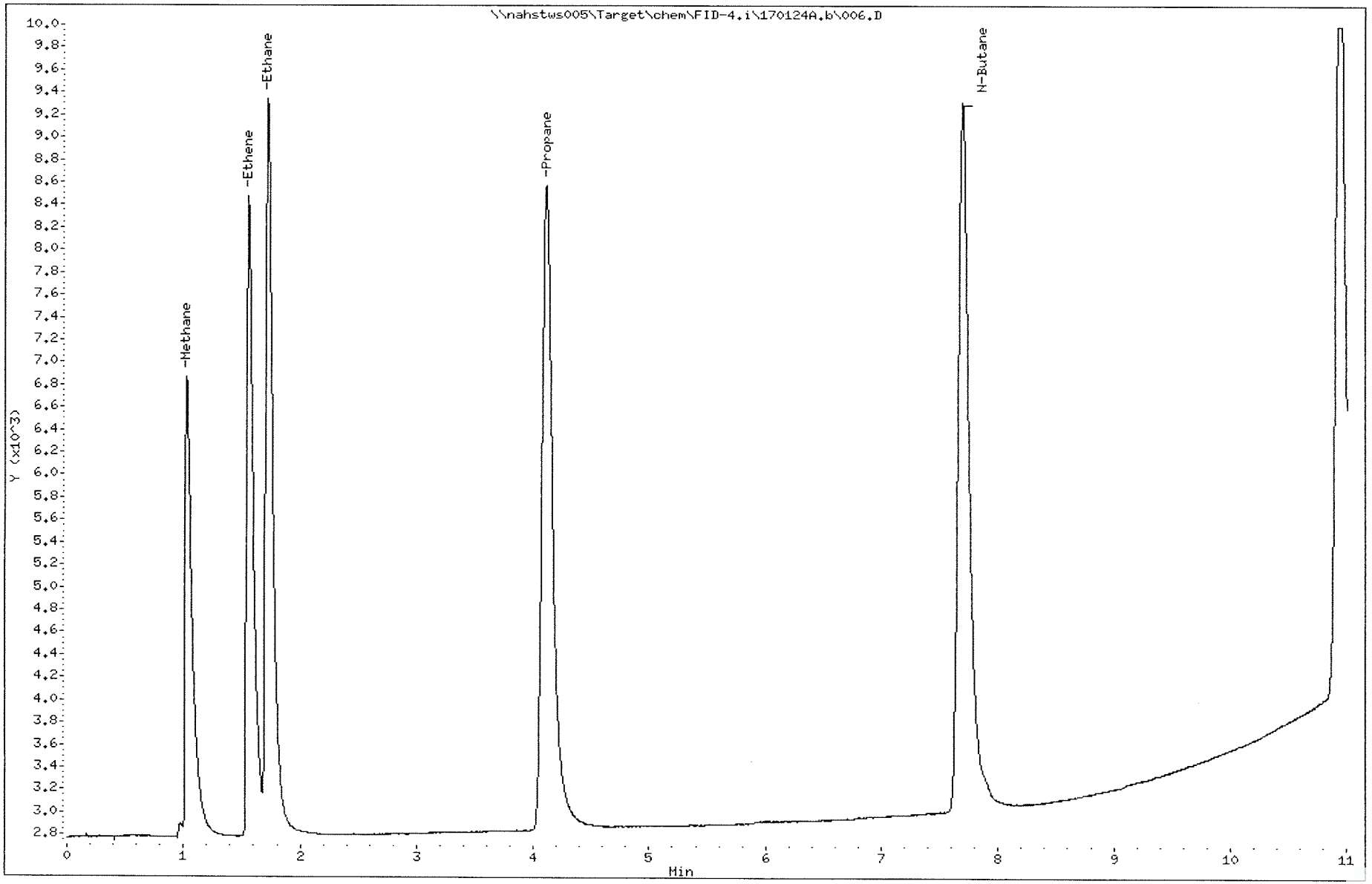
					AMOUNTS	
Compounds	RT	EXP RT	DLT RT	RESPONSE	CAL-AMT (ug/L)	ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	17957	19.2940	18.429
2 Ethene	1.550	1.556	-0.006	22910	53.8200	39.078
3 Ethane	1.716	1.723	-0.007	29505	36.0860	40.070
4 Propane	4.110	4.113	-0.003	38286	52.9260	52.796
5 N-Butane	7.696	7.690	0.006	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



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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(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

Date : 24-JAN-2017 11:13

Client ID: ICAL7

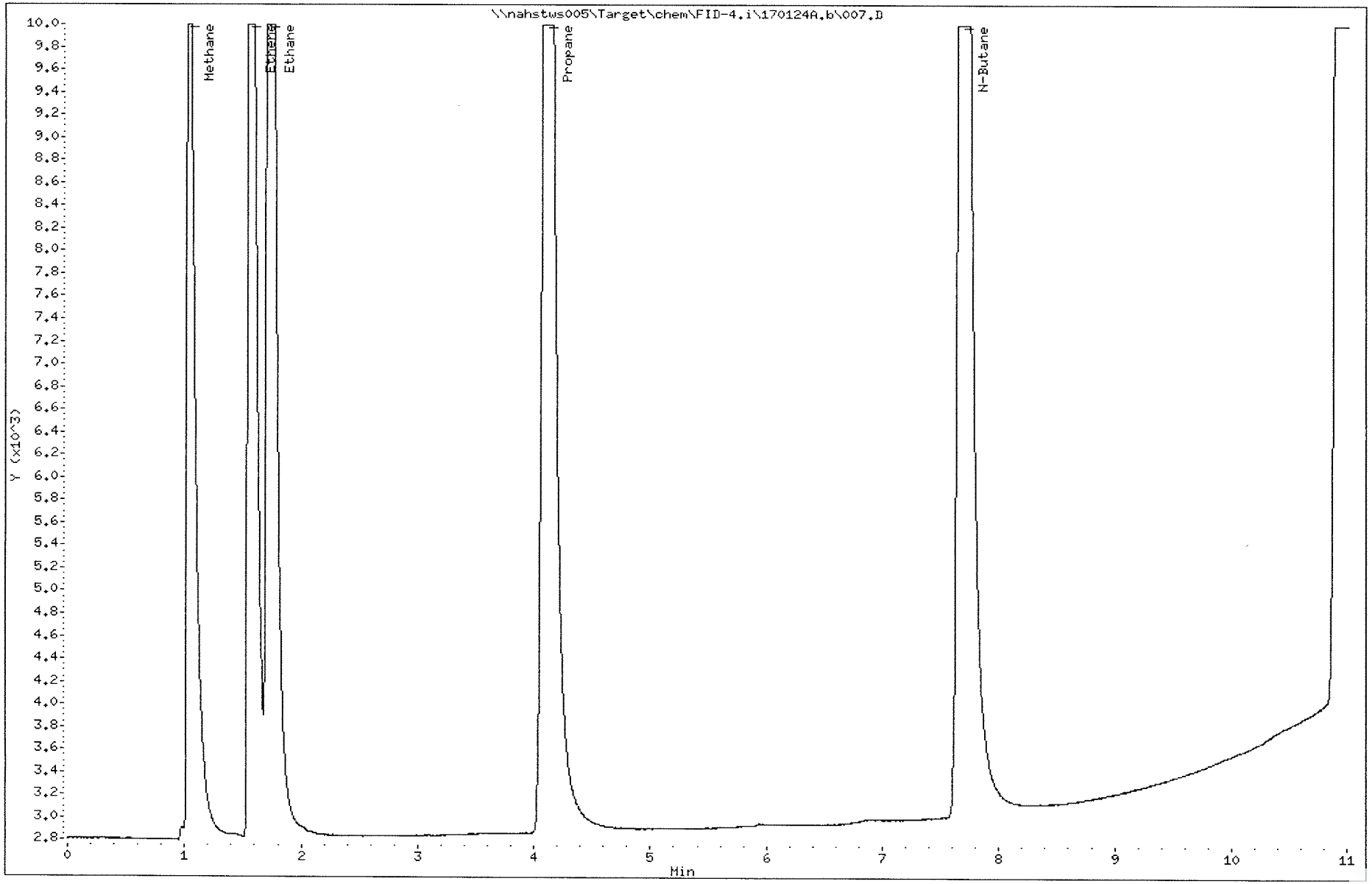
Sample Info: ICAL7;ICAL7;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



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

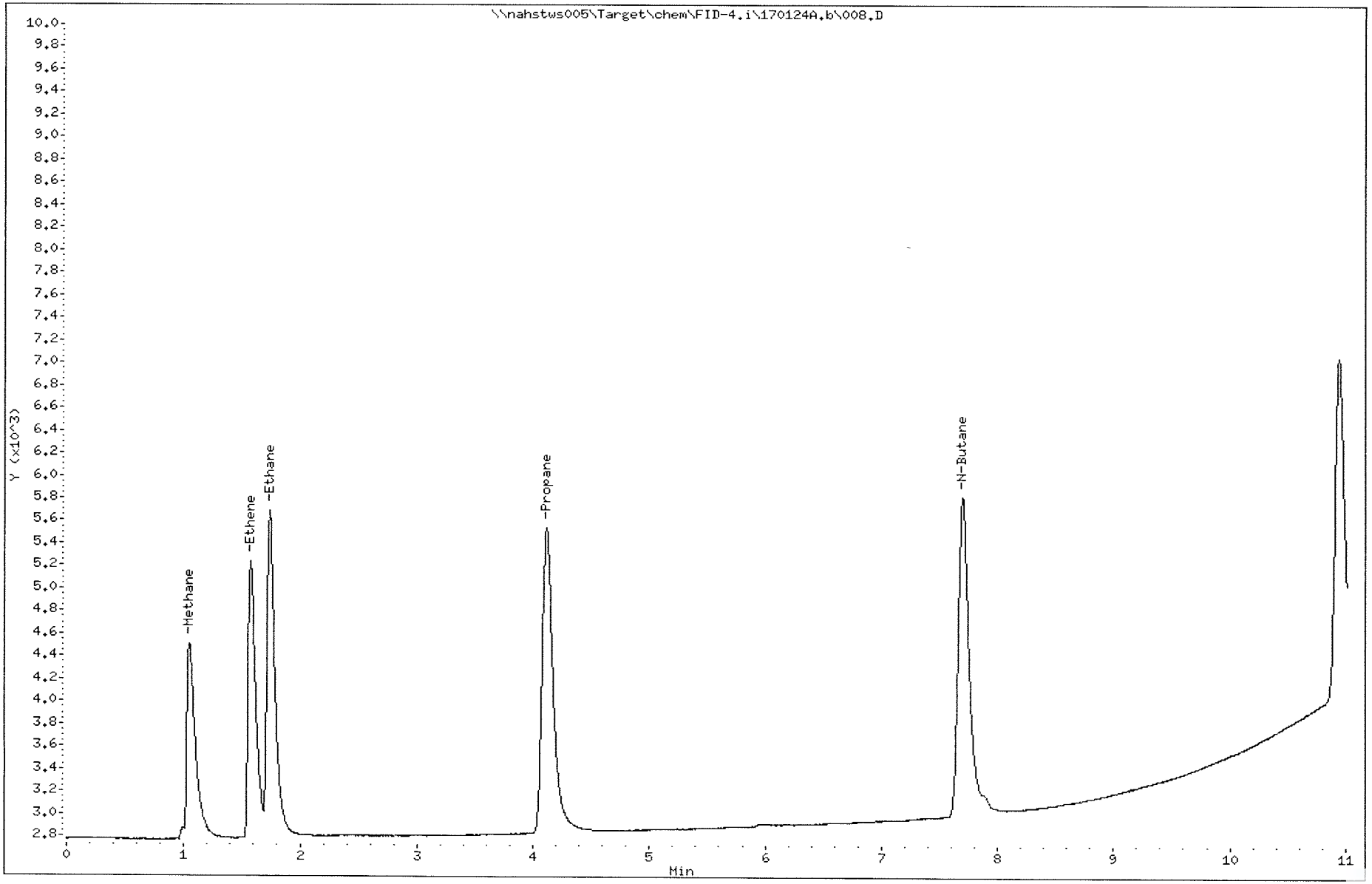
					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	1.046	1.030	0.016	9352	9.59792	9.597
2 Ethene	1.573	1.556	0.017	11192	19.0906	19.090
3 Ethane	1.736	1.723	0.013	14474	19.6571	19.657
4 Propane	4.116	4.113	0.003	18164	27.2381	27.238
5 N-Butane	7.696	7.690	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: 50226
Date: 06-24-2022
Method: RSK175
Comments:

Analyst: Purvi Lad
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	RSK-CCV	CCV	06-24-2022 08:57 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	MBLK-220624	MBLK	06-24-2022 09:07 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	NA
3	LCS-220624	LCS	06-24-2022 09:20 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	NA
4	LCSD-220624	LCSD	06-24-2022 09:28 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	NA
5	HS22061106-01	SAMP	06-24-2022 09:38 am	1.00	0.00 mL	0.00 mL	005.D	Liquid	Y	<2
6	HS22061106-02	SAMP	06-24-2022 09:49 am	1.00	0.00 mL	0.00 mL	006.D	Liquid	Y	<2
7	HS22061108-01	SAMP	06-24-2022 09:57 am	1.00	0.00 mL	0.00 mL	007.D	Liquid	Y	<2
8	HS22061108-02	SAMP	06-24-2022 10:10 am	1.00	0.00 mL	0.00 mL	008.D	Liquid	Y	<2
9	HS22061108-03	SAMP	06-24-2022 10:21 am	1.00	0.00 mL	0.00 mL	009.D	Liquid	Y	<2
10	HS22061111-01	SAMP	06-24-2022 10:37 am	1.00	0.00 mL	0.00 mL	010.D	Liquid	Y	<2
11	RSK-CCV	CCV	06-24-2022 11:02 am	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS22061111-02	SAMP	06-24-2022 11:12 am	1.00	0.00 mL	0.00 mL	012.D	Liquid	Y	<2
13	HS22061122-07	SAMP	06-24-2022 11:23 am	1.00	0.00 mL	0.00 mL	013.D	Liquid	Y	<2
14	HS22061122-17	SAMP	06-24-2022 11:31 am	1.00	0.00 mL	0.00 mL	014.D	Liquid	Y	<2
15	HS22061122-18	SAMP	06-24-2022 11:42 am	1.00	0.00 mL	0.00 mL	015.D	Liquid	Y	<2
16	HS22061166-04	SAMP	06-24-2022 11:54 am	1.00	0.00 mL	0.00 mL	016.D	Liquid	Y	<2
17	HS22061166-12	SAMP	06-24-2022 12:03 pm	1.00	0.00 mL	0.00 mL	017.D	Liquid	Y	<2
18	HS22061166-13	SAMP	06-24-2022 12:15 pm	1.00	0.00 mL	0.00 mL	018.D	Liquid	Y	<2
19	HS22061166-14	SAMP	06-24-2022 12:27 pm	1.00	0.00 mL	0.00 mL	019.D	Liquid	Y	<2
20	HS22061166-15	SAMP	06-24-2022 12:36 pm	1.00	0.00 mL	0.00 mL	020.D	Liquid	Y	<2
21	HS22061244-01	SAMP	06-24-2022 12:45 pm	1.00	0.00 mL	0.00 mL	021.D	Liquid	Y	<2
22	RSK-CCV	CCV	06-24-2022 12:58 pm	1.00	0.00 mL	0.00 mL	022.D	Liquid	Y	NA
23	HS22061106-01DUP	SAMP	06-24-2022 01:08 pm	1.00	0.00 mL	0.00 mL	023.D	Liquid	Y	NA
24	HS22061111-02	SAMP	06-24-2022 01:17 pm	10.00	0.00 mL	0.00 mL	024.D	Liquid	Y	<2
25	HS22061166-13	SAMP	06-24-2022 01:29 pm	4.00	0.00 mL	0.00 mL	025.D	Liquid	Y	<2
26	HS22061166-14	SAMP	06-24-2022 01:38 pm	4.00	0.00 mL	0.00 mL	026.D	Liquid	Y	<2
27	HS22061244-01	SAMP	06-24-2022 01:47 pm	25.00	0.00 mL	0.00 mL	027.D	Liquid	Y	<2
28	RSK-CCV	CCV	06-24-2022 01:55 pm	1.00	0.00 mL	0.00 mL	028.D	Liquid	Y	NA
29	HS22061334-06	SAMP	06-24-2022 04:05 pm	1.00	0.00 mL	0.00 mL	029.D	Liquid	Y	<2
30	HS22061334-06	SAMP	06-24-2022 04:12 pm	4.00	0.00 mL	0.00 mL	030.D	Liquid	Y	<2
31	RSK-CCV	CCV	06-24-2022 04:22 pm	1.00	0.00 mL	0.00 mL	031.D	Liquid	Y	NA

Chemical	Value
pH Paper	300107067-03
CCV/LC/LSD/MS/MSD	300107064-16/63-06

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS22061313

Instrument ID: FID-4 Calibration Date: 07/01/22 Time: 0848

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	790.11251	0.01	-9.82	20.00	AVRG
Methane	974.99200	1005.9086	0.01	-3.17	20.00	AVRG
Ethene	585.76000	680.35608	0.01	-16.15	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS22061313

Instrument ID: FID-4 Calibration Date: 07/01/22 Time: 1024

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	814.22158	0.01	-13.17	20.00	AVRG
Methane	974.99200	885.66394	0.01	9.16	20.00	AVRG
Ethene	585.76000	623.26409	0.01	-6.40	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS22061313

Instrument ID: FID-4 Calibration Date: 07/01/22 Time: 1217

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	750.09699	0.01	-4.25	20.00	AVRG
Methane	974.99200	824.50503	0.01	15.43	20.00	AVRG
Ethene	585.76000	616.02374	0.01	-5.17	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS22061313

Instrument ID: FID-4 Calibration Date: 07/01/22 Time: 1348

Lab File ID: 032 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	737.57136	0.01	-2.51	20.00	AVRG
Methane	974.99200	823.15746	0.01	15.57	20.00	AVRG
Ethene	585.76000	636.67656	0.01	-8.69	20.00	AVRG

FORM VII GASES

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 01-JUL-2022 08:48
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\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 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

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	0.440	0.440	0.000	9704	9.64700	9.952
2 Ethene	0.663	0.660	0.003	11464	16.8500	19.571
3 Ethane	0.733	0.733	0.000	14256	18.0430	19.814(M)

QC Flag Legend

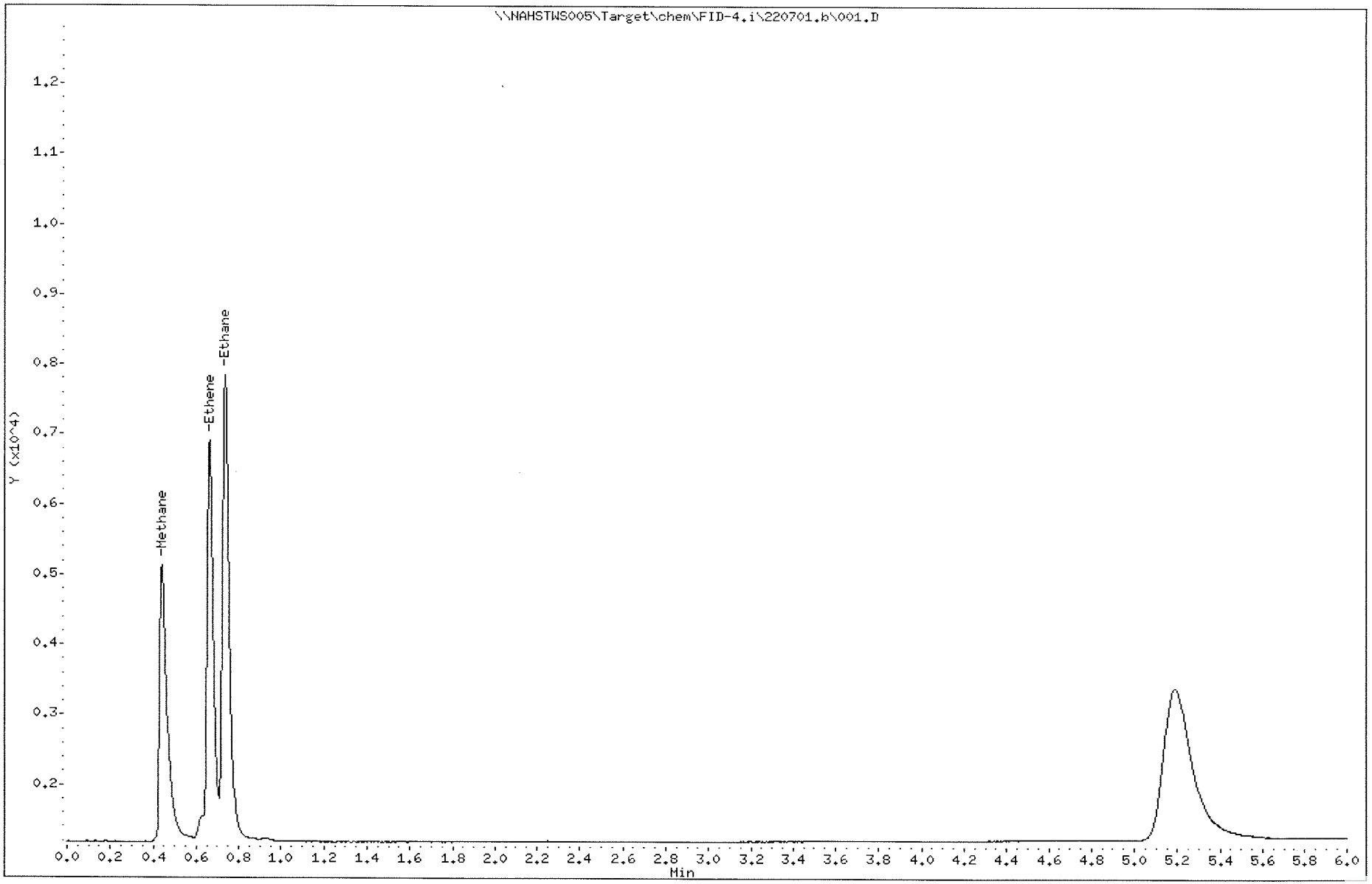
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\001.D
Date : 01-JUL-2022 08:48
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\220701.b\Before\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 01-JUL-2022 08:48
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\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 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: ALSHSW7104

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	0.440	0.440	0.000	10079	9.64700	10.337
2 Ethene	0.663	0.660	0.003	12529	16.8500	21.389
3 Ethane	0.733	0.733	0.000	15567	18.0430	21.636

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\001.D

Date : 01-JUL-2022 08:48

Client ID: RSK-CCV

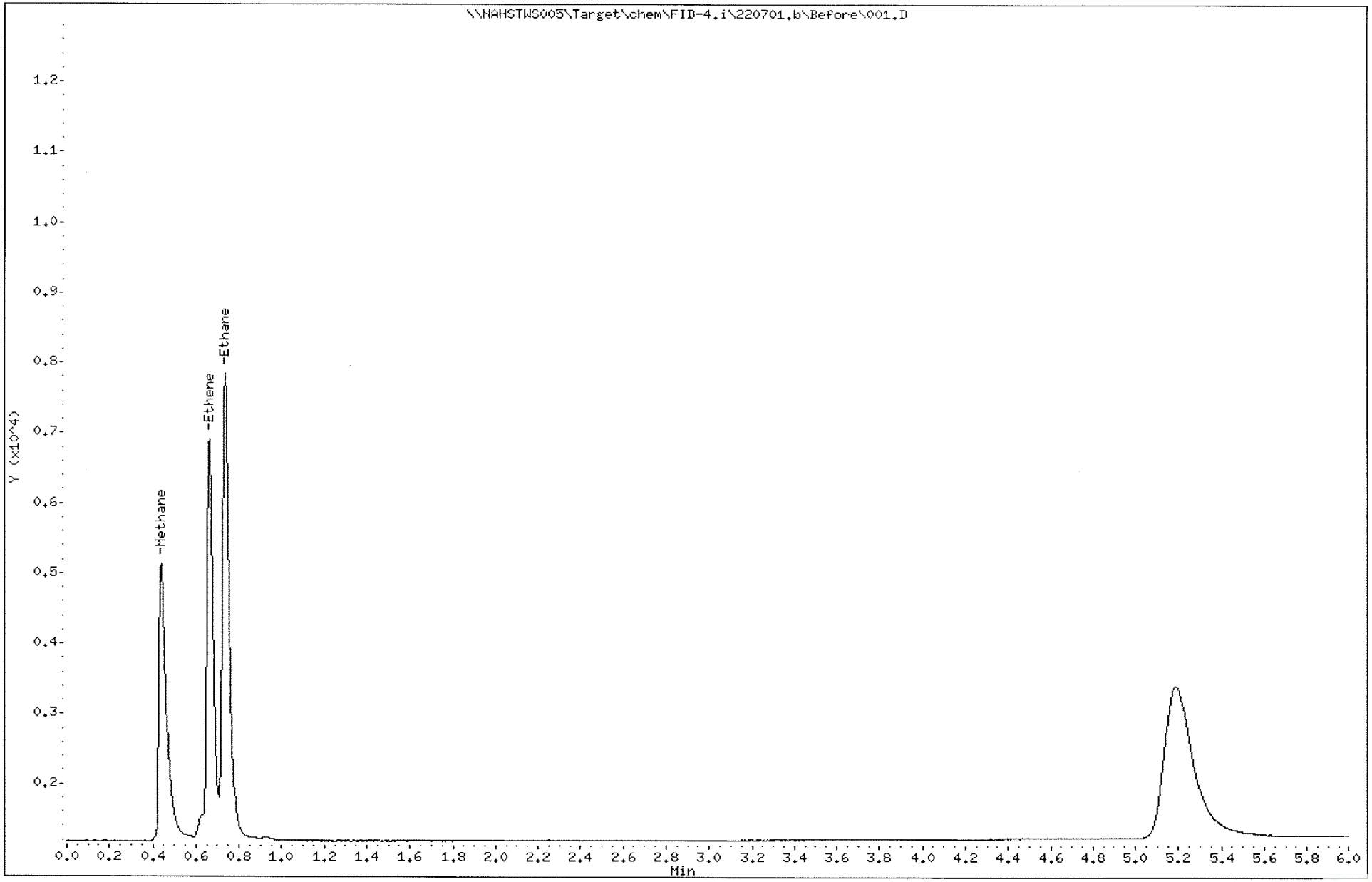
Instrument: FID-4.i

Sample Info: RSK-CCV;RSK-CCV;2;4

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\002.D
Lab Smp Id: MBLK-220701 Client Smp ID: MBLK-220701
Inj Date : 01-JUL-2022 09:03
Operator : PL Inst ID: FID-4.i
Smp Info : MBLK-220701;MBLK-220701;3;;BLANK
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 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: ALSHSW7104

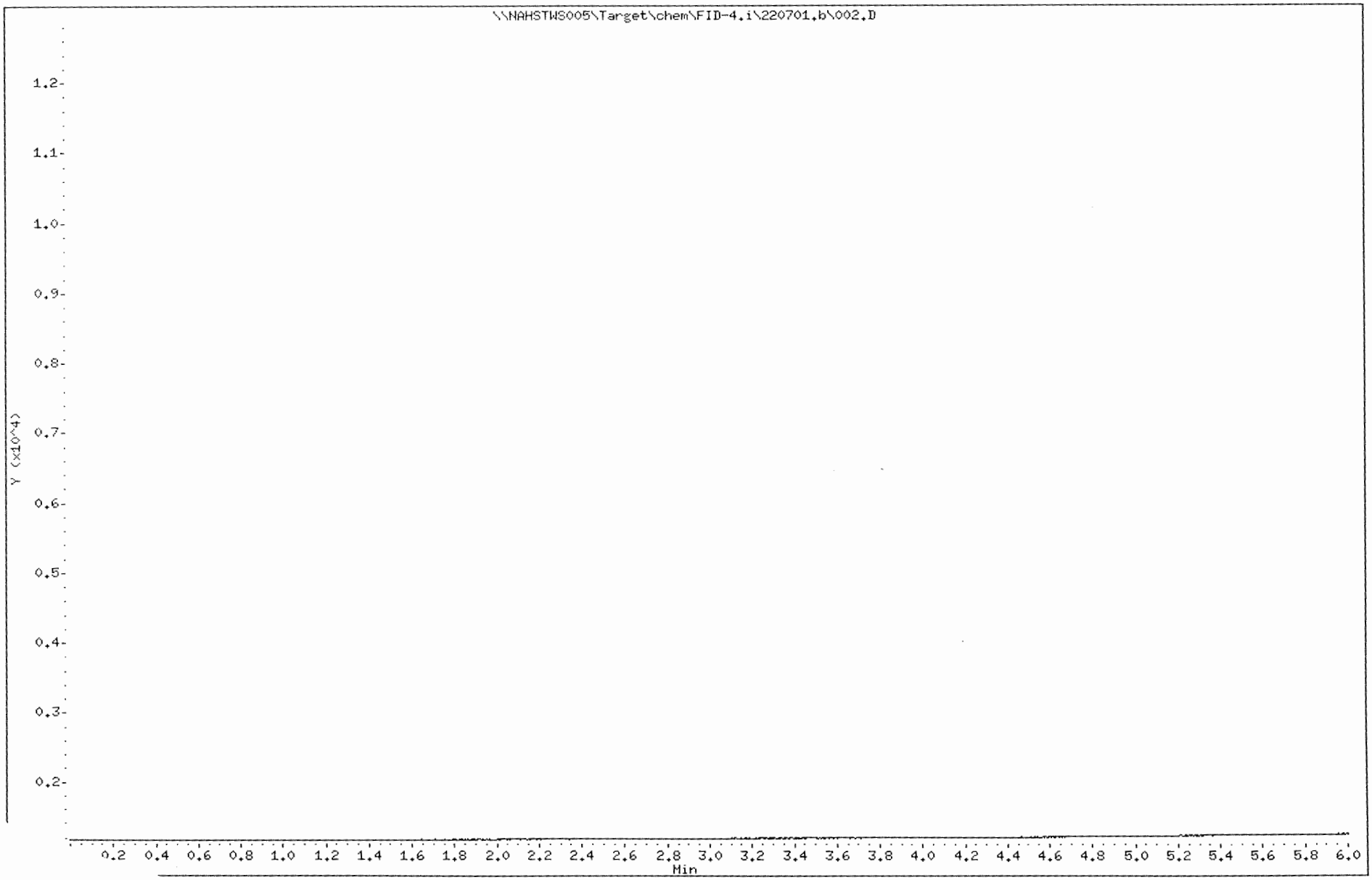
Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)

Date : 01-JUL-2022 09:03
Client ID: MBLK-220701
Sample Info: MBLK-220701;MBLK-220701;3;;BLANK

Instrument: FID-4.i
Operator: PL
Column diameter: 0.53

Column phase: Rtx-PLOT



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\003.D
Lab Smp Id: LCS-220701 Client Smp ID: LCS-220701
Inj Date : 01-JUL-2022 09:12
Operator : PL Inst ID: FID-4.i
Smp Info : LCS-220701;LCS-220701;3;;LCS
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 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: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.436	0.440	-0.004	8756	8.98058	8.980
2 Ethene	0.660	0.660	0.000	10299	17.5823	17.582
3 Ethane	0.733	0.733	0.000	16107	22.3867	22.386

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\003.D

Date : 01-JUL-2022 09:12

Client ID: LCS-220701

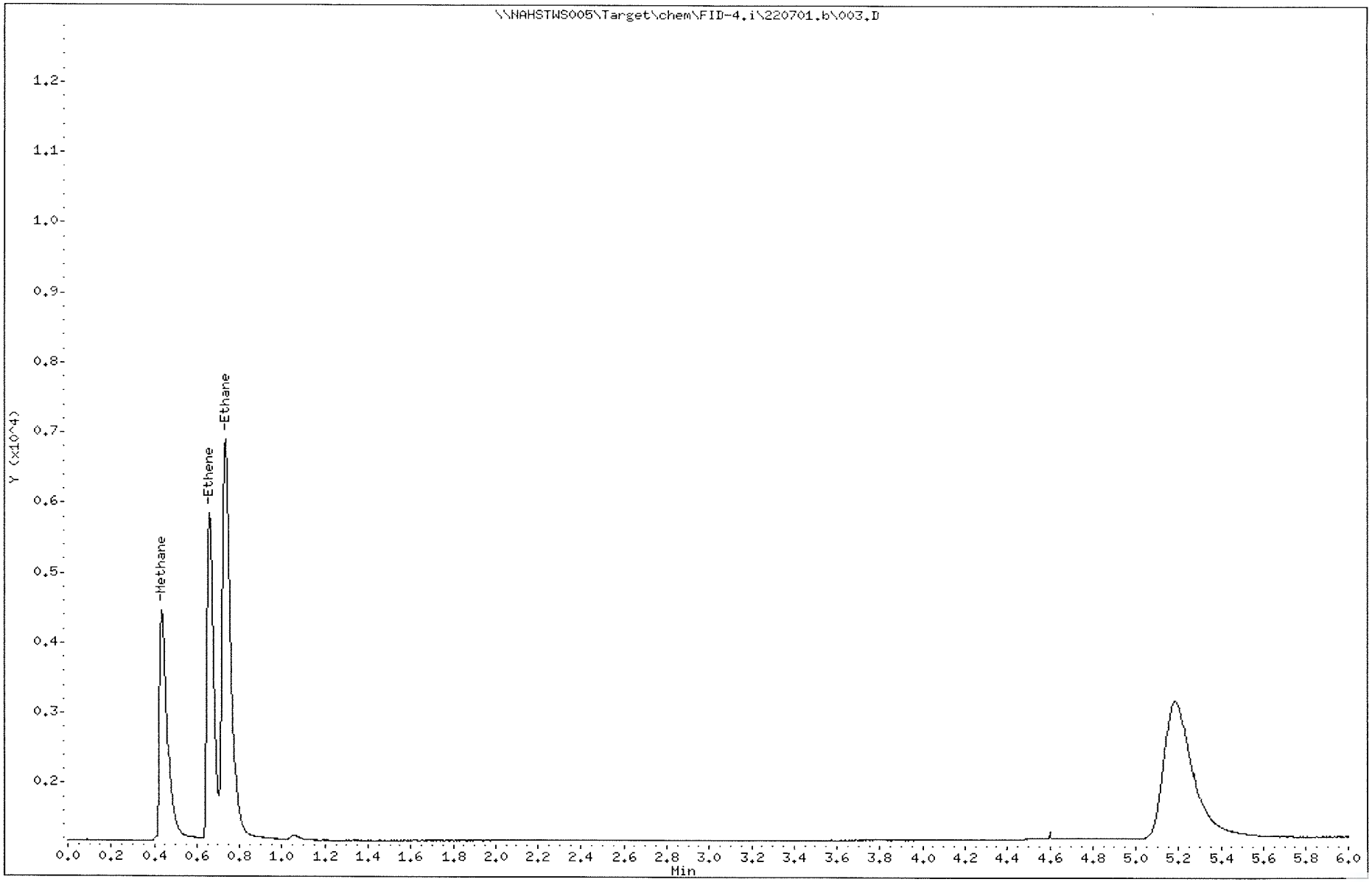
Sample Info: LCS-220701;LCS-220701;3;;LCS

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\220701.b\004.D
Lab Smp Id: LCSD-220701 Client Smp ID: LCSD-220701
Inj Date : 01-JUL-2022 09:21
Operator : PL Inst ID: FID-4.i
Smp Info : LCSD-220701;LCSD-220701;3;;LCSD
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 4 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

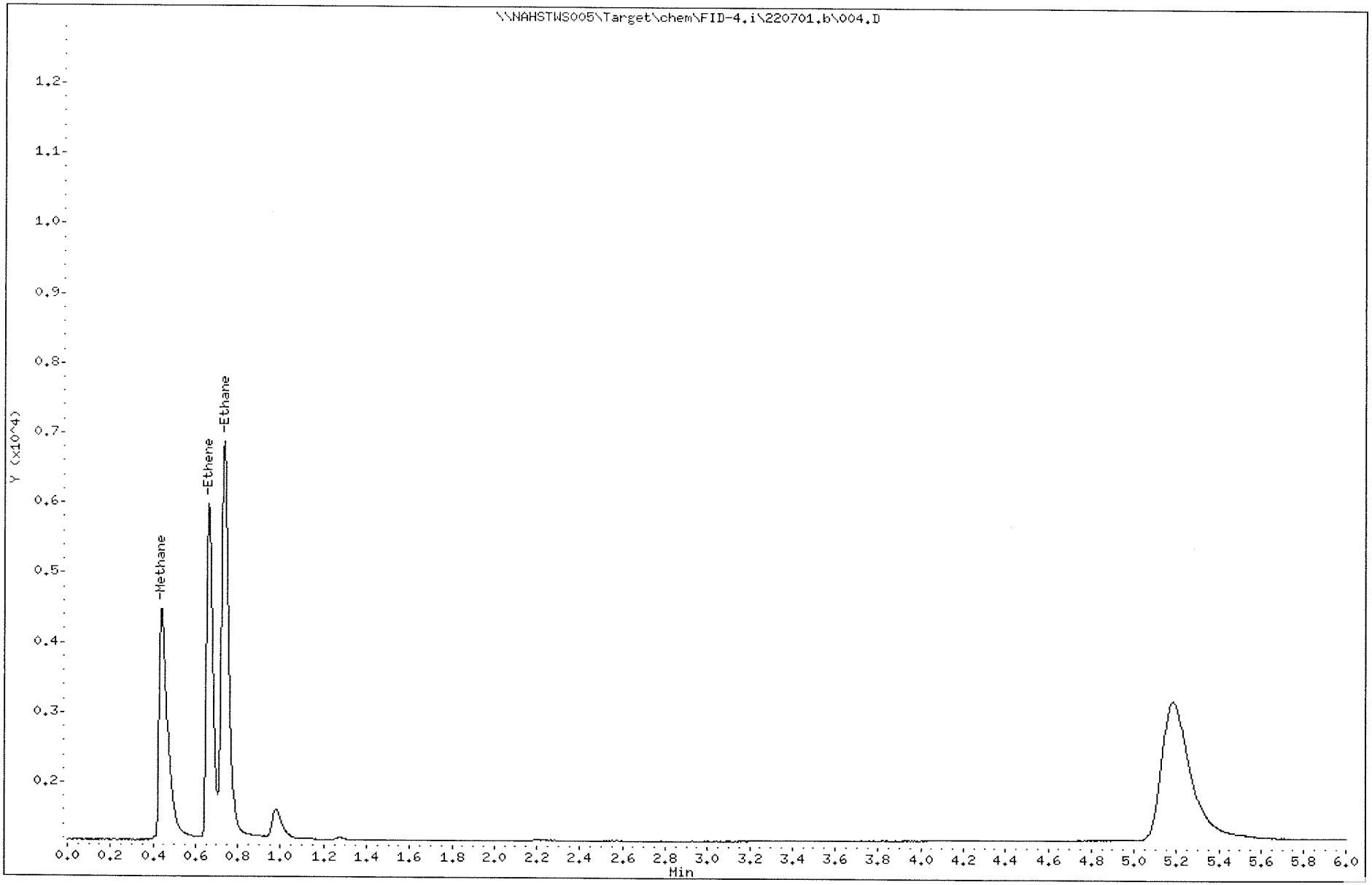
					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.436	0.440	-0.004	9564	9.80931	9.809
2 Ethene	0.660	0.660	0.000	10309	17.5993	17.599
3 Ethane	0.733	0.733	0.000	14330	19.9169	19.916

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\004.D
Date : 01-JUL-2022 09:21
Client ID: LCSD-220701
Sample Info: LCSD-220701;LCSD-220701;3;;LCSD

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\220701.b\011.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 01-JUL-2022 10:24
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\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 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: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.443	0.440	0.003	8544	9.64700	8.763
2 Ethene	0.666	0.660	0.006	10502	16.8500	17.928
3 Ethane	0.740	0.733	0.007	14691	18.0430	20.418

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\011.D

Date : 01-JUL-2022 10:24

Client ID: RSK-CCV

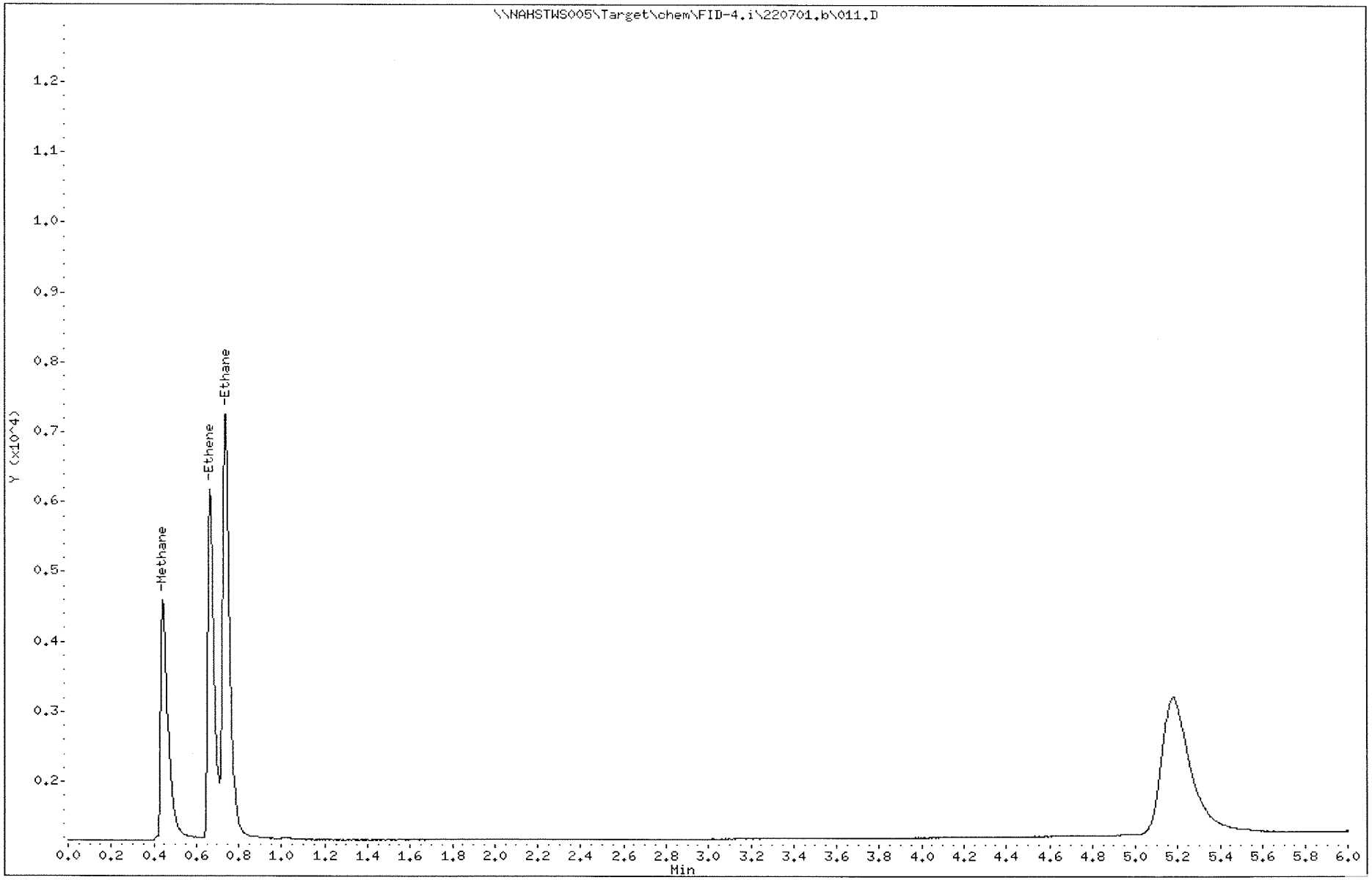
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

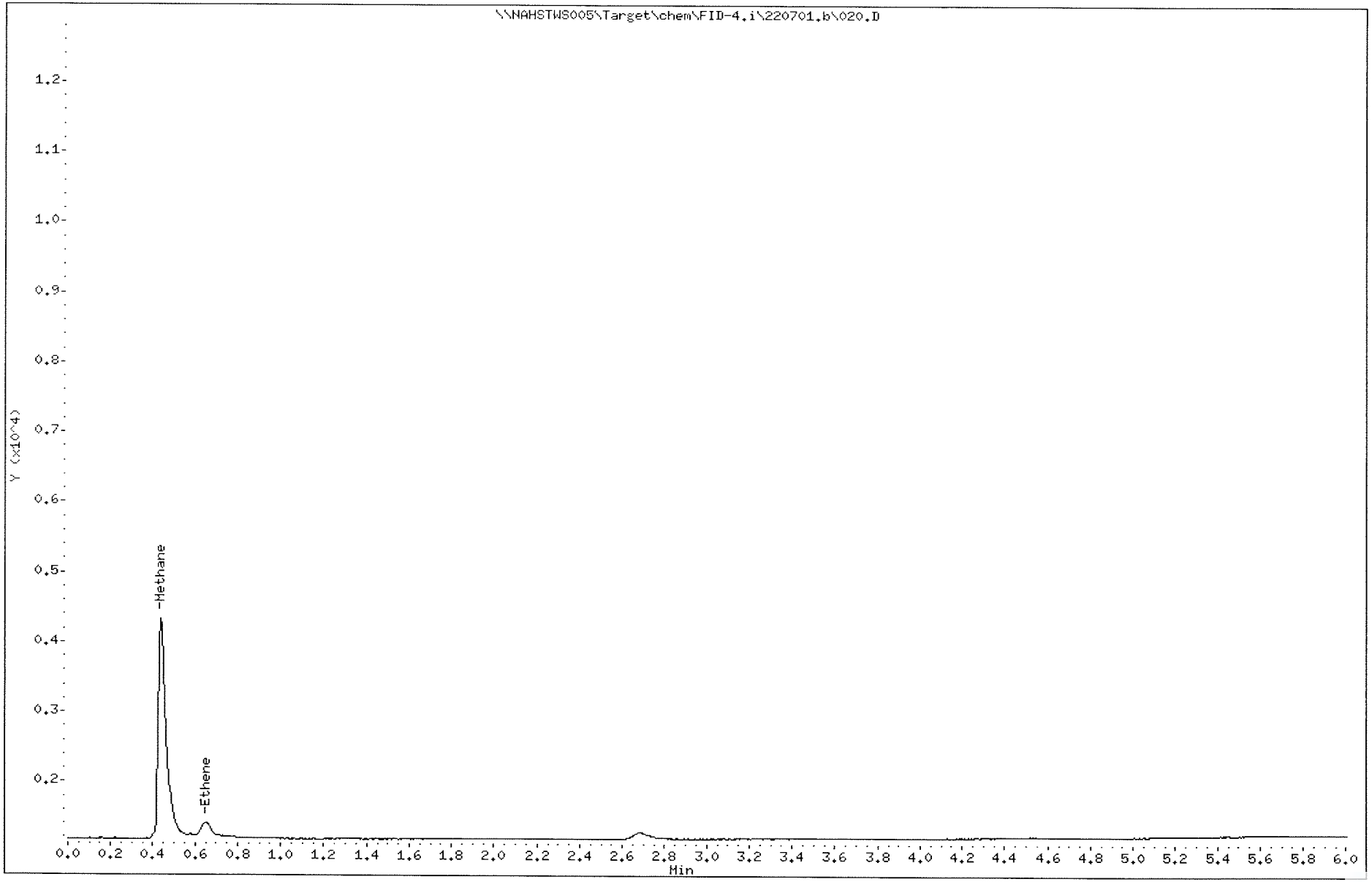
Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\020.D
Lab Smp Id: HS22061313-01 Client Smp ID: HS22061313-01
Inj Date : 01-JUL-2022 11:58
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-01;HS22061313-01
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.436	0.440	-0.004	8893	9.12110	9.121
2 Ethene	0.650	0.660	-0.010	958	1.63548	1.635

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\020.D
Date : 01-JUL-2022 11:58
Client ID: HS22061313-01
Sample Info: HS22061313-01;HS22061313-01

Instrument: FID-4.i
Operator: PL
Column phase: Rtx-PLOT
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\021.D Page 1
Report Date: 18-Jul-2022 10:56

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\021.D
Lab Smp Id: HS22061313-01DUP Client Smp ID: HS22061313-01DUP
Inj Date : 01-JUL-2022 12:07
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-01DUP;HS22061313-01DUP
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

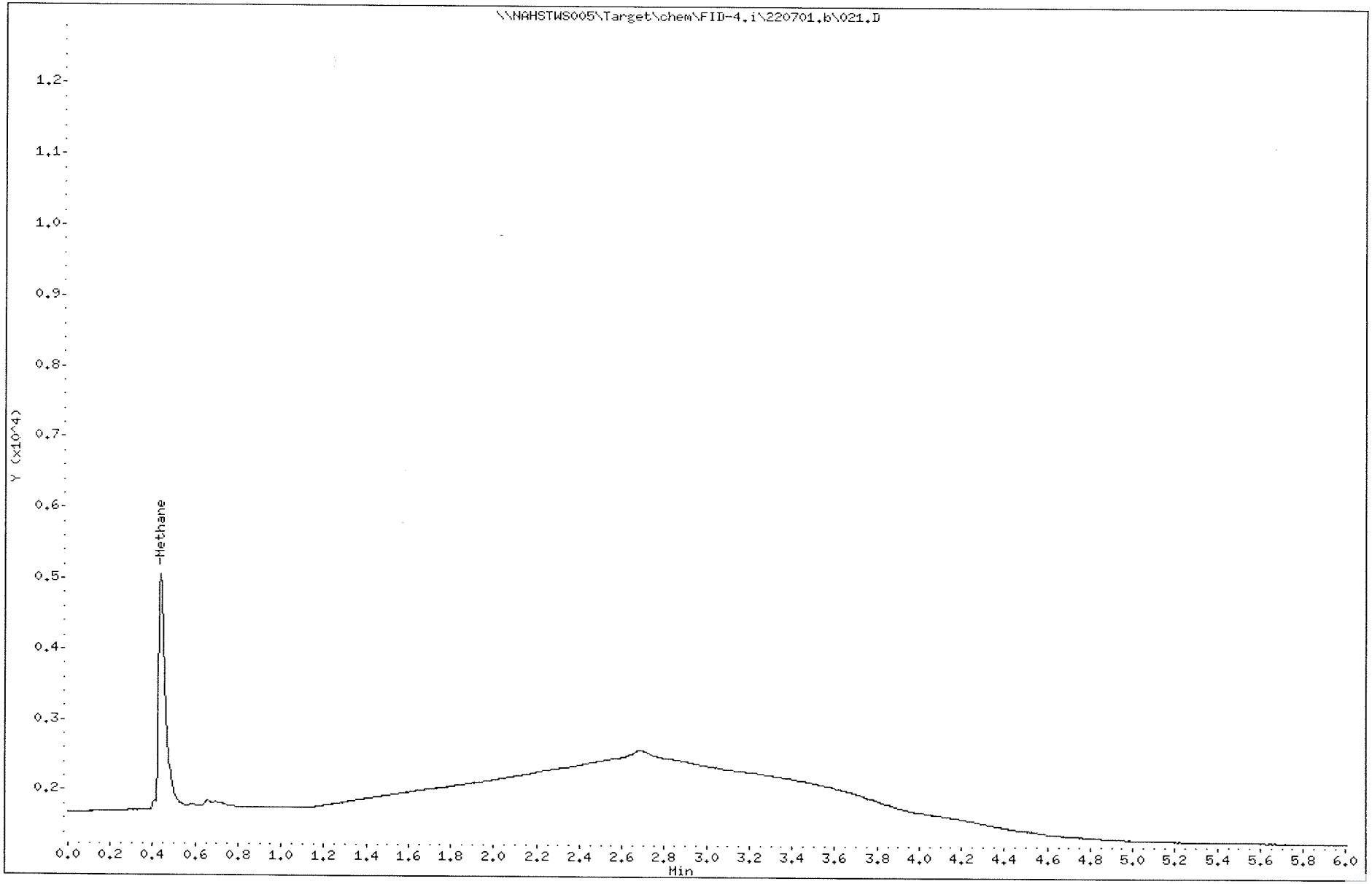
					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.433	0.440	-0.007	8136	8.34468	8.344

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\021.D
Date : 01-JUL-2022 12:07
Client ID: HS22061313-01DUP
Sample Info: HS22061313-01DUP;HS22061313-01DUP

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\220701.b\022.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 01-JUL-2022 12:17
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\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 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: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

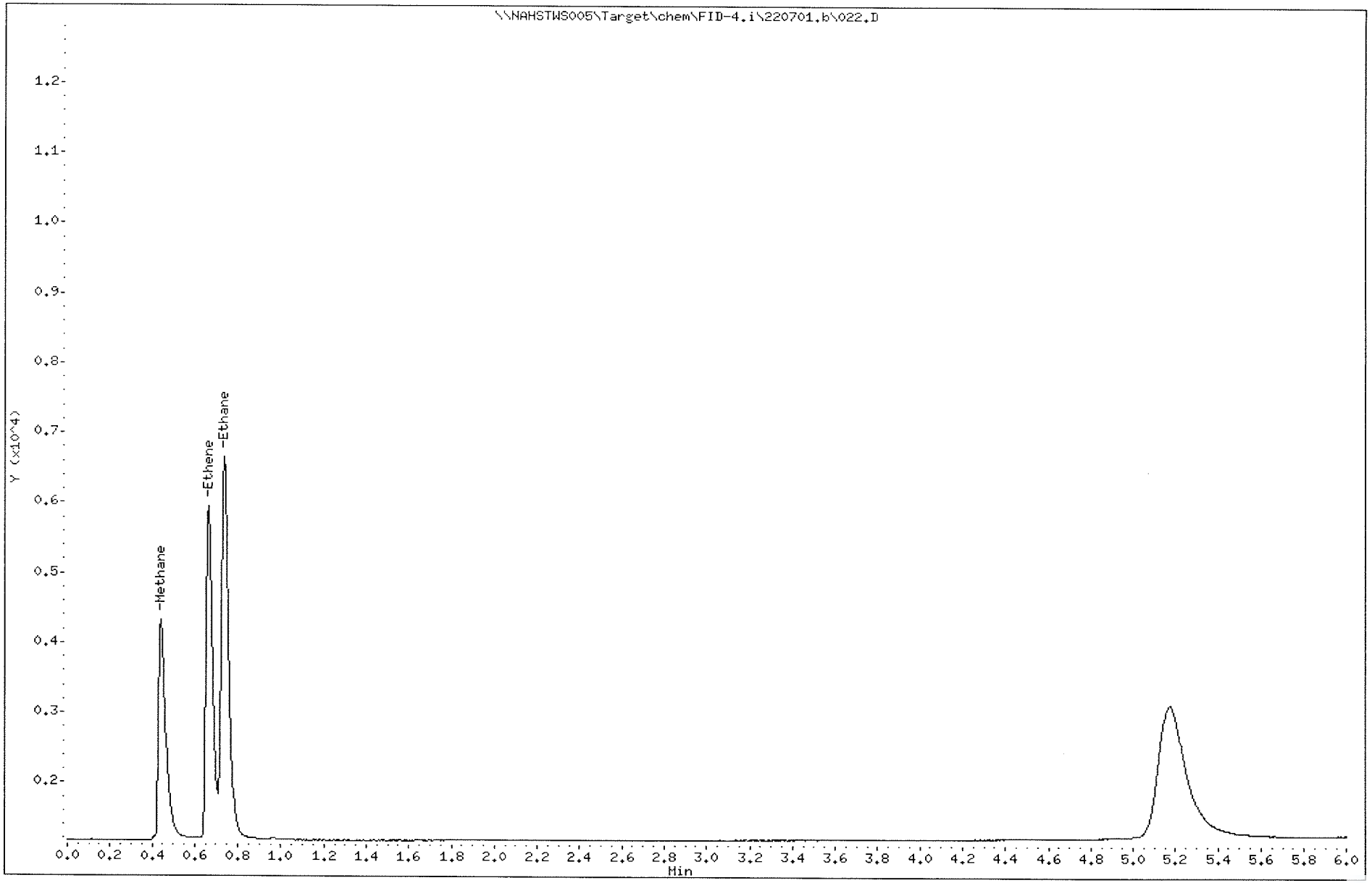
					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.440	0.440	0.000	7954	9.64700	8.158
2 Ethene	0.663	0.660	0.003	10380	16.8500	17.720
3 Ethane	0.736	0.733	0.003	13534	18.0430	18.810

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\022.D
Date : 01-JUL-2022 12:17
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\220701.b\023.D
Lab Smp Id: HS22061313-02 Client Smp ID: HS22061313-02
Inj Date : 01-JUL-2022 12:25
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-02;HS22061313-02
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.450	0.440	0.010	1711	1.75489	1.754
2 Ethene	0.640	0.660	-0.020	799	1.36404	1.364(M)

QC Flag Legend

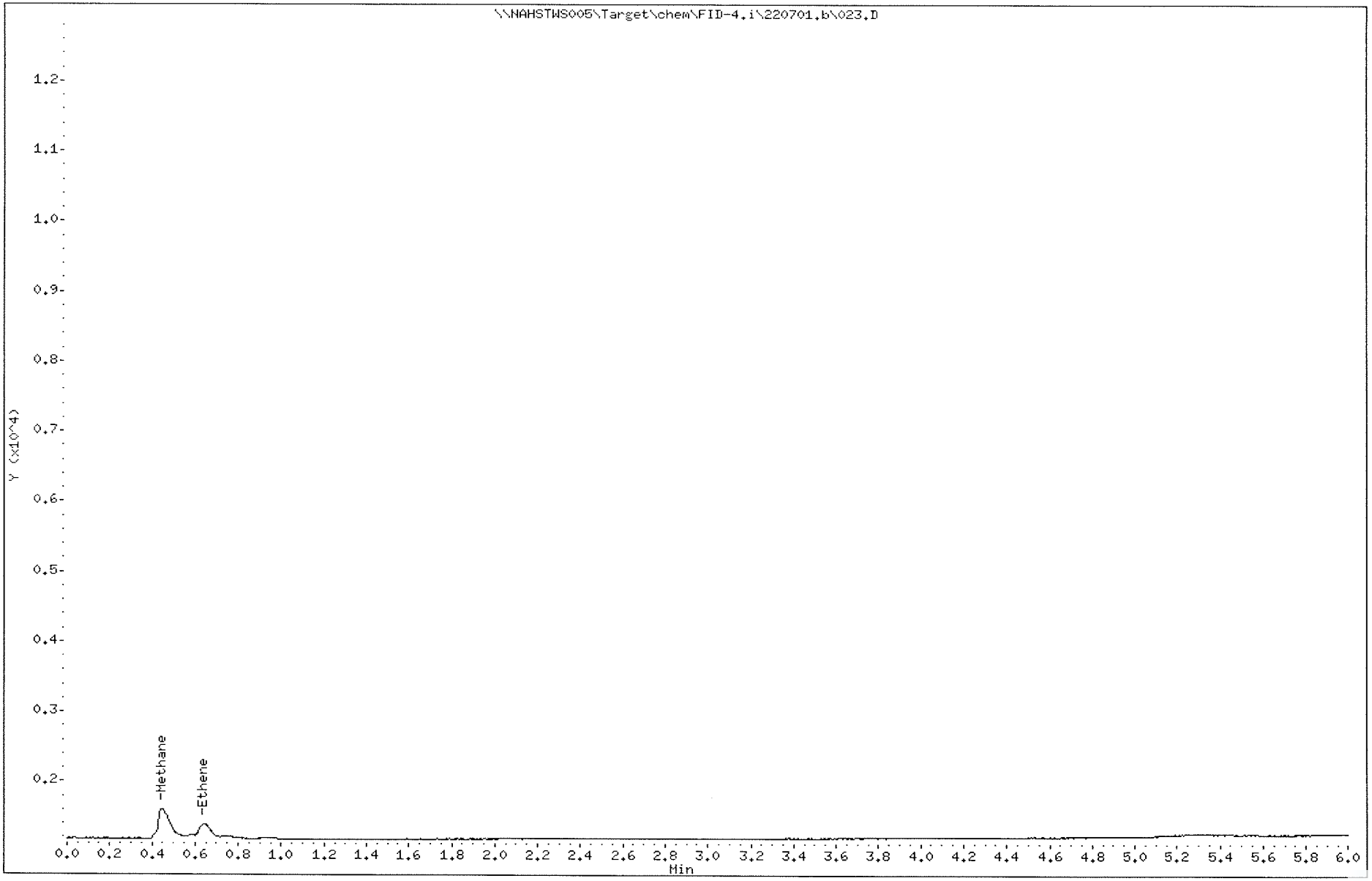
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\023.D
Date : 01-JUL-2022 12:25
Client ID: HS22061313-02
Sample Info: HS22061313-02;HS22061313-02

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\220701.b\Before\023.D
Lab Smp Id: HS22061313-02 Client Smp ID: HS22061313-02
Inj Date : 01-JUL-2022 12:25
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-02;HS22061313-02
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

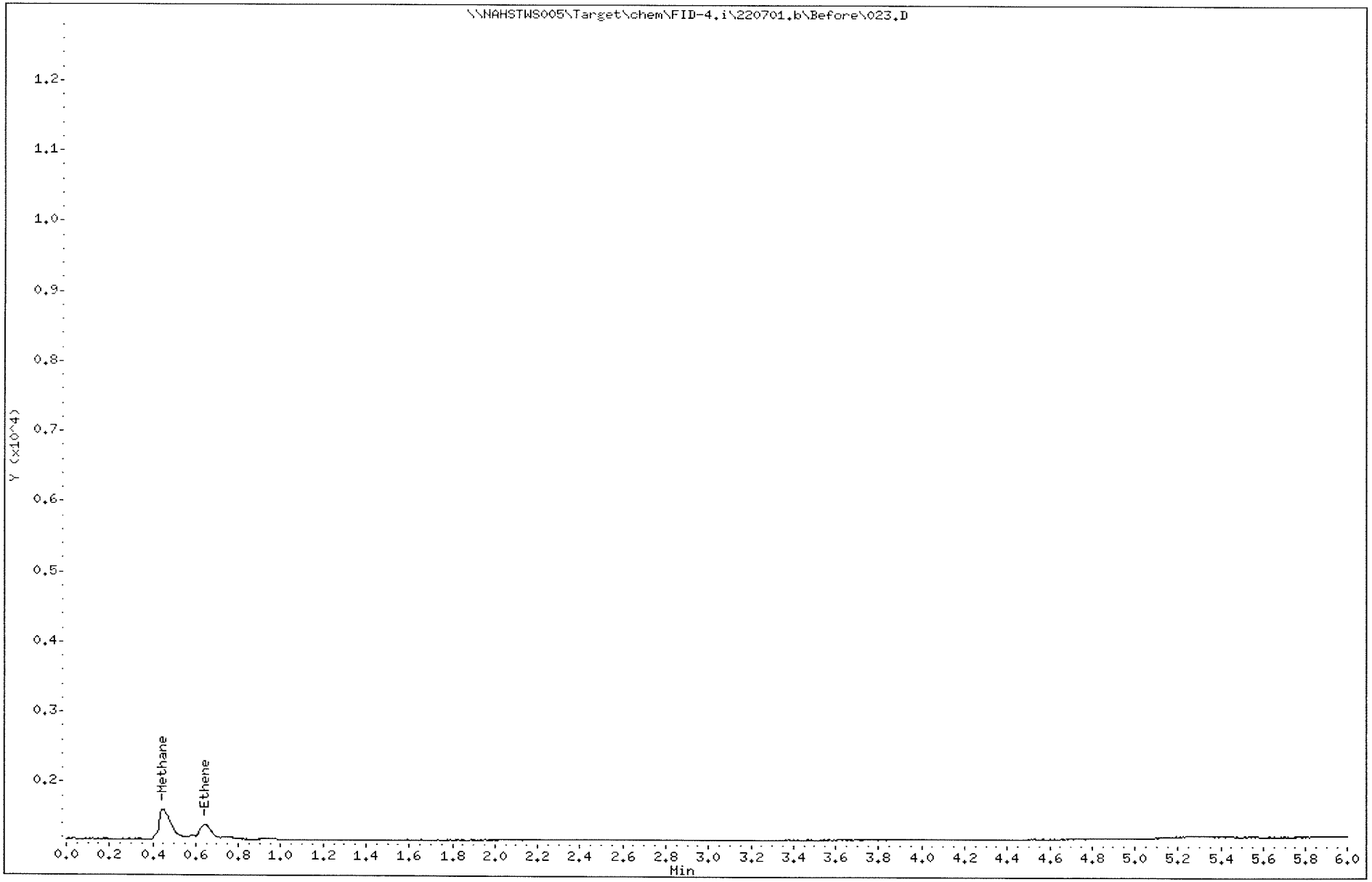
					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.450	0.440	0.010	1715	1.75899	1.758
2 Ethene	0.643	0.660	-0.017	1037	1.77035	1.770

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\023.D
Date : 01-JUL-2022 12:25
Client ID: HS22061313-02
Sample Info: HS22061313-02;HS22061313-02

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\220701.b\024.D
Lab Smp Id: HS22061313-03 Client Smp ID: HS22061313-03
Inj Date : 01-JUL-2022 12:34
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-03;HS22061313-03
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.436	0.440	-0.004	4884534	5009.82	5009.817(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

...\Target\chem\FID-4.i\220701.b\024.D

Date : 01-JUL-2022 12:34

Client ID: HS22061313-03

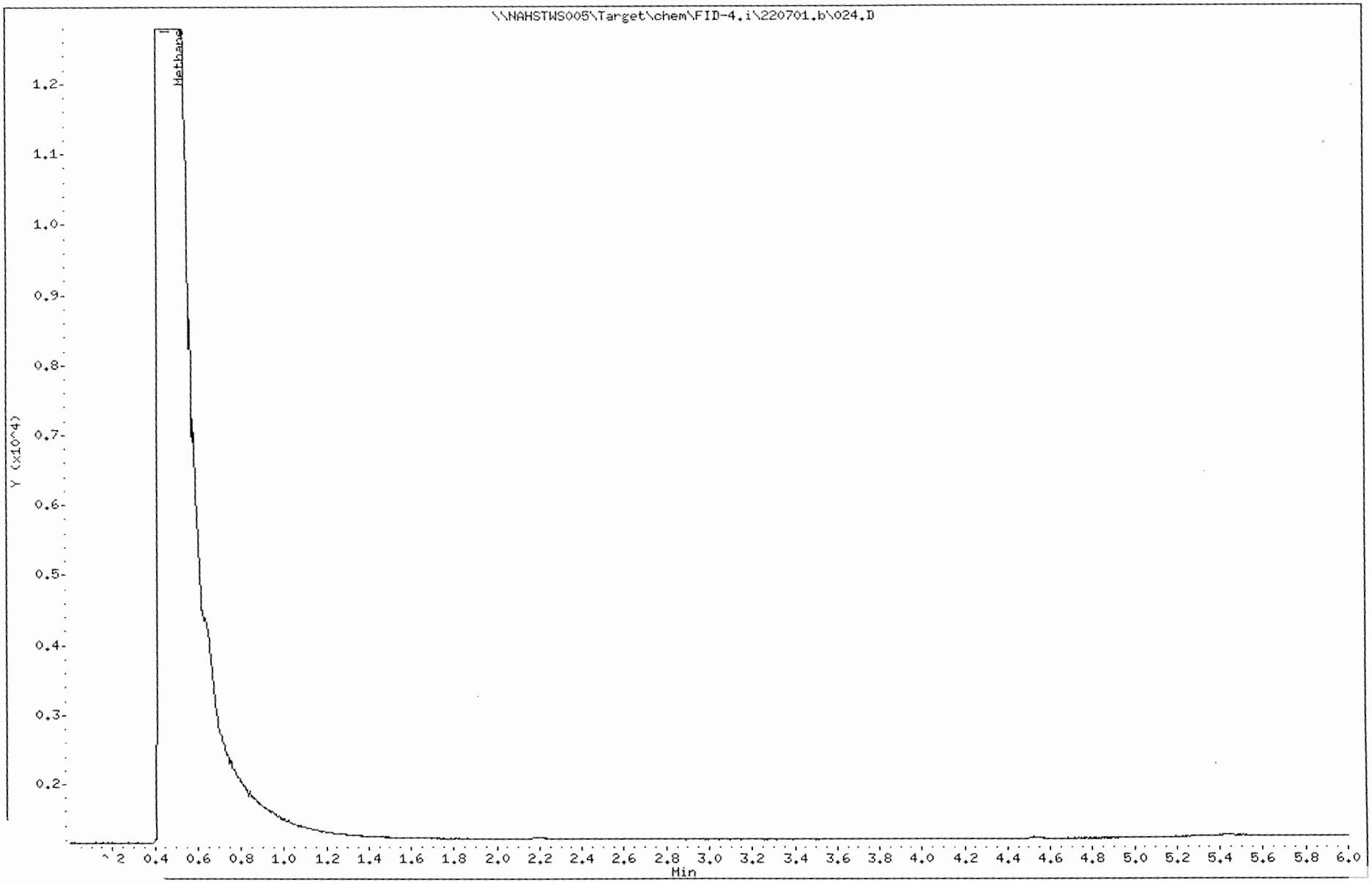
Instrument: FID-4.i

Sample Info: HS22061313-03;HS22061313-03

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\025.D
Lab Smp Id: HS22061313-04 Client Smp ID: HS22061313-04
Inj Date : 01-JUL-2022 12:42
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-04;HS22061313-04
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.443	0.440	0.003	5907731	6059.26	6059.258(A)

QC Flag Legend

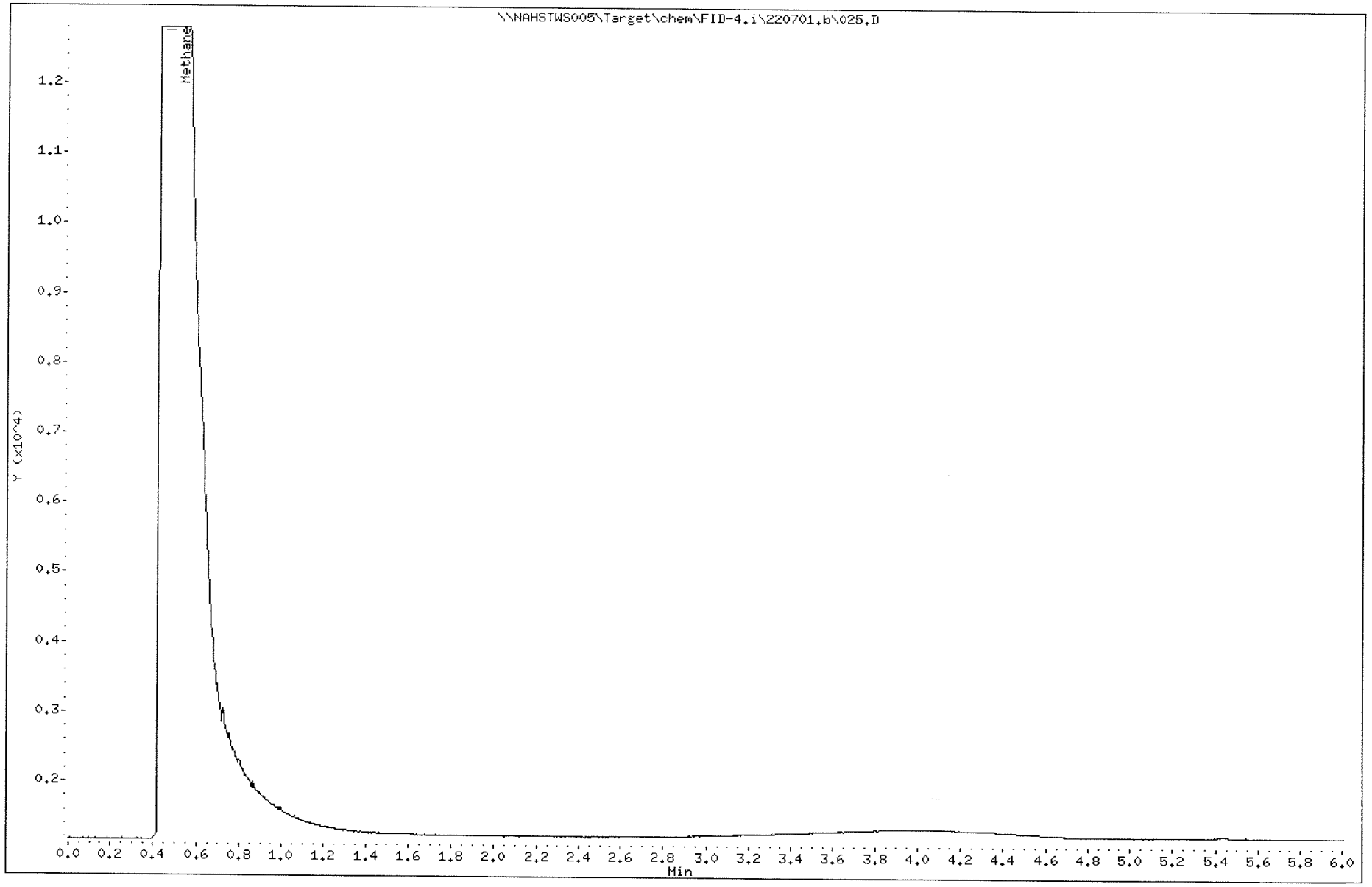
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\025.D
Date : 01-JUL-2022 12:42
Client ID: HS22061313-04
Sample Info: HS22061313-04;HS22061313-04

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\220701.b\026.D
Lab Smp Id: HS22061313-05 Client Smp ID: HS22061313-05
Inj Date : 01-JUL-2022 12:54
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-05;HS22061313-05
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.440	0.440	0.000	6160966	6318.99	6318.989(AM)
2 Ethene	0.653	0.660	-0.007	15068	25.7238	25.723(M)
3 Ethane	0.706	0.733	-0.027	4530	6.29613	6.296(M)

QC Flag Legend

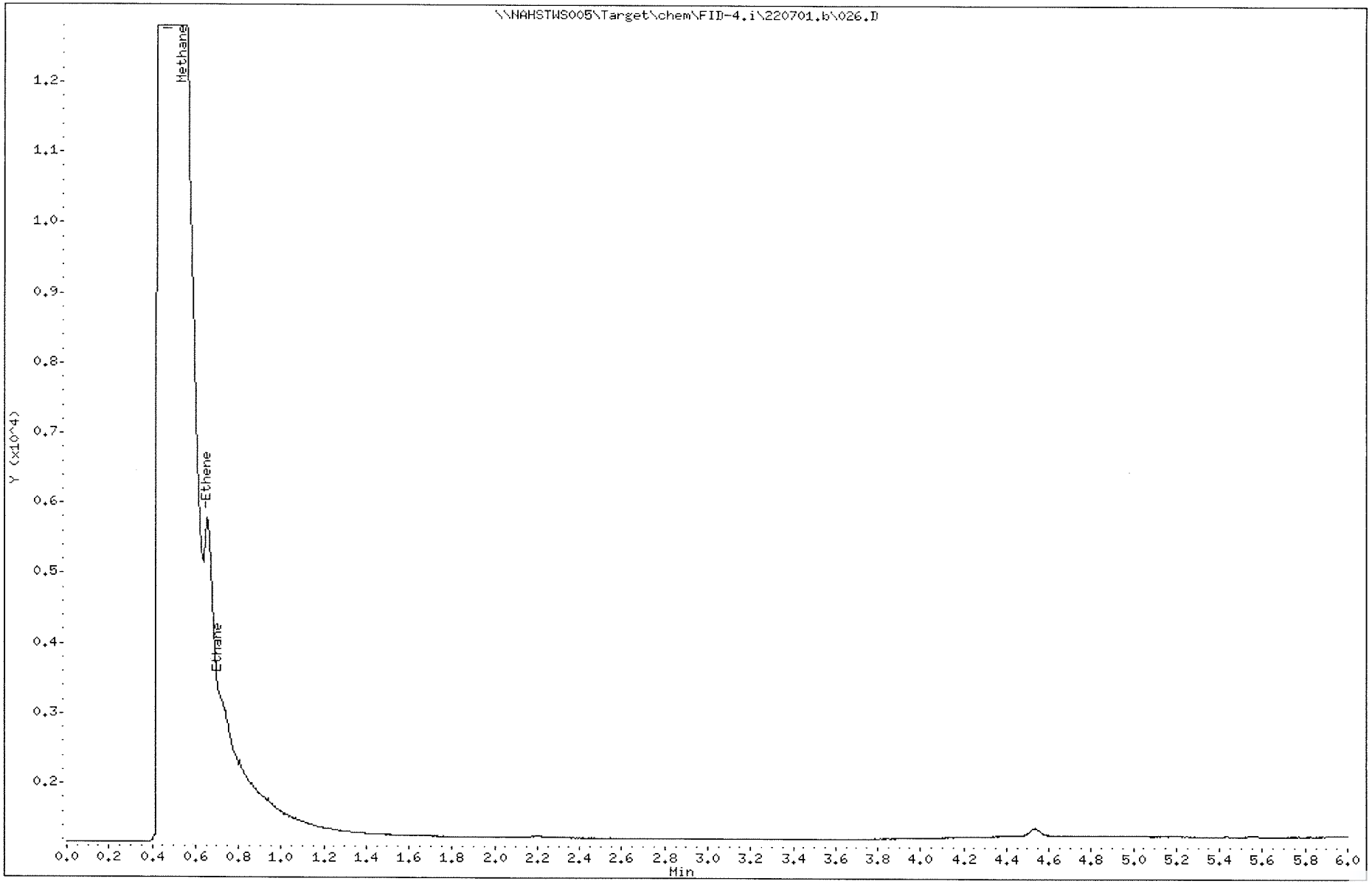
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\026.D
Date : 01-JUL-2022 12:54
Client ID: HS22061313-05
Sample Info: HS22061313-05;HS22061313-05

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\220701.b\Before\026.D
Lab Smp Id: HS22061313-05 Client Smp ID: HS22061313-05
Inj Date : 01-JUL-2022 12:54
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-05;HS22061313-05
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.440	0.440	0.000	6172013	6330.32	6330.319(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\026.D

Date : 01-JUL-2022 12:54

Client ID: HS22061313-05

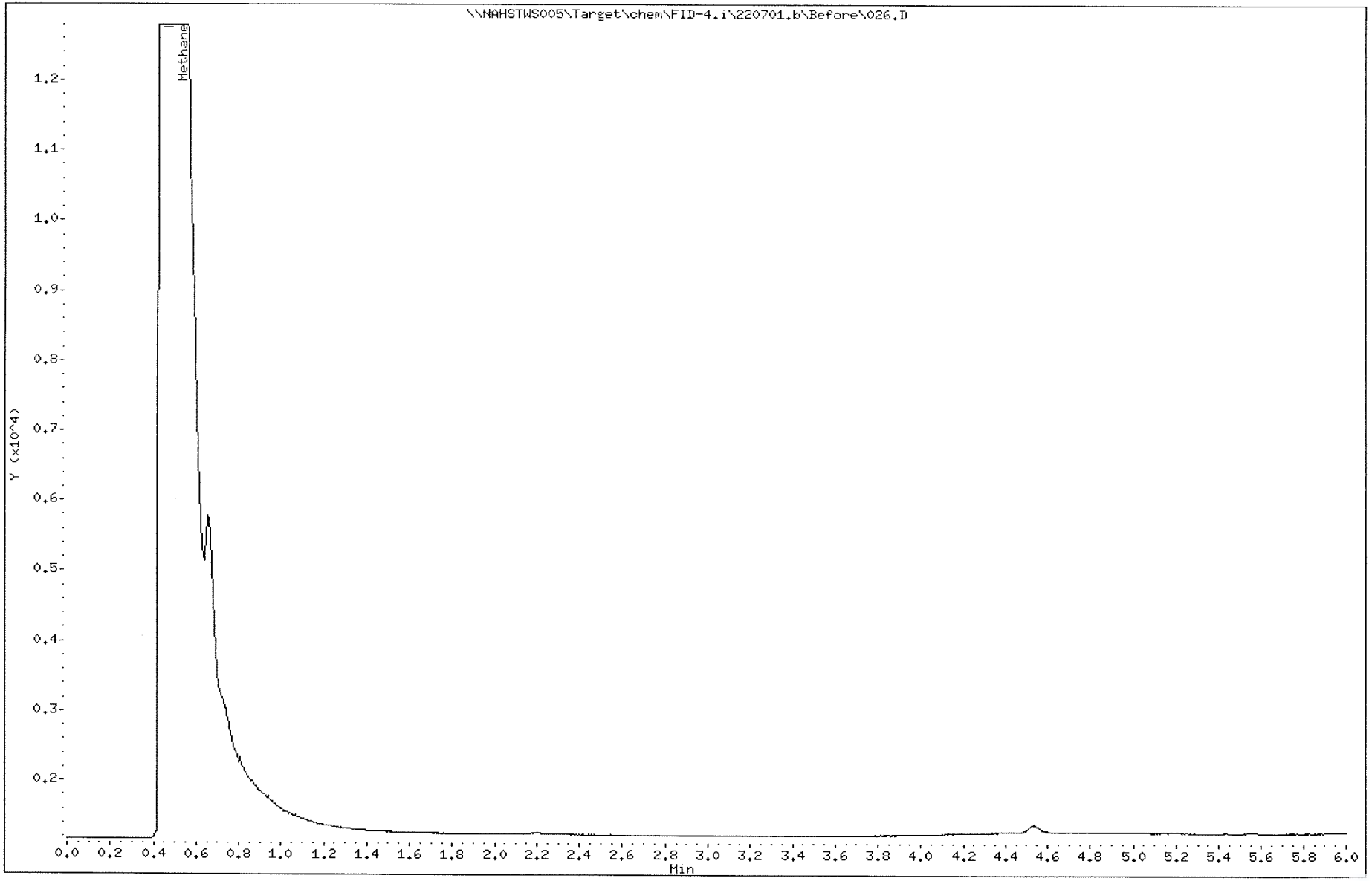
Instrument: FID-4.i

Sample Info: HS22061313-05;HS22061313-05

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\027.D Page 1
Report Date: 18-Jul-2022 10:56

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\027.D
Lab Smp Id: HS22061313-06 Client Smp ID: HS22061313-06
Inj Date : 01-JUL-2022 13:01
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-06;HS22061313-06
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.443	0.440	0.003	449027	460.544	460.544(A)
2 Ethene	0.666	0.660	0.006	7398	12.6297	12.629(M)

QC Flag Legend

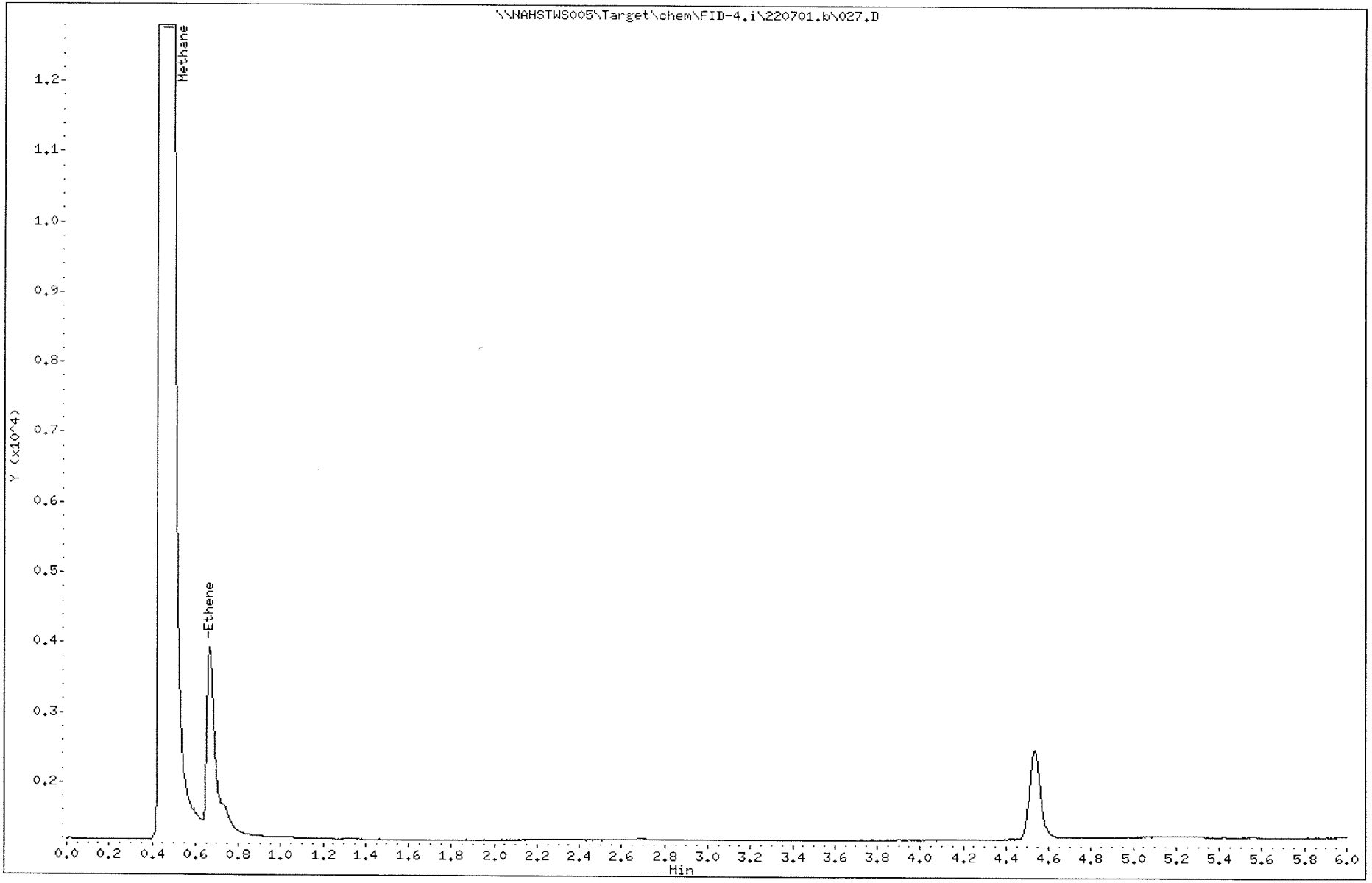
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\027.D
Date : 01-JUL-2022 13:01
Client ID: HS22061313-06
Sample Info: HS22061313-06;HS22061313-06

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\220701.b\Before\027.D
Lab Smp Id: HS22061313-06 Client Smp ID: HS22061313-06
Inj Date : 01-JUL-2022 13:01
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-06;HS22061313-06
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.443	0.440	0.003	449027	460.544	460.544(A)
2 Ethene	0.666	0.660	0.006	8867	15.1376	15.137

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\027.D

Date : 01-JUL-2022 13:01

Client ID: HS22061313-06

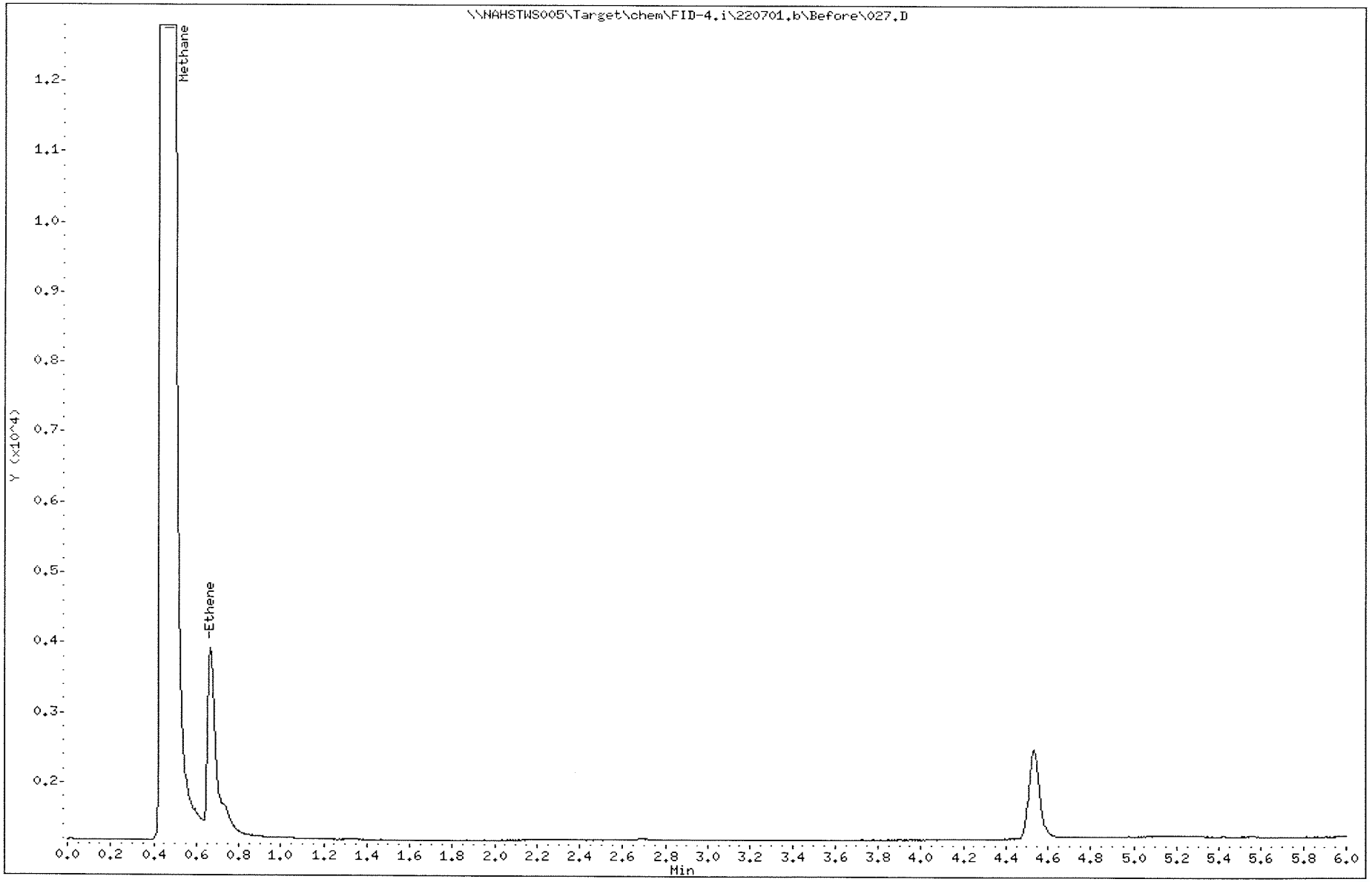
Instrument: FID-4.i

Sample Info: HS22061313-06;HS22061313-06

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\028.D
Lab Smp Id: HS22061313-03 Client Smp ID: HS22061313-03
Inj Date : 01-JUL-2022 13:09
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-03;HS22061313-03
Misc Info : ;1;0;200
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 28
Dil Factor: 200.00000
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	0.453	0.440	0.013	20680	21.2104	4242.084(M)

QC Flag Legend

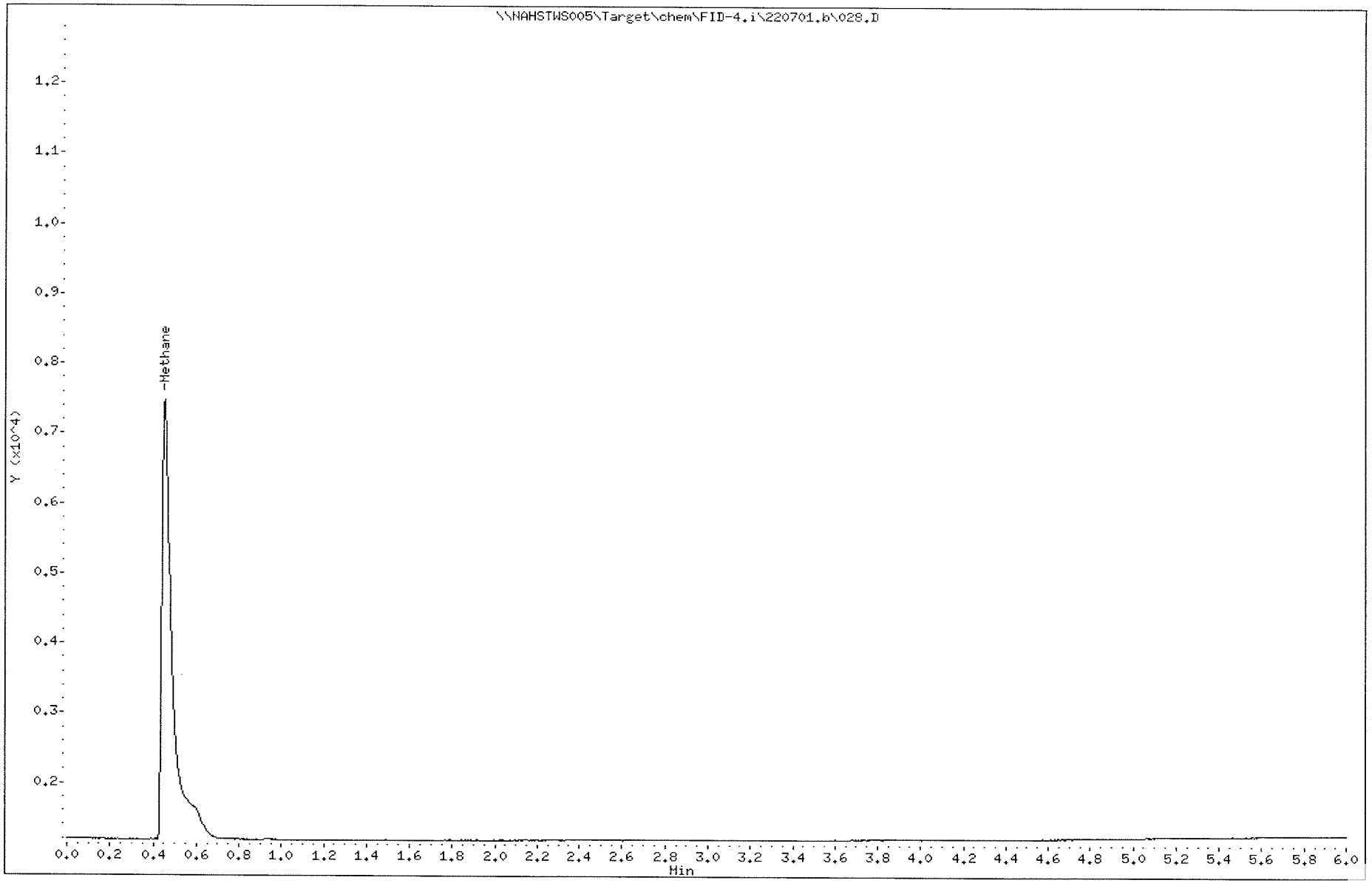
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\028.D
Date : 01-JUL-2022 13:09
Client ID: HS22061313-03
Sample Info: HS22061313-03;HS22061313-03

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\220701.b\Before\028.D
Lab Smp Id: HS22061313-03 Client Smp ID: HS22061313-03
Inj Date : 01-JUL-2022 13:09
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-03;HS22061313-03
Misc Info : ;1;0;200
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 28
Dil Factor: 200.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

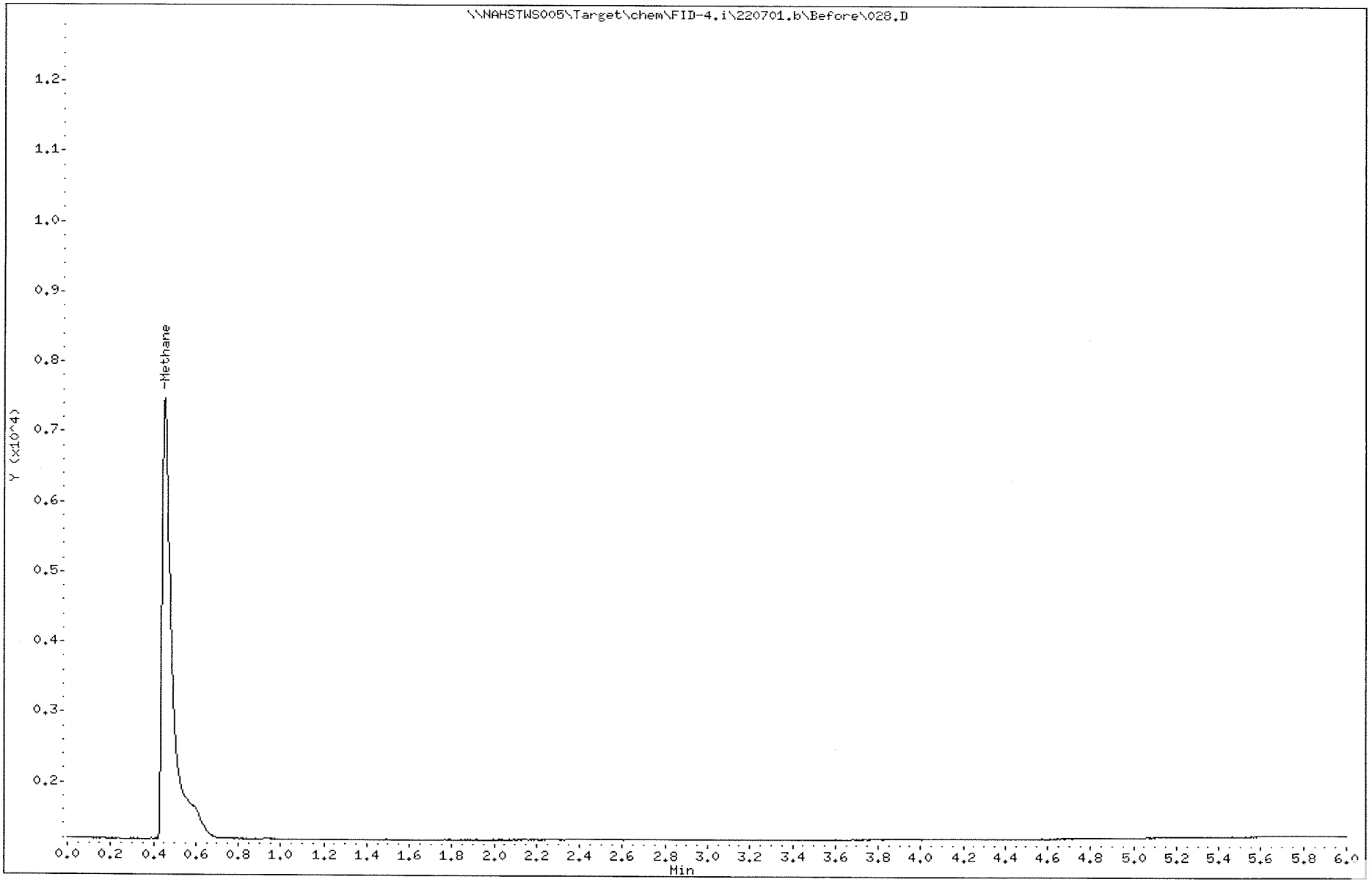
					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.453	0.440	0.013	21631	22.1858	4437.163

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\028.D
Date : 01-JUL-2022 13:09
Client ID: HS22061313-03
Sample Info: HS22061313-03;HS22061313-03

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\220701.b\029.D
Lab Smp Id: HS22061313-04 Client Smp ID: HS22061313-04
Inj Date : 01-JUL-2022 13:20
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-04;HS22061313-04
Misc Info : ;1;0;400
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 29
Dil Factor: 400.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.456	0.440	0.016	19640	20.1437	8057.499(M)

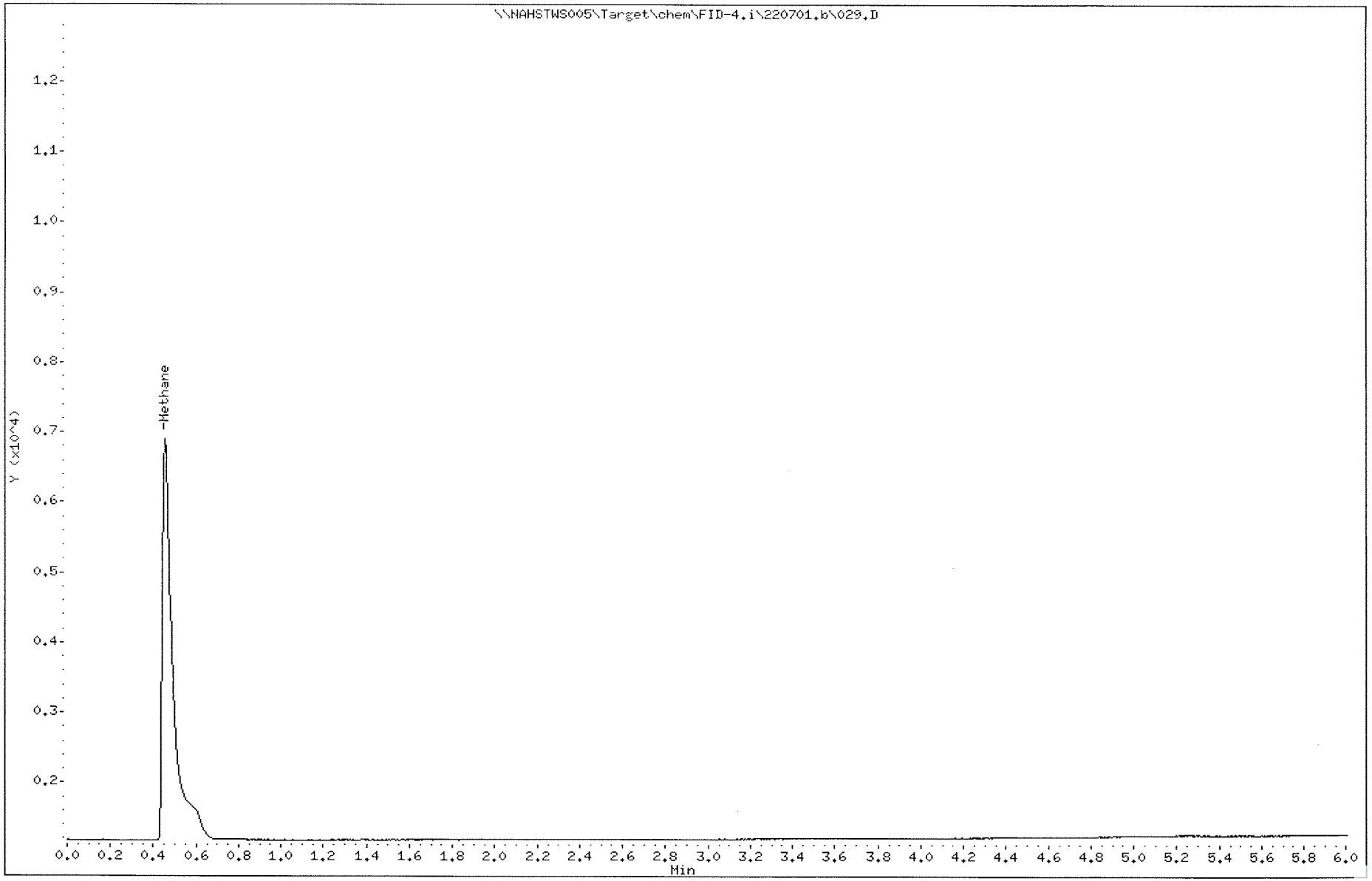
QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\029.D
Date : 01-JUL-2022 13:20
Client ID: HS22061313-04
Sample Info: HS22061313-04;HS22061313-04

Instrument: FID-4.i
Operator: PL
Column diameter: 0.53

Column phase: Rtx-PLOT



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\029.D
Lab Smp Id: HS22061313-04 Client Smp ID: HS22061313-04
Inj Date : 01-JUL-2022 13:20
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-04;HS22061313-04
Misc Info : ;1;0;400
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 29
Dil Factor: 400.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.456	0.440	0.016	20275	20.7950	8318.014

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\029.D

Date : 01-JUL-2022 13:20

Client ID: HS22061313-04

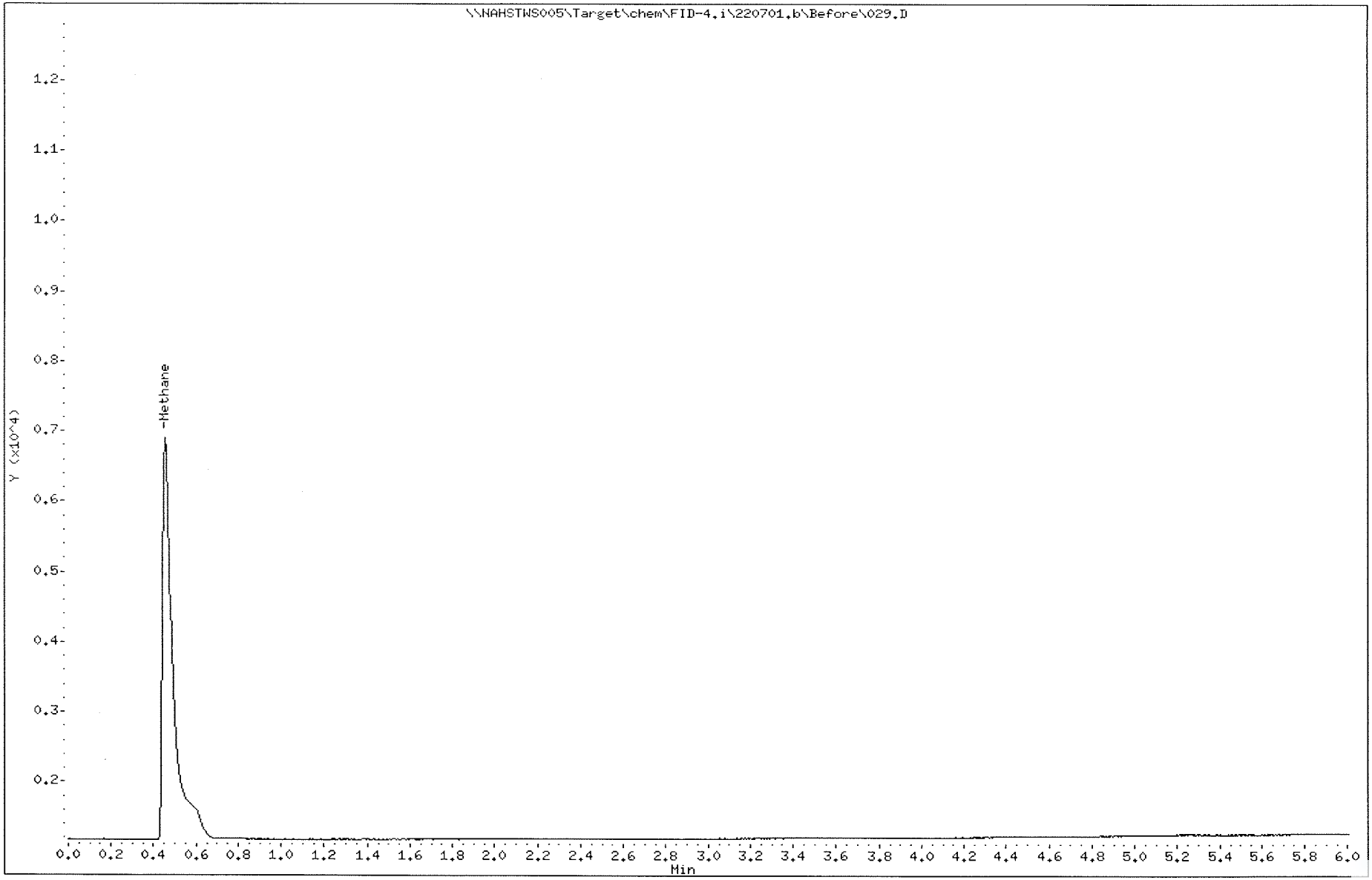
Instrument: FID-4.i

Sample Info: HS22061313-04;HS22061313-04

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\030.D Page 1
Report Date: 18-Jul-2022 10:56

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\030.D
Lab Smp Id: HS22061313-05 Client Smp ID: HS22061313-05
Inj Date : 01-JUL-2022 13:28
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-05;HS22061313-05
Misc Info : ;1;0;400
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 30
Dil Factor: 400.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

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	0.456	0.440	0.016	18994	19.4812	7792.471(M)

QC Flag Legend

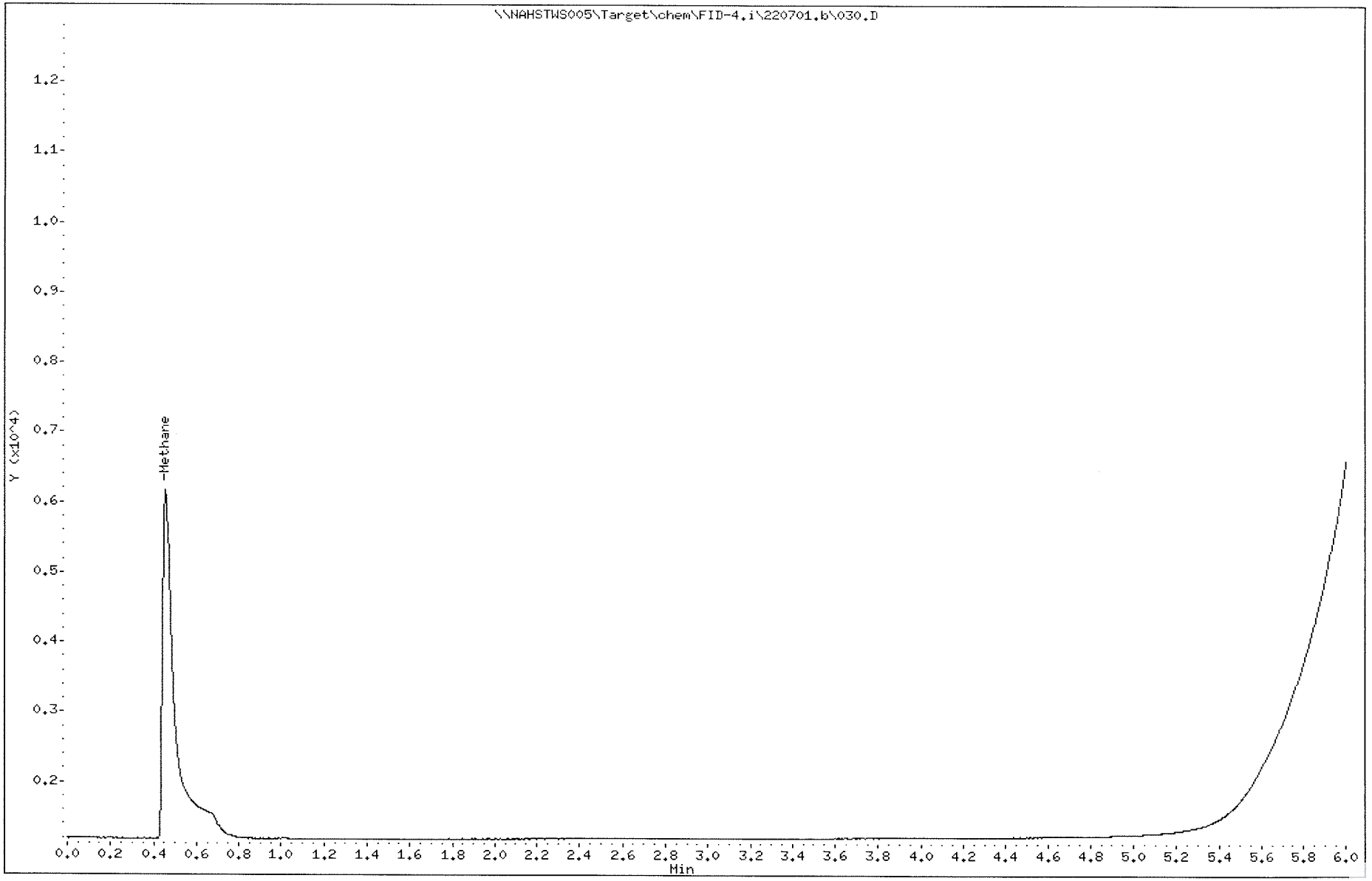
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\030.D
Date : 01-JUL-2022 13:28
Client ID: HS22061313-05
Sample Info: HS22061313-05;HS22061313-05

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

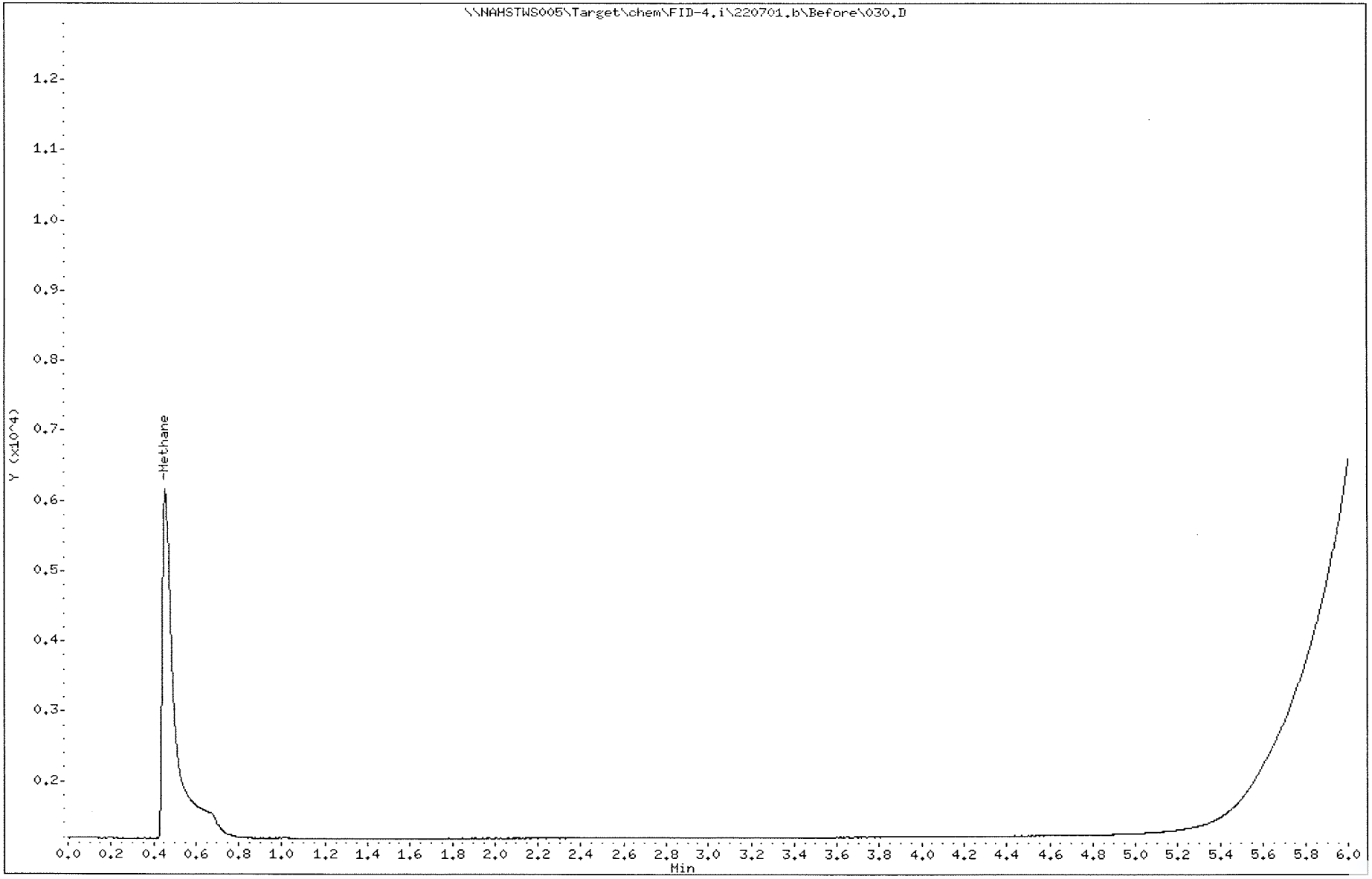
Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\030.D
Lab Smp Id: HS22061313-05 Client Smp ID: HS22061313-05
Inj Date : 01-JUL-2022 13:28
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-05;HS22061313-05
Misc Info : ;1;0;400
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 30
Dil Factor: 400.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.456	0.440	0.016	20907	21.4432	8577.298

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\Before\030.D
Date : 01-JUL-2022 13:28
Client ID: HS22061313-05
Sample Info: HS22061313-05;HS22061313-05

Instrument: FID-4.i
Operator: PL
Column phase: Rtx-PLOT
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\031.D
Lab Smp Id: HS22061313-06 Client Smp ID: HS22061313-06
Inj Date : 01-JUL-2022 13:35
Operator : PL Inst ID: FID-4.i
Smp Info : HS22061313-06;HS22061313-06
Misc Info : ;1;0;50
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 31
Dil Factor: 50.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

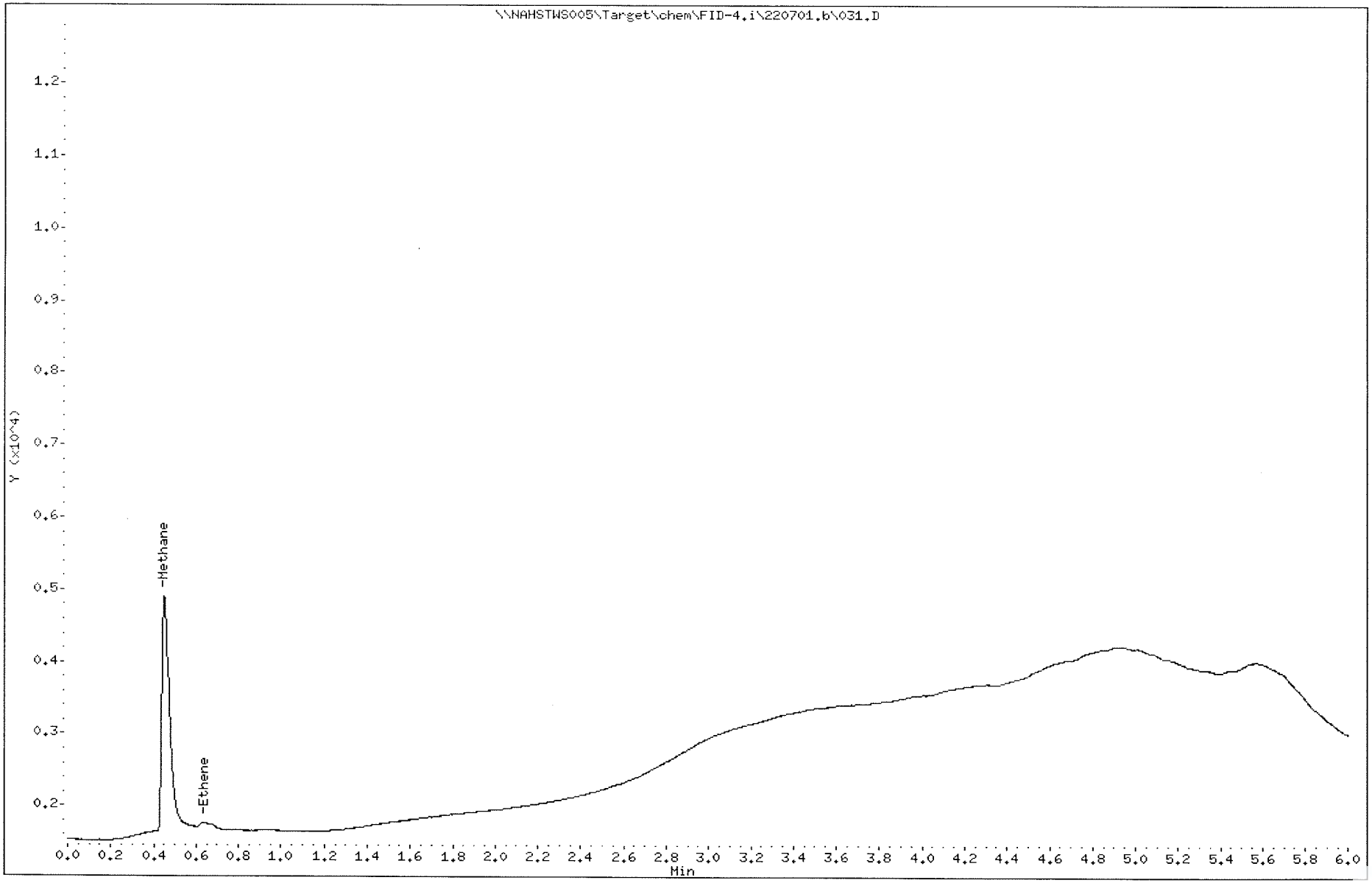
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.450	0.440	0.010	8963	9.19289	459.644
2 Ethene	0.636	0.660	-0.024	513	0.87578	43.789

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\031.D
Date : 01-JUL-2022 13:35
Client ID: HS22061313-06
Sample Info: HS22061313-06;HS22061313-06

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\220701.b\032.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 01-JUL-2022 13:48
Operator : JA Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info :
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\220701.b\RSKNI3.m
Meth Date : 18-Jul-2022 10:55 Linh.Pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 32 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

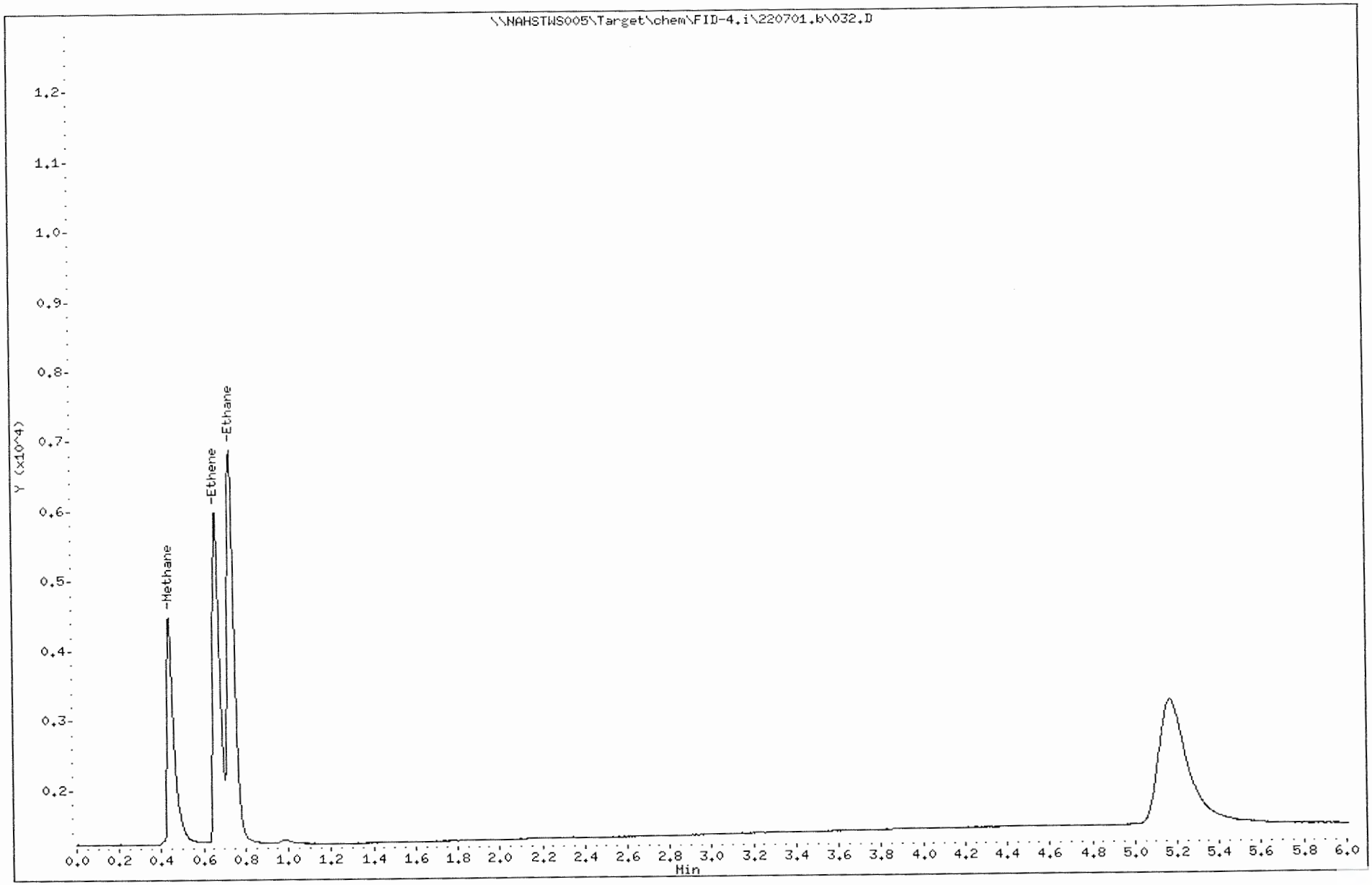
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.440	0.440	0.000	7941	9.64700	8.144
2 Ethene	0.660	0.660	0.000	10728	16.8500	18.314
3 Ethane	0.733	0.733	0.000	13308	18.0430	18.496

Data File: \\NAHSTWS005\Target\chem\FID-4.i\220701.b\032.D
Date : 01-JUL-2022 13:48
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Instrument: FID-4.i

Operator: JA
Column diameter: 0.53

Column phase: Rtx-PLOT



HS22061313 Wet Chemistry

ALS WO# HS22061313

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HS220 61313

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result
1	Standard	NPOC	CAL	3100605703	06_07_2022	1.000	
2	Unknown	NPOC	ICV	3100605711	06_07_2022	1.000	NPOC:9.599mg/L
3	Unknown	NPOC	ICB		06_07_2022	1.000	NPOC:0.1185mg/

C:\TOC-L\Data\2022_06_07_002.tlx

	Notes	Status	Date / Time	Vial
1		Completed	6/7/2022 6:42:31 PM	1, 2, 3, 4, 5,
2		Completed	6/7/2022 6:53:59 PM	8
3		Completed	6/7/2022 7:04:57 PM	9

TOC-Control L Report

2022_06_07_002.tlx

Instr.Information

Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Cal. Curve

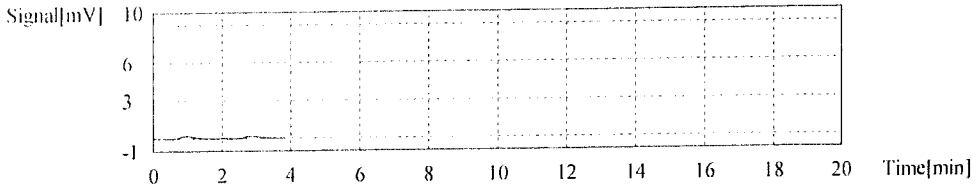
Sample Name:	CAL
Sample ID:	3100605703
Cal. Curve:	06_07_2022_CAL.2022_06_07_17_25_51.cal
Status	Completed

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.5059	50ul	1.000	*******		6/7/2022 5:33:20 PM
2	0.4436	50ul	1.000	*******		6/7/2022 5:36:04 PM

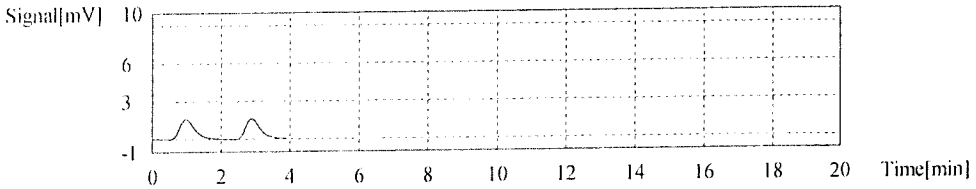
Acid Add.	1.500%
Sparge Gas Flow	80mL/min
Sp. Time	90.00sec
Mean Area	0.4718



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.733	50ul	1.000	*******		6/7/2022 5:44:04 PM
2	4.778	50ul	1.000	*******		6/7/2022 5:46:49 PM

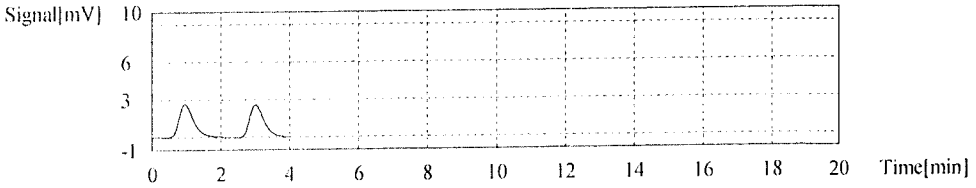
Acid Add.	1.500%
Sparge Gas Flow	80mL/min
Sp. Time	90.00sec
Mean Area	4.756



Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	7.782	50ul	1.000	*******		6/7/2022 5:54:55 PM
2	7.707	50ul	1.000	*******		6/7/2022 5:57:36 PM

Acid Add.	1.500%
Sparge Gas Flow	80mL/min
Sp. Time	90.00sec
Mean Area	7.745



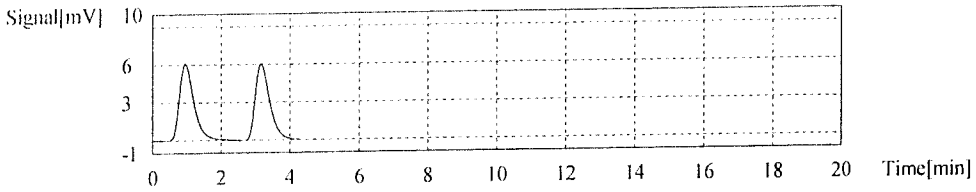
TOC-Control L Report

2022_06_07_002.tlx

Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	17.83	50ul	1.000	*******		6/7/2022 6:05:52 PM
2	17.74	50ul	1.000	*******		6/7/2022 6:08:28 PM

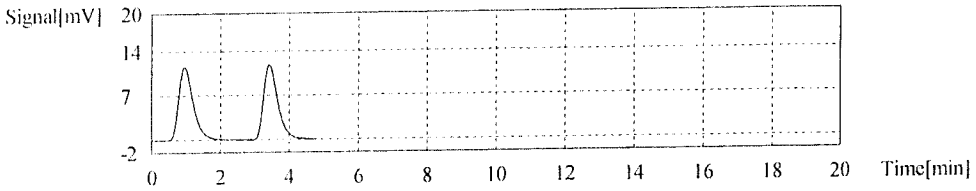
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 90.00sec
Mean Area 17.79



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	34.34	50ul	1.000	*******		6/7/2022 6:17:00 PM
2	34.33	50ul	1.000	*******		6/7/2022 6:19:35 PM

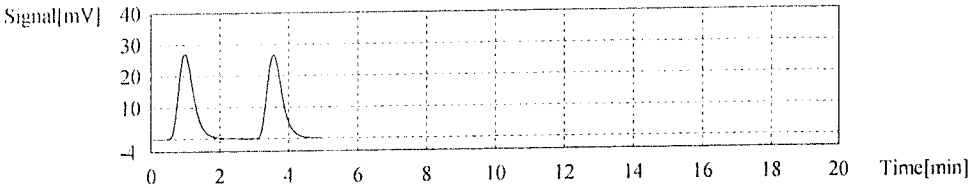
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 90.00sec
Mean Area 34.34



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	84.01	50ul	1.000	*******		6/7/2022 6:28:26 PM
2	83.63	50ul	1.000	*******		6/7/2022 6:31:03 PM

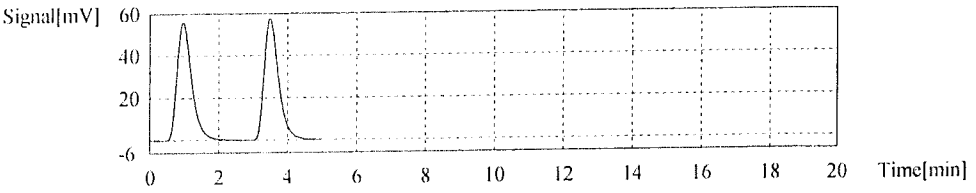
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 90.00sec
Mean Area 83.82



Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	167.5	50ul	1.000	*******		6/7/2022 6:39:49 PM
2	169.4	50ul	1.000	*******		6/7/2022 6:42:31 PM

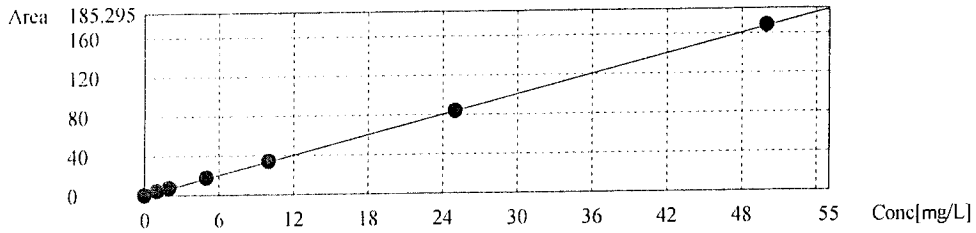
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 90.00sec
Mean Area 168.4



TOC-Control L Report

2022_06_07_002.tlx

Slope:	3.345
Intercept	0.000
r^2	1.0000
r	1.0000
RSE(%)	N/A
Zero Shift	Yes



Sample

Sample Name:	ICV
Sample ID:	3100605711
Origin:	06_07_2022_CAL.cal
Status	Completed
Chk. Result	

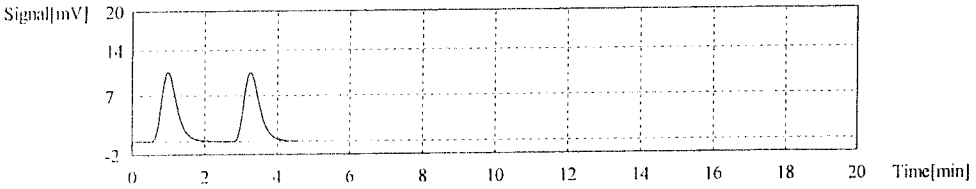
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.599mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.11	9.601mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	6/7/2022 6:50:57 PM
2	32.10	9.598mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	6/7/2022 6:53:59 PM

Mean Area	32.11
Mean Conc.	9.599mg/L



Sample

Sample Name:	ICB
Sample ID:	
Origin:	06_07_2022_CAL.cal
Status	Completed
Chk. Result	

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1185mg/L

1. Det

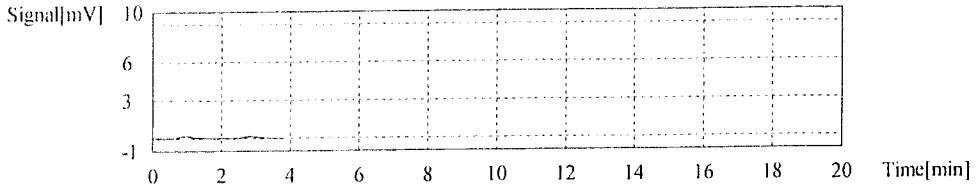
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3661	0.1095mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	6/7/2022 7:01:57 PM
2	0.4267	0.1276mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	6/7/2022 7:04:57 PM

TOC-Control L Report

2022_06_07_002.tlx

Mean Area	0.3964
Mean Conc.	0.1185mg/L



C:\TOC-L\Data\2022_07_08_001.tlx

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result
1	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:26.13mg/L
2	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1203mg/
3	Unknown	NPOC	MBLK-07082022		06_07_2022	1.000	NPOC:0.1057mg/
4	Unknown	NPOC	LCS-07082022		06_07_2022	1.000	NPOC:9.372mg/L
5	Unknown	NPOC	LCSD-07082022		06_07_2022	1.000	NPOC:9.307mg/L
6	Unknown	NPOC	HS22061313-01		06_07_2022	1.000	NPOC:5.581mg/L
7	Unknown	NPOC	HS22061313-01MS		06_07_2022	1.000	NPOC:14.65mg/L
8	Unknown	NPOC	HS22061288-39		06_07_2022	1.000	NPOC:0.2801mg/
9	Unknown	NPOC	HS22061288-40		06_07_2022	1.000	NPOC:0.2120mg/
10	Unknown	NPOC	HS22061288-41		06_07_2022	1.000	NPOC:0.1849mg/
11	Unknown	NPOC	HS22061288-42	TOC_W 5310B	06_07_2022	1.000	NPOC:0.1317mg/
12	Unknown	NPOC	HS22061478-01DF50		06_07_2022	1.000	NPOC:4.302mg/L
13	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:25.72mg/L
14	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1436mg/
15	Unknown	NPOC	HS22060354-01DF100		06_07_2022	1.000	NPOC:176.4mg/L
16	Unknown	NPOC	HS22070280-01DF10		06_07_2022	1.000	NPOC:1.506mg/L
17	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:26.00mg/L
18	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1276mg/
19	Unknown	NPOC	HS22060354-01DF1000		06_07_2022	1.000	NPOC:21.84mg/L
20	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:25.87mg/L
21	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1469mg/
22	Unknown	NPOC	HS22061478-02DF50		06_07_2022	1.000	NPOC:3.588mg/L
23	Unknown	NPOC	HS22061478-03DF50		06_07_2022	1.000	NPOC:3.446mg/L
24	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:26.43mg/L
25	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1359mg/

C:\TOC-L\Data\2022_07_08_001.tlx

	Notes	Status	Date / Time	Vial
1		Completed	7/8/2022 10:17:10 AM	1
2		Completed	7/8/2022 10:29:29 AM	2
3		Completed	7/8/2022 10:41:48 AM	3
4		Completed	7/8/2022 10:55:54 AM	4
5		Completed	7/8/2022 11:09:36 AM	5
6		Completed	7/8/2022 11:22:45 AM	6
7		Completed	7/8/2022 11:36:22 AM	7
8		Completed	7/8/2022 11:48:46 AM	8
9		Completed	7/8/2022 12:01:03 PM	9
10		Completed	7/8/2022 12:13:19 PM	10
11		Completed	7/8/2022 12:25:36 PM	11
12		Completed	7/8/2022 12:38:27 PM	12
13		Completed	7/8/2022 1:18:20 PM	1
14		Completed	7/8/2022 1:30:37 PM	2
15		Completed	7/8/2022 1:45:25 PM	15
16		Completed	7/8/2022 1:58:01 PM	16
17		Completed	7/8/2022 2:13:18 PM	1
18		Completed	7/8/2022 2:25:35 PM	2
19		Completed	7/8/2022 2:44:10 PM	17
20		Completed	7/8/2022 2:58:52 PM	1
21		Completed	7/8/2022 3:11:11 PM	2
22		Completed	7/8/2022 3:44:44 PM	13
23		Completed	7/8/2022 3:57:46 PM	14
24		Completed	7/8/2022 4:12:20 PM	18
25		Completed	7/8/2022 4:24:37 PM	19

TOC-Control L Report

Instr.Information

Instrument Options: TOC/ASI-IC Unit/
Catalyst: Regular Sensitivity

Sample

Sample Name: CCV
Sample ID:
Origin: 06_07_2022_CAL.cal
Status: Completed
Chk. Result:

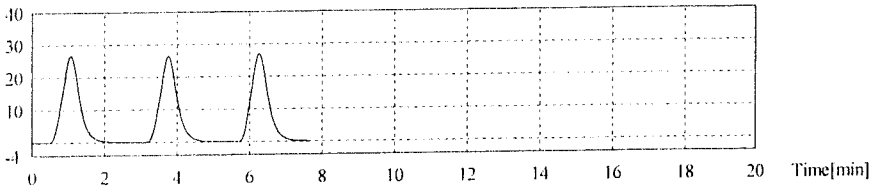
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 26.13mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	87.97	26.30mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:11:44 AM
2	86.41	25.84mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:14:31 AM
3	87.82	26.26mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:17:10 AM

Mean Area: 87.40
Mean Conc.: 26.13mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 06_07_2022_CAL.cal
Status: Completed
Chk. Result:

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.1203mg/L

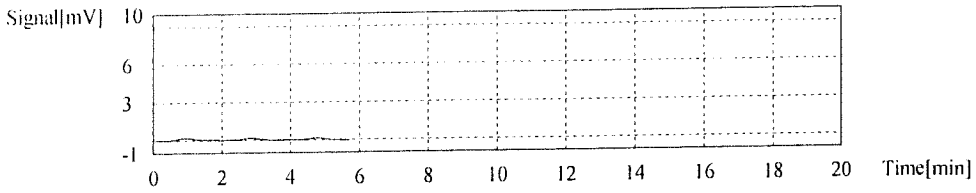
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4529	0.1384mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:25:14 AM
2	0.3734	0.1116mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:27:22 AM
3	0.3809	0.1139mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:29:29 AM

TOC-Control L Report

Mean Area 0.4024
Mean Conc. 0.1203mg/L



Sample

Sample Name: MBLK-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

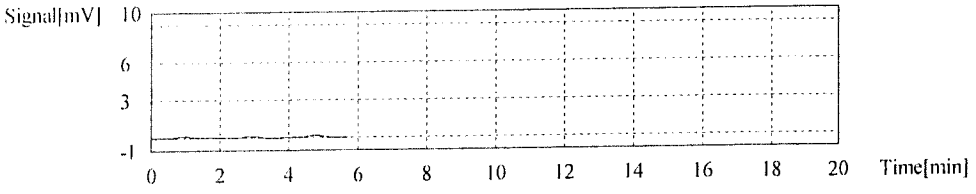
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1057mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2799	0.08369mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/8/2022 10:37:34 AM
2	0.4148	0.1240mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/8/2022 10:39:40 AM
3	0.3660	0.1094mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/8/2022 10:41:48 AM

Mean Area 0.3536
Mean Conc. 0.1057mg/L



Sample

Sample Name: LCS-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 9.372mg/L

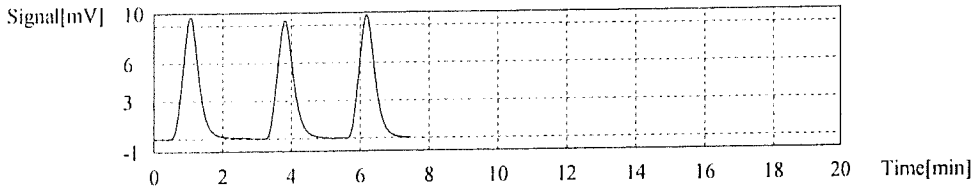
1. Det

Anal.: NPOC

TOC-Control L Report

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.45	9.403mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:50:44 AM
2	30.90	9.239mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:53:21 AM
3	31.69	9.475mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 10:55:54 AM

Mean Area 31.35
Mean Conc. 9.372mg/L



Sample

Sample Name: LCSD-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

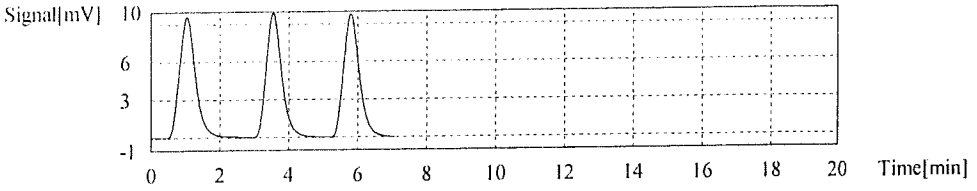
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 9.307mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.15	9.314mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:04:35 AM
2	30.88	9.233mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:07:04 AM
3	31.35	9.373mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:09:36 AM

Mean Area 31.13
Mean Conc. 9.307mg/L



Sample

Sample Name: HS22061313-01
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 5.581mg/L

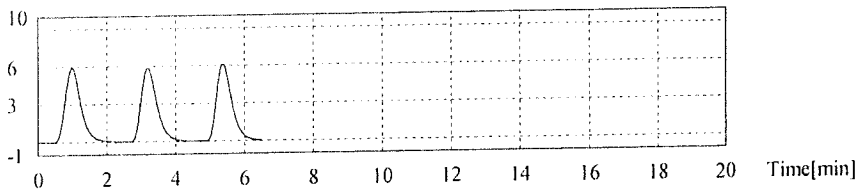
1. Det

TOC-Control L Report

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	18.59	5.558mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:17:59 AM
2	18.53	5.540mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:20:26 AM
3	18.88	5.645mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:22:45 AM

Mean Area 18.67
Mean Conc. 5.581mg/L



Sample

Sample Name: HS22061313-01MS
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

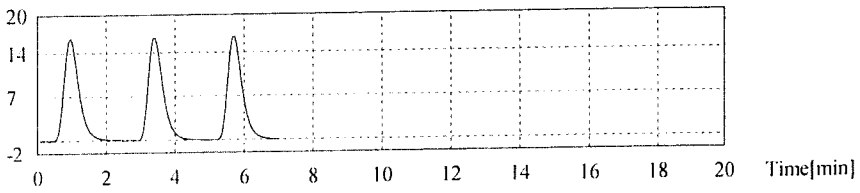
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 14.65mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	49.23	14.72mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:31:21 AM
2	48.54	14.51mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:33:53 AM
3	49.20	14.71mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/8/2022 11:36:22 AM

Mean Area 48.99
Mean Conc. 14.65mg/L



Sample

Sample Name: CCV
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 25.72mg/L

TOC-Control L Report

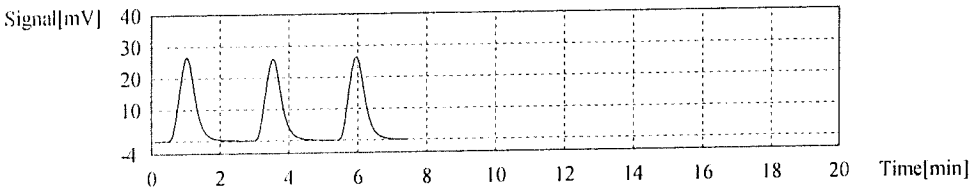
2022_07_08_001.tlx

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	85.48	25.56mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/8/2022 1:12:53 PM
2	85.36	25.52mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/8/2022 1:15:34 PM
3	87.27	26.09mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/8/2022 1:18:20 PM

Mean Area 86.04
Mean Conc. 25.72mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

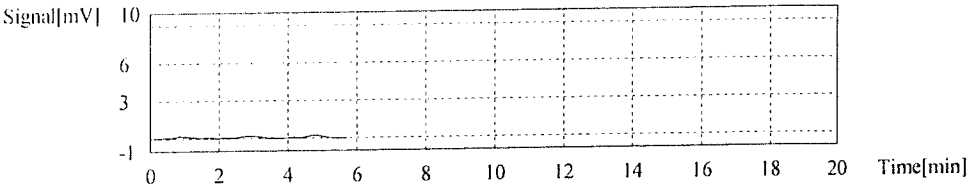
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.1436mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3269	0.0977mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/8/2022 1:26:23 PM
2	0.5867	0.1754mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/8/2022 1:28:30 PM
3	0.5276	0.1577mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/8/2022 1:30:37 PM

Mean Area 0.4804
Mean Conc. 0.1436mg/L



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	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
1	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:25.38mg/L	
2	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.09476m	
3	Unknown	NPOC	MBLK-07082022		06_07_2022	1.000	NPOC:0.02235m	
4	Unknown	NPOC	LCS-07082022		06_07_2022	1.000	NPOC:9.273mg/L	
5	Unknown	NPOC	LCSD-07082022		06_07_2022	1.000	NPOC:9.275mg/L	
6	Unknown	NPOC	HS22061335-01		06_07_2022	1.000	NPOC:14.45mg/L	
7	Unknown	NPOC	HS22061335-03	TOC_W 5310B	06_07_2022	1.000	NPOC:9.004mg/L	
8	Unknown	NPOC	HS22061363-04		06_07_2022	1.000	NPOC:1.304mg/L	
9	Unknown	NPOC	HS22061363-04MS		06_07_2022	1.000	NPOC:10.60mg/L	
10	Unknown	NPOC	HS22061363-05		06_07_2022	1.000	NPOC:1.191mg/L	
11	Unknown	NPOC	HS22061363-06		06_07_2022	1.000	NPOC:1.232mg/L	
12	Unknown	NPOC	HS22061363-07		06_07_2022	1.000	NPOC:3.906mg/L	
13	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:24.91mg/L	
14	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.2934mg/	
15	Unknown	NPOC	HS22061363-08		06_07_2022	1.000	NPOC:3.610mg/L	
16	Unknown	NPOC	HS22061363-09		06_07_2022	1.000	NPOC:3.873mg/L	
17	Unknown	NPOC	HS22061363-10		06_07_2022	1.000	NPOC:1.937mg/L	
18	Unknown	NPOC	HS22061363-11		06_07_2022	1.000	NPOC:1.850mg/L	
19	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:24.92mg/L	
20	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.2090mg/	
21	Unknown	NPOC	MBLK2-07082022		06_07_2022	1.000	NPOC:0.1712mg/	
22	Unknown	NPOC	LCS2-07082022		06_07_2022	1.000	NPOC:9.132mg/L	
23	Unknown	NPOC	LCSD2-07082022		06_07_2022	1.000	NPOC:9.168mg/L	
24	Unknown	NPOC	HS22061363-12		06_07_2022	1.000	NPOC:1.667mg/L	
25	Unknown	NPOC	HS22061363-12MS	TOC_W 5310B	06_07_2022	1.000	NPOC:11.13mg/L	
26	Unknown	NPOC	HS22061363-13		06_07_2022	1.000	NPOC:2.426mg/L	
27	Unknown	NPOC	HS22061363-14		06_07_2022	1.000	NPOC:2.636mg/L	
28	Unknown	NPOC	HS22061363-15		06_07_2022	1.000	NPOC:2.639mg/L	
29	Unknown	NPOC	HS22061363-16		06_07_2022	1.000	NPOC:1.563mg/L	
30	Unknown	NPOC	HS22061363-17		06_07_2022	1.000	NPOC:1.645mg/L	
31	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:25.19mg/L	
32	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.2988mg/	
33	Unknown	NPOC	HS22061363-18		06_07_2022	1.000	NPOC:1.212mg/L	
34	Unknown	NPOC	HS22061363-19		06_07_2022	1.000	NPOC:0.8485mg/	
35	Unknown	NPOC	HS22061363-20		06_07_2022	1.000	NPOC:0.8134mg/	
36	Unknown	NPOC	HS22061363-21		06_07_2022	1.000	NPOC:0.8010mg/	
37	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:24.80mg/L	
38	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.2135mg/	
39	Unknown	NPOC	MBLK3-07082022		06_07_2022	1.000	NPOC:0.1595mg/	
40	Unknown	NPOC	LCS3-07082022		06_07_2022	1.000	NPOC:9.144mg/L	
41	Unknown	NPOC	LCSD3-07082022		06_07_2022	1.000	NPOC:9.115mg/L	
42	Unknown	NPOC	HS22061363-22		06_07_2022	1.000	NPOC:1.210mg/L	
43	Unknown	NPOC	HS22061363-23		06_07_2022	1.000	NPOC:1.410mg/L	
44	Unknown	NPOC	HS22061363-24	TOC_W 5310B	06_07_2022	1.000	NPOC:1.434mg/L	
45	Unknown	NPOC	HS22061363-25		06_07_2022	1.000	NPOC:0.5785mg/	
46	Unknown	NPOC	HS22061549-02		06_07_2022	1.000	NPOC:1.108mg/L	
47	Unknown	NPOC	HS22070036-01		06_07_2022	1.000	NPOC:14.86mg/L	
48	Unknown	NPOC	HS22070048-01DF10		06_07_2022	1.000	NPOC:1.052mg/L	
49	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:24.46mg/L	
50	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.2027mg/	
51	Unknown	NPOC	HS22070048-02DF10		06_07_2022	1.000	NPOC:1.320mg/L	

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	Status	Date / Time	Vial
1	Completed	7/8/2022 5:46:39 PM	1
2	Completed	7/8/2022 5:58:56 PM	2
3	Completed	7/8/2022 6:11:13 PM	3
4	Completed	7/8/2022 6:25:15 PM	4
5	Completed	7/8/2022 6:39:17 PM	5
6	Completed	7/8/2022 6:53:37 PM	6
7	Completed	7/8/2022 7:08:15 PM	7
8	Completed	7/8/2022 7:20:32 PM	8
9	Completed	7/8/2022 7:34:16 PM	9
10	Completed	7/8/2022 7:46:46 PM	10
11	Completed	7/8/2022 7:59:03 PM	11
12	Completed	7/8/2022 8:11:57 PM	12
13	Completed	7/8/2022 8:26:40 PM	1
14	Completed	7/8/2022 8:38:57 PM	2
15	Completed	7/8/2022 8:51:50 PM	13
16	Completed	7/8/2022 9:04:43 PM	14
17	Completed	7/8/2022 9:17:09 PM	15
18	Completed	7/8/2022 9:29:33 PM	16
19	Completed	7/8/2022 9:44:08 PM	1
20	Completed	7/8/2022 9:56:25 PM	2
21	Completed	7/8/2022 10:08:42 PM	3
22	Completed	7/8/2022 10:22:17 PM	4
23	Completed	7/8/2022 10:35:53 PM	5
24	Completed	7/8/2022 10:48:17 PM	17
25	Completed	7/8/2022 11:01:58 PM	18
26	Completed	7/8/2022 11:14:29 PM	19
27	Completed	7/8/2022 11:27:11 PM	20
28	Completed	7/8/2022 11:39:43 PM	21
29	Completed	7/8/2022 11:52:23 PM	22
30	Completed	7/9/2022 12:04:46 AM	23
31	Completed	7/9/2022 12:19:41 AM	1
32	Completed	7/9/2022 12:31:58 AM	2
33	Completed	7/9/2022 12:44:33 AM	24
34	Completed	7/9/2022 12:56:51 AM	25
35	Completed	7/9/2022 1:09:10 AM	26
36	Completed	7/9/2022 1:21:31 AM	27
37	Completed	7/9/2022 1:35:35 AM	28
38	Completed	7/9/2022 1:47:55 AM	29
39	Completed	7/9/2022 2:00:30 AM	3
40	Completed	7/9/2022 2:14:05 AM	4
41	Completed	7/9/2022 2:27:32 AM	5
42	Completed	7/9/2022 2:40:19 AM	30
43	Completed	7/9/2022 2:52:41 AM	31
44	Completed	7/9/2022 3:05:07 AM	32
45	Completed	7/9/2022 3:17:25 AM	33
46	Completed	7/9/2022 3:29:51 AM	34
47	Completed	7/9/2022 3:43:44 AM	35
48	Completed	7/9/2022 3:56:06 AM	36
49	Completed	7/9/2022 4:10:40 AM	28
50	Completed	7/9/2022 4:22:58 AM	29
51	Completed	7/9/2022 4:35:25 AM	37

C:\TOC-L\Data\2022_07_08_002.tlx

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
52	Unknown	NPOC	HS22070048-03		06_07_2022	1.000	NPOC:2.400mg/L	
53	Unknown	NPOC	HS22070073-01		06_07_2022	1.000	NPOC:4.209mg/L	
54	Unknown	NPOC	HS22070073-01MS		06_07_2022	1.000	NPOC:13.53mg/L	
55	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:24.48mg/L	
56	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1916mg/	
57	Unknown	NPOC	MBLK4-07082022		06_07_2022	1.000	NPOC:0.1489mg/	
58	Unknown	NPOC	LCS4-07082022		06_07_2022	1.000	NPOC:9.133mg/L	
59	Unknown	NPOC	LCSD4-07082022		06_07_2022	1.000	NPOC:9.117mg/L	
60	Unknown	NPOC	HS22061313-02		06_07_2022	1.000	NPOC:17.94mg/L	
61	Unknown	NPOC	HS22061313-03		06_07_2022	1.000	NPOC:150.7mg/L	
62	Unknown	NPOC	HS22061313-04		06_07_2022	1.000	NPOC:132.0mg/L	
63	Unknown	NPOC	HS22061313-05		06_07_2022	1.000	NPOC:7.497mg/L	
64	Unknown	NPOC	HS22061313-06		06_07_2022	1.000	NPOC:5.272mg/L	
65	Unknown	NPOC	HS22061333-01		06_07_2022	1.000	NPOC:28.72mg/L	
66	Unknown	NPOC	HS22061333-01MS	TOC_W 5310B	06_07_2022	1.000	NPOC:37.45mg/L	
67	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:24.80mg/L	
68	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1719mg/	
69	Unknown	NPOC	HS22061333-02		06_07_2022	1.000	NPOC:9.818mg/L	
70	Unknown	NPOC	HS22061333-03		06_07_2022	1.000	NPOC:1.251mg/L	
71	Unknown	NPOC	HS22061333-06		06_07_2022	1.000	NPOC:1.055mg/L	
72	Unknown	NPOC	HS22061333-07		06_07_2022	1.000	NPOC:0.5512mg/	
73	Unknown	NPOC	CCV		06_07_2022	1.000	NPOC:25.82mg/L	
74	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.2125mg/	

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	Status	Date / Time	Vial
52	Completed	7/9/2022 4:48:03 AM	38
53	Completed	7/9/2022 5:01:00 AM	39
54	Completed	7/9/2022 5:14:36 AM	40
55	Completed	7/9/2022 5:29:07 AM	28
56	Completed	7/9/2022 5:41:25 AM	29
57	Completed	7/9/2022 5:53:59 AM	3
58	Completed	7/9/2022 6:07:39 AM	4
59	Completed	7/9/2022 6:21:11 AM	5
60	Completed	7/9/2022 6:35:33 AM	41
61	Completed	7/9/2022 6:50:08 AM	42
62	Completed	7/9/2022 7:04:44 AM	43
63	Completed	7/9/2022 7:18:20 AM	44
64	Completed	7/9/2022 7:31:36 AM	45
65	Completed	7/9/2022 7:45:35 AM	46
66	Completed	7/9/2022 8:00:19 AM	47
67	Completed	7/9/2022 8:14:54 AM	28
68	Completed	7/9/2022 8:27:13 AM	29
69	Completed	7/9/2022 8:40:59 AM	48
70	Completed	7/9/2022 8:53:20 AM	49
71	Completed	7/9/2022 9:05:39 AM	50
72	Completed	7/9/2022 9:18:01 AM	51
73	Completed	7/9/2022 9:32:30 AM	52
74	Completed	7/9/2022 9:44:52 AM	53

TOC-Control L Report

2022_07_08_002.tlx

Instr.Information

Instrument Options	TOC/ASI-IC Unit/
Catalyst	Regular Sensitivity

Sample

Sample Name:	CCV
Sample ID:	
Origin:	06_07_2022_CAL.cal
Status	Completed
Chk. Result	

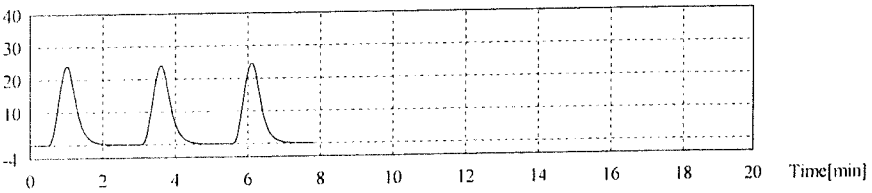
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 24.48mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	80.87	24.18mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 5:23:26 AM
2	81.88	24.48mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 5:26:12 AM
3	82.89	24.78mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 5:29:07 AM

Mean Area	81.88
Mean Conc.	24.48mg/L



Sample

Sample Name:	CCB
Sample ID:	
Origin:	06_07_2022_CAL.cal
Status	Completed
Chk. Result	

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.1916mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.7039	0.2105mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 5:37:11 AM
2	0.6354	0.1900mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 5:39:18 AM
3	0.5833	0.1744mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 5:41:25 AM

TOC-Control L Report

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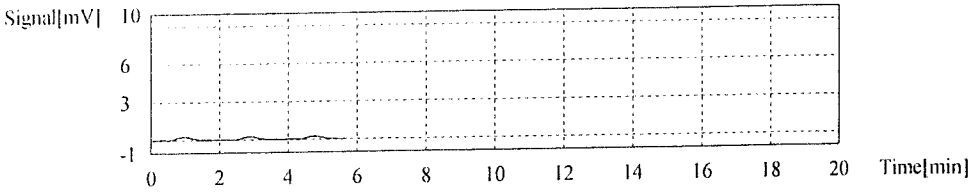
Mean Area 0.6409
Mean Conc. 0.1916mg/L



Sample

Sample Name: MBLK1-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

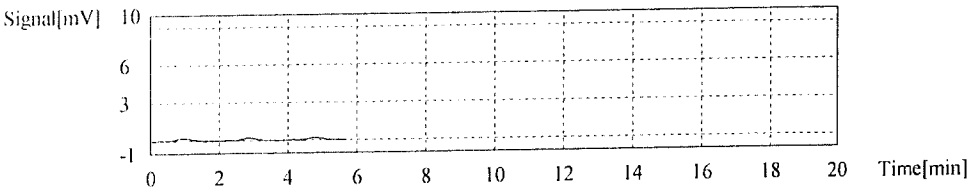
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.1489mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5626	0.1682mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 5:49:46 AM
2	0.5356	0.1601mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 5:51:52 AM
3	0.3957	0.1183mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 5:53:59 AM

Mean Area 0.4980
Mean Conc. 0.1489mg/L



Sample

Sample Name: LCS4-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 9.133mg/L

1. Det

Anal.: NPOC

TOC-Control L Report

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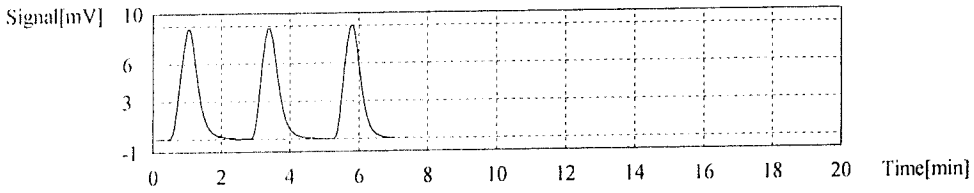
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	30.36	9.077mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:02:32 AM
2	30.51	9.122mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:05:09 AM
3	30.77	9.200mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:07:39 AM

Mean Area 30.55
Mean Conc. 9.133mg/L



Sample

Sample Name: LCSD4-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

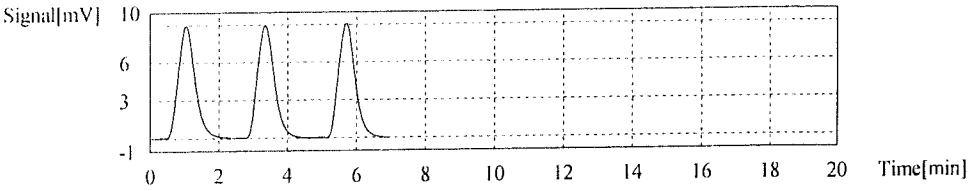
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 9.117mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	30.34	9.071mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:16:07 AM
2	30.42	9.095mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:18:42 AM
3	30.72	9.185mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:21:11 AM

Mean Area 30.49
Mean Conc. 9.117mg/L



Sample

Sample Name: HS22061313-02
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 17.94mg/L

1. Det

TOC-Control L Report

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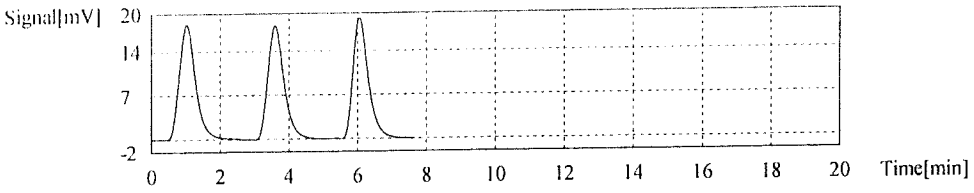
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	59.75	17.80mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:30:02 AM
2	59.65	17.83mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:32:49 AM
3	60.65	18.13mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:35:33 AM

Mean Area 60.02
Mean Conc. 17.94mg/L



Sample

Sample Name: HS22061313-03
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

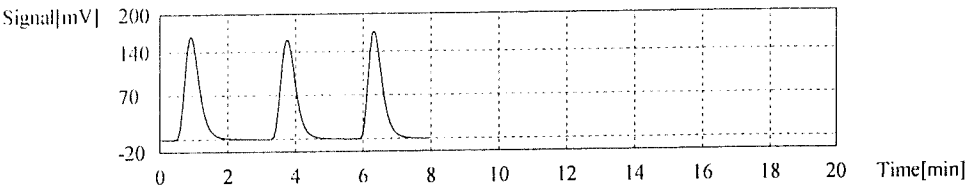
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:150.7mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	503.6	150.6mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:44:32 AM
2	501.0	149.8mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:47:24 AM
3	507.2	151.6mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:50:08 AM

Mean Area 503.9
Mean Conc. 150.7mg/L



Sample

Sample Name: HS22061313-04
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:132.0mg/L

TOC-Control L Report

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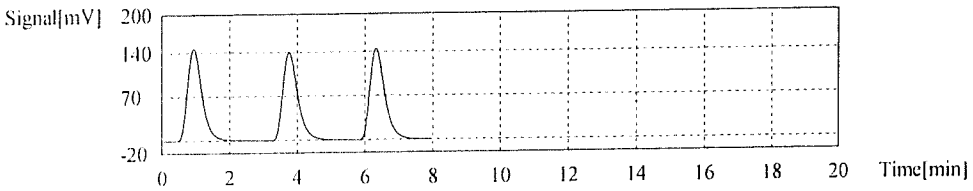
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	442.9	132.4mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 6:59:07 AM
2	437.7	130.9mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 7:01:57 AM
3	443.4	132.6mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 7:04:44 AM

Mean Area 441.3
Mean Conc. 132.0mg/L



Sample

Sample Name: HS22061313-05
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

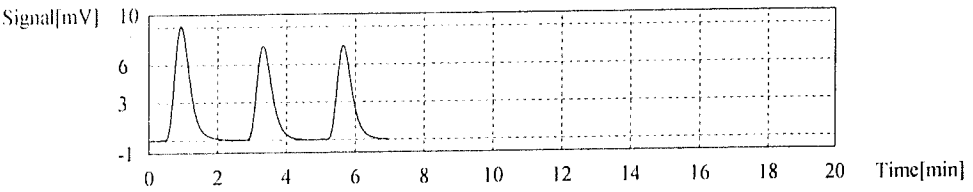
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 7.497mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	28.57	8.542mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 7:13:17 AM
2	23.49	7.023mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 7:15:50 AM
3	23.16	6.925mg/L	50uL	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 7:18:20 AM

Mean Area 25.07
Mean Conc. 7.497mg/L



Sample

Sample Name: HS22061313-06
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

TOC-Control L Report

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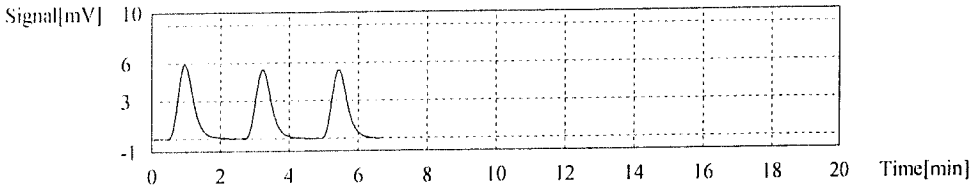
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 5.272mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	18.43	5.510mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:26:43 AM
2	17.26	5.161mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:29:12 AM
3	17.21	5.146mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:31:36 AM

Mean Area 17.63
Mean Conc. 5.272mg/L



Sample

Sample Name: HS22061333-01
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

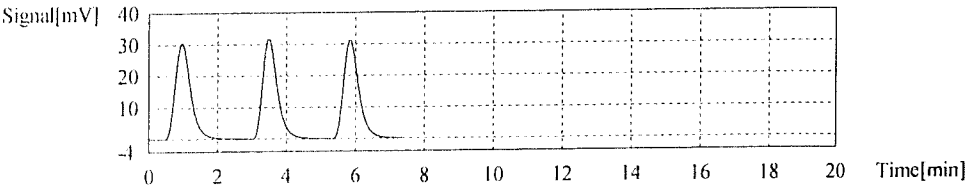
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 28.72mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	95.24	28.18mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:40:19 AM
2	95.50	28.55mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:42:54 AM
3	97.42	29.13mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:45:35 AM

Mean Area 96.05
Mean Conc. 28.72mg/L



Sample

TOC-Control L Report

2022_07_08_002.tlx

Sample Name: HS22061333-01MS
Sample ID: TOC_W53103
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

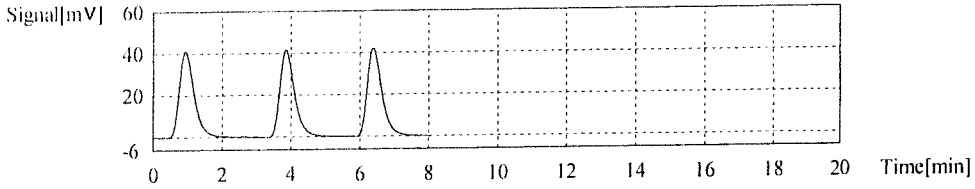
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 37.45mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	124.6	37.25mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:54:40 AM
2	124.8	37.31mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 7:57:28 AM
3	126.4	37.79mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:00:19 AM

Mean Area 125.3
Mean Conc. 37.45mg/L



Sample

Sample Name: CCV
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

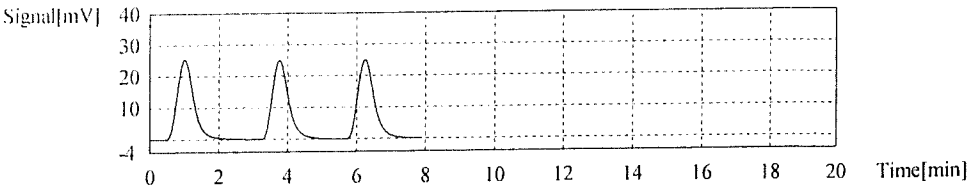
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 24.80mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	83.33	24.92mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:09:16 AM
2	81.97	24.51mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:11:59 AM
3	83.52	24.97mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:14:54 AM

Mean Area 82.94
Mean Conc. 24.80mg/L



TOC-Control L Report

2022_07_08_002.tlx

Sample

Sample Name: CCB
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

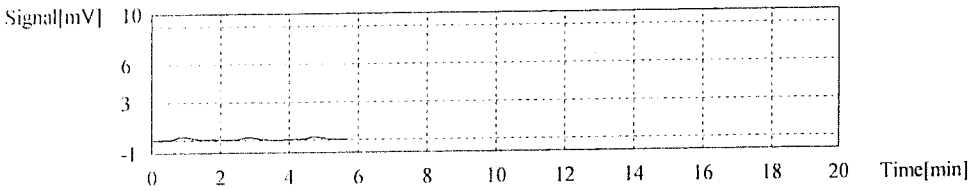
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.1719mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6887	0.2059mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:22:58 AM
2	0.5449	0.1629mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:25:06 AM
3	0.4914	0.1469mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 8:27:13 AM

Mean Area 0.5750
Mean Conc. 0.1719mg/L



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	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result
1	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:25.27mg/L
2	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.09823m
3	Unknown	NPOC	MBLK-07082022		06_07_2022	1.000	NPOC:0.06716m
4	Unknown	NPOC	LCS-07092022	3100605711	06_07_2022	1.000	NPOC:9.677mg/L
5	Unknown	NPOC	LCSD-07092022		06_07_2022	1.000	NPOC:9.724mg/L
6	Unknown	NPOC	HS22061313-03DF10	TOC_W 5310B	06_07_2022	1.000	NPOC:13.94mg/L
7	Unknown	NPOC	HS22061313-04DF10		06_07_2022	1.000	NPOC:12.80mg/L
8	Unknown	NPOC	HS22070074-01		06_07_2022	1.000	NPOC:6.697mg/L
9	Unknown	NPOC	HS22070074-01MS		06_07_2022	1.000	NPOC:16.54mg/L
10	Unknown	NPOC	HS22070074-02		06_07_2022	1.000	NPOC:4.388mg/L
11	Unknown	NPOC	HS22070074-03		06_07_2022	1.000	NPOC:3.160mg/L
12	Unknown	NPOC	HS22070074-04		06_07_2022	1.000	NPOC:5.316mg/L
13	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:24.78mg/L
14	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.07884m
15	Unknown	NPOC	HS22070110-05		06_07_2022	1.000	NPOC:2.691mg/L
16	Unknown	NPOC	HS22070110-06DF10		06_07_2022	1.000	NPOC:0.4214mg/
17	Unknown	NPOC	HS22070110-07		06_07_2022	1.000	NPOC:1.011mg/L
18	Unknown	NPOC	HS22070110-08		06_07_2022	1.000	NPOC:0.2062mg/
19	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:24.59mg/L
20	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1565mg/
21	Unknown	NPOC	MBLK-07082022		06_07_2022	1.000	NPOC:0.1174mg/
22	Unknown	NPOC	LCS-07092022	3100605711	06_07_2022	1.000	NPOC:9.599mg/L
23	Unknown	NPOC	LCSD-07092022		06_07_2022	1.000	NPOC:9.611mg/L
24	Unknown	NPOC	HS22070164-01	TOC_Diss_5310B	06_07_2022	1.000	NPOC:3.205mg/L
25	Unknown	NPOC	HS22070164-01MS		06_07_2022	1.000	NPOC:12.59mg/L
26	Unknown	NPOC	HS22070164-02		06_07_2022	1.000	NPOC:3.178mg/L
27	Unknown	NPOC	HS22070164-03		06_07_2022	1.000	NPOC:12.06mg/L
28	Unknown	NPOC	HS22070164-04		06_07_2022	1.000	NPOC:5.120mg/L
29	Unknown	NPOC	HS22070164-05		06_07_2022	1.000	NPOC:1.421mg/L
30	Unknown	NPOC	HS22070164-06		06_07_2022	1.000	NPOC:0.8929mg/
31	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:24.77mg/L
32	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1390mg/
33	Unknown	NPOC	HS22070164-07		06_07_2022	1.000	NPOC:0.6774mg/
34	Unknown	NPOC	HS22070164-08		06_07_2022	1.000	NPOC:0.9420mg/
35	Unknown	NPOC	HS22070164-09		06_07_2022	1.000	NPOC:3.090mg/L
36	Unknown	NPOC	HS22070164-10		06_07_2022	1.000	NPOC:1.397mg/L
37	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:25.00mg/L
38	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.06535m
39	Unknown	NPOC	MBLK-07082022		06_07_2022	1.000	NPOC:0.06341m
40	Unknown	NPOC	LCS-07092022	3100605711	06_07_2022	1.000	NPOC:9.699mg/L
41	Unknown	NPOC	LCSD-07092022		06_07_2022	1.000	NPOC:9.708mg/L
42	Unknown	NPOC	HS22070164-11DF10	TOC_Diss_5310B	06_07_2022	1.000	NPOC:0.1879mg/
43	Unknown	NPOC	HS22070164-12DF10		06_07_2022	1.000	NPOC:0.1825mg/
44	Unknown	NPOC	HS22070164-13DF10		06_07_2022	1.000	NPOC:0.1419mg/
45	Unknown	NPOC	HS22070164-14DF10		06_07_2022	1.000	NPOC:0.1567mg/
46	Unknown	NPOC	HS22070168-01		06_07_2022	1.000	NPOC:1.929mg/L
47	Unknown	NPOC	HS22070168-01MS		06_07_2022	1.000	NPOC:11.24mg/L
48	Unknown	NPOC	HS22070168-02		06_07_2022	1.000	NPOC:0.7116mg/
49	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:24.84mg/L
50	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.07885m
51	Unknown	NPOC	HS22070168-03		06_07_2022	1.000	NPOC:1.113mg/L

C:\TOC-L\Data\2022_07_09_001.tlx

	Notes	Status	Date / Time	Vial
1		Completed	7/9/2022 11:23:05 AM	1
2		Completed	7/9/2022 11:35:22 AM	2
3		Completed	7/9/2022 11:47:39 AM	3
4		Completed	7/9/2022 12:01:02 PM	4
5		Completed	7/9/2022 12:14:22 PM	5
6		Completed	7/9/2022 12:25:30 PM	6
7		Completed	7/9/2022 12:37:26 PM	7
8		Completed	7/9/2022 12:48:32 PM	8
9		Completed	7/9/2022 1:00:06 PM	9
10		Completed	7/9/2022 1:11:29 PM	10
11		Completed	7/9/2022 1:22:37 PM	11
12		Completed	7/9/2022 1:33:47 PM	12
13		Completed	7/9/2022 1:48:58 PM	1
14		Completed	7/9/2022 2:01:18 PM	2
15		Completed	7/9/2022 2:12:06 PM	13
16		Completed	7/9/2022 2:26:04 PM	14
17		Completed	7/9/2022 2:40:17 PM	15
18		Completed	7/9/2022 2:54:30 PM	16
19		Completed	7/9/2022 3:09:14 PM	1
20		Completed	7/9/2022 3:21:34 PM	2
21		Completed	7/9/2022 3:33:54 PM	3
22		Completed	7/9/2022 3:47:20 PM	4
23		Completed	7/9/2022 4:00:48 PM	5
24		Completed	7/9/2022 4:11:41 PM	17
25		Completed	7/9/2022 4:23:16 PM	18
26		Completed	7/9/2022 4:34:39 PM	19
27		Completed	7/9/2022 4:46:01 PM	20
28		Completed	7/9/2022 5:00:05 PM	21
29		Completed	7/9/2022 5:14:18 PM	22
30		Completed	7/9/2022 5:28:31 PM	23
31		Completed	7/9/2022 5:43:01 PM	24
32		Completed	7/9/2022 5:55:21 PM	25
33		Completed	7/9/2022 6:05:57 PM	26
34		Completed	7/9/2022 6:19:56 PM	27
35		Completed	7/9/2022 6:31:16 PM	28
36		Completed	7/9/2022 6:45:15 PM	29
37		Completed	7/9/2022 7:00:20 PM	24
38		Completed	7/9/2022 7:12:40 PM	25
39		Completed	7/9/2022 7:25:01 PM	3
40		Completed	7/9/2022 7:38:27 PM	4
41		Completed	7/9/2022 7:52:01 PM	5
42		Completed	7/9/2022 8:02:53 PM	30
43		Completed	7/9/2022 8:13:52 PM	31
44		Completed	7/9/2022 8:24:51 PM	32
45		Completed	7/9/2022 8:35:50 PM	33
46		Completed	7/9/2022 8:46:51 PM	34
47		Completed	7/9/2022 8:58:11 PM	35
48		Completed	7/9/2022 9:12:10 PM	36
49		Completed	7/9/2022 9:26:43 PM	24
50		Completed	7/9/2022 9:39:01 PM	25
51		Completed	7/9/2022 9:49:49 PM	37

C:\TOC-L\Data\2022_07_09_001.tlx

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result
52	Unknown	NPOC	HS22070168-04		06_07_2022	1.000	NPOC:2.037mg/L
53	Unknown	NPOC	HS22070168-05		06_07_2022	1.000	NPOC:0.9619mg/
54	Unknown	NPOC	HS22070168-06		06_07_2022	1.000	NPOC:1.147mg/L
55	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:25.04mg/L
56	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.08575m
57	Unknown	NPOC	MBLK-07082022		06_07_2022	1.000	NPOC:0.02359m
58	Unknown	NPOC	LCS-07092022	3100605711	06_07_2022	1.000	NPOC:9.681mg/L
59	Unknown	NPOC	LCSD-07092022		06_07_2022	1.000	NPOC:9.683mg/L
60	Unknown	NPOC	HS22070168-07	TOC_Diss_5310B	06_07_2022	1.000	NPOC:0.8559mg/
61	Unknown	NPOC	HS22070168-07MS		06_07_2022	1.000	NPOC:10.41mg/L
62	Unknown	NPOC	HS22070168-08		06_07_2022	1.000	NPOC:1.071mg/L
63	Unknown	NPOC	HS22070168-09		06_07_2022	1.000	NPOC:0.8802mg/
64	Unknown	NPOC	HS22070168-10		06_07_2022	1.000	NPOC:0.6125mg/
65	Unknown	NPOC	HS22070168-11		06_07_2022	1.000	NPOC:1.036mg/L
66	Unknown	NPOC	HS22070168-12		06_07_2022	1.000	NPOC:1.318mg/L
67	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:25.02mg/L
68	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.08095m
69	Unknown	NPOC	HS22070168-13		06_07_2022	1.000	NPOC:1.502mg/L
70	Unknown	NPOC	HS22070168-14		06_07_2022	1.000	NPOC:1.265mg/L
71	Unknown	NPOC	HS22070169-01		06_07_2022	1.000	NPOC:0.8853mg/
72	Unknown	NPOC	HS22070169-02		06_07_2022	1.000	NPOC:0.7781mg/
73	Unknown	NPOC	CCV	320016206	06_07_2022	1.000	NPOC:24.72mg/L
74	Unknown	NPOC	CCB		06_07_2022	1.000	NPOC:0.1281mg/

C:\TOC-L\Data\2022_07_09_001.tlx

	Notes	Status	Date / Time	Vial
52		Completed	7/9/2022 10:03:54 PM	38
53		Completed	7/9/2022 10:18:08 PM	39
54		Completed	7/9/2022 10:32:22 PM	40
55		Completed	7/9/2022 10:47:14 PM	41
56		Completed	7/9/2022 10:59:35 PM	42
57		Completed	7/9/2022 11:12:01 PM	3
58		Completed	7/9/2022 11:25:35 PM	4
59		Completed	7/9/2022 11:39:10 PM	5
60		Completed	7/9/2022 11:49:56 PM	43
61		Completed	7/10/2022 12:01:18 AM	44
62		Completed	7/10/2022 12:15:17 AM	45
63		Completed	7/10/2022 12:29:31 AM	46
64		Completed	7/10/2022 12:43:45 AM	47
65		Completed	7/10/2022 12:58:00 AM	48
66		Completed	7/10/2022 1:12:18 AM	49
67		Completed	7/10/2022 1:27:21 AM	41
68		Completed	7/10/2022 1:39:43 AM	42
69		Completed	7/10/2022 1:50:26 AM	50
70		Completed	7/10/2022 2:04:27 AM	51
71		Completed	7/10/2022 2:18:42 AM	52
72		Completed	7/10/2022 2:32:57 AM	53
73		Completed	7/10/2022 2:47:46 AM	41
74		Completed	7/10/2022 3:00:08 AM	42

TOC-Control L Report

2022_07_09_001.tlx

Instr.Information

Instrument Options: TOC/ASI IC Unit
Catalyst: Regular Sensitivity

Sample

Sample Name: CCV
Sample ID: 320016206
Origin: 06_07_2022_CAL.cal
Status: Completed
Chk. Result:

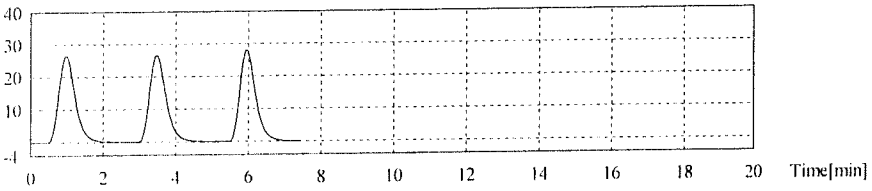
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 25.27mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	83.36	24.92mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:17:43 AM
2	84.27	25.20mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:20:27 AM
3	85.88	25.68mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:23:05 AM

Mean Area: 84.50
Mean Conc.: 25.27mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 06_07_2022_CAL.cal
Status: Completed
Chk. Result:

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.09823mg/L

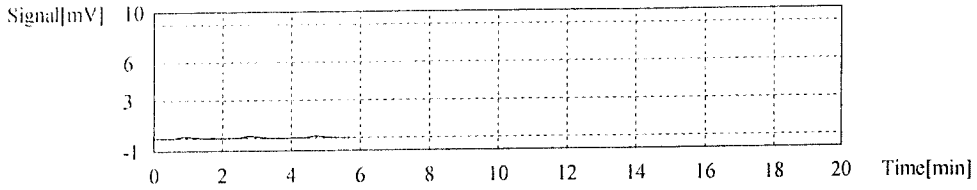
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3102	0.09275mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:31:08 AM
2	0.3464	0.1036mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:33:15 AM
3	0.3290	0.09837mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:35:22 AM

TOC-Control L Report

Mean Area 0.3285
Mean Conc. 0.09823mg/L



Sample

Sample Name: MBLK-07082022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

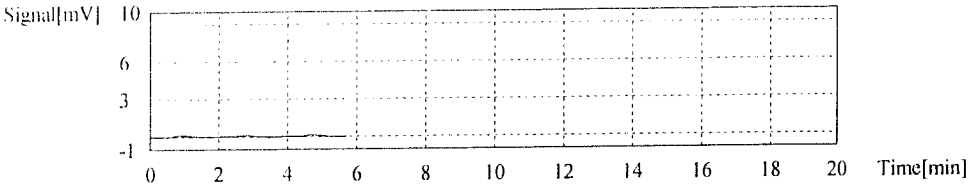
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.06716mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3139	0.09388mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 11:43:25 AM
2	0.2139	0.06395mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 11:45:32 AM
3	0.1461	0.04368mg/L	50ul	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 11:47:39 AM

Mean Area 0.2246
Mean Conc. 0.06716mg/L



Sample

Sample Name: LCS-07092022
Sample ID: 3100605711
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.677mg/L

1. Det

Anal.: NPOC

TOC-Control L Report

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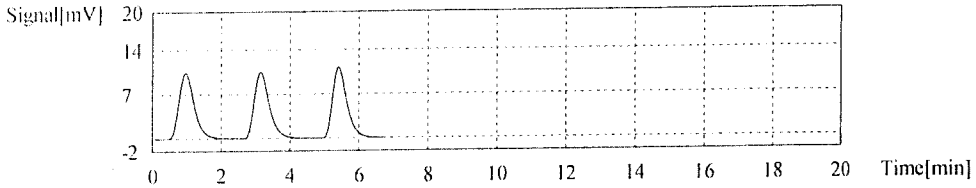
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.13	9.607mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:56:00 AM
2	32.05	9.583mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 11:58:32 AM
3	32.92	9.843mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:01:02 PM

Mean Area 32.37
Mean Conc. 9.677mg/L



Sample

Sample Name: LCSD-07092022
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

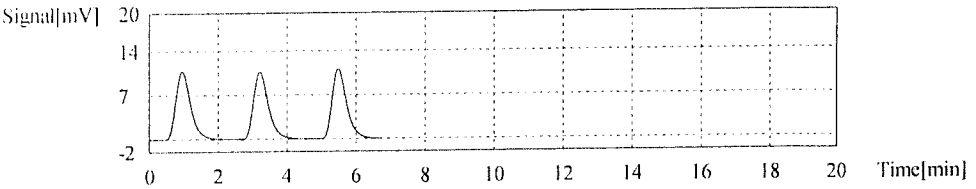
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 9.724mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.56	9.735mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:09:26 PM
2	32.25	9.645mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:11:58 PM
3	32.76	9.795mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:14:22 PM

Mean Area 32.52
Mean Conc. 9.724mg/L



Sample

Sample Name: HS2206I313-03DF10
Sample ID: TOC_W5310B
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 13.94mg/L

1. Det

TOC-Control L Report

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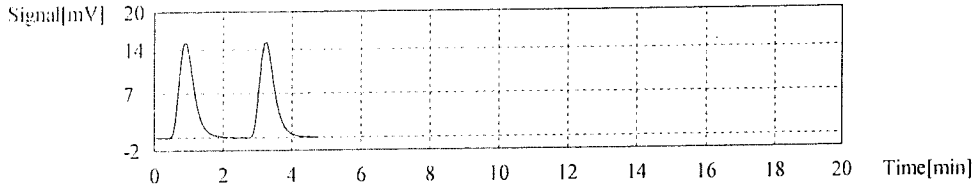
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	46.46	13.89mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:22:22 PM
2	46.81	14.00mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:25:30 PM

Mean Area 46.64
Mean Conc. 13.94mg/L



Sample

Sample Name: HS22061313-04DF10
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

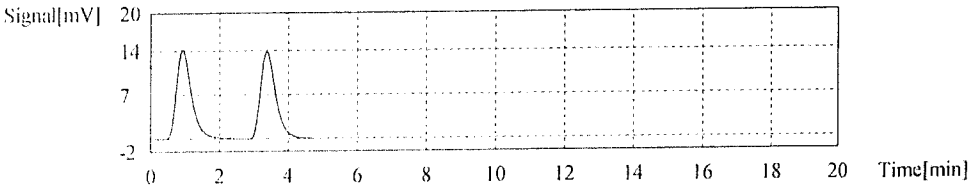
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 12.80mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	42.95	12.84mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:34:29 PM
2	42.69	12.76mg/L	50ul	1.000		06_07_2022_CAL.2022_06_07_17_25_51.cal	7/9/2022 12:37:26 PM

Mean Area 42.82
Mean Conc. 12.80mg/L



Sample

Sample Name: HS22070074-01
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 6.697mg/L

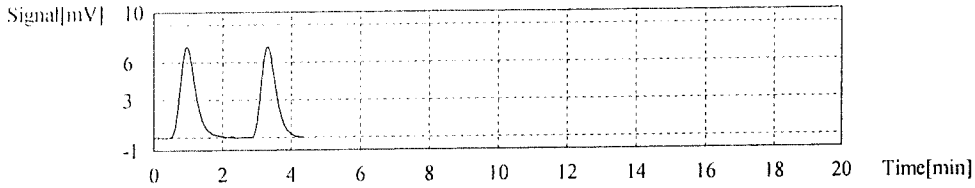
1. Det

TOC-Control L Report

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	22.68	6.781mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 12:45:51 PM
2	22.12	6.613mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 12:48:32 PM

Mean Area 22.40
Mean Conc. 6.697mg/L



Sample

Sample Name: HS2207007-01MS
Sample ID:
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

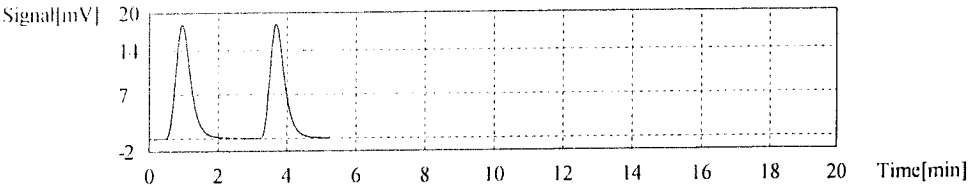
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 16.54mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	55.80	16.68mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 12:57:21 PM
2	54.83	16.39mg/L	50uL	1.000		06_07_2022_CAL 2022_06_07_17_25_51.cal	7/9/2022 1:00:06 PM

Mean Area 55.32
Mean Conc. 16.54mg/L



Sample

Sample Name: CCV
Sample ID: 3200162O6
Origin: 06_07_2022_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 24.78mg/L

1. Det

TOC-Control L Report

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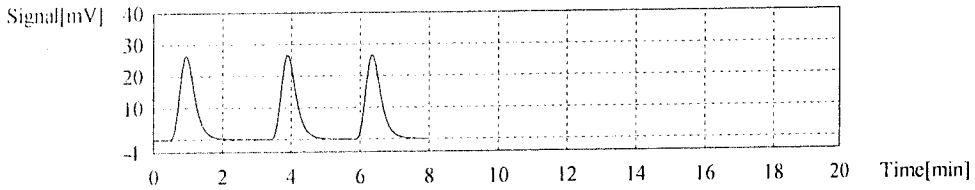
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	82.41	24.64mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/9/2022 1:43:25 PM
2	83.02	24.82mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/9/2022 1:46:08 PM
3	83.21	24.88mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/9/2022 1:48:58 PM

Mean Area 82.88
Mean Conc. 24.78mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 06_07_2022_CAL..cal
Status Completed
Chk. Result

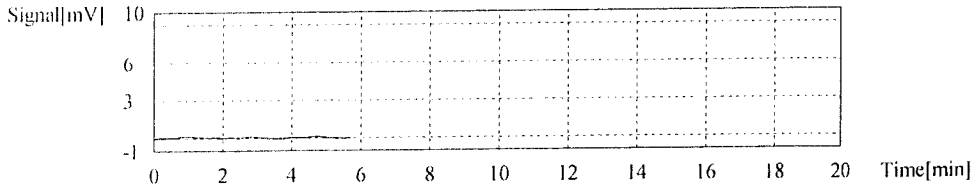
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.07884mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3618	0.1082mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/9/2022 1:57:02 PM
2	0.2376	0.07104mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/9/2022 1:59:10 PM
3	0.1917	0.05732mg/L	50uL	1.000		06_07_2022_CAL_2022_06_07_17_25_51.cal	7/9/2022 2:01:18 PM

Mean Area 0.2637
Mean Conc. 0.07884mg/L



HS22061313 9056_W IC

ALS WO# HS22061313

Sequence: 062422
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1		Calibratic	RA1	1.00	1	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:43:36 PM -05:00
	STD2		Calibratic	RA2	1.00	2	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:48:55 PM -05:00
	STD3		Calibratic	RA3	1.00	3	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:54:13 PM -05:00
	STD4		Calibratic	RA4	1.00	4	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:59:31 PM -05:00
	STD5		Calibratic	RA5	1.00	5	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:04:49 PM -05:00
	STD6		Calibratic	RA6	1.00	6	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:10:07 PM -05:00
	ICV		Unknown	RA7	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:15:25 PM -05:00
	ICB		Unknown	R7	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:26:02 PM -05:00
	CCV		Unknown	R1	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 5:51:43 PM -05:00
	CCB		Unknown	R4	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:02:20 PM -05:00
	MBLK	9056-W-SH(REP)	Unknown	R5	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:07:38 PM -05:00
	LCS	REPORTED	Unknown	R2	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:12:56 PM -05:00
	HS22061313-04	REPORTED	Unknown	RA7	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:18:14 PM -05:00
	HS22061313-04MS	REPORTED	Unknown	RA8	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:23:32 PM -05:00
	HS22061313-04MSD	REPORTED	Unknown	RB1	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:28:50 PM -05:00
	HS22061313-01DF2	REPORTED	Unknown	RB2	2.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:34:09 PM -05:00
	HS22061313-02DF5	REPORTED	Unknown	RB3	5.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:39:27 PM -05:00
	HS22061313-03DF2	REPORTED	Unknown	RB4	2.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:44:45 PM -05:00
	HS22061313-05DF2	REPORTED	Unknown	RB5	2.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:50:03 PM -05:00
	HS22061313-06DF2	REPORTED	Unknown	RB6	2.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 6:55:21 PM -05:00
	CCV1		Unknown	R3	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 7:11:16 PM -05:00
	CCB		Unknown	R7	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/24/2022 7:21:52 PM -05:00

Sequence: 061522
Injection #6: STD6

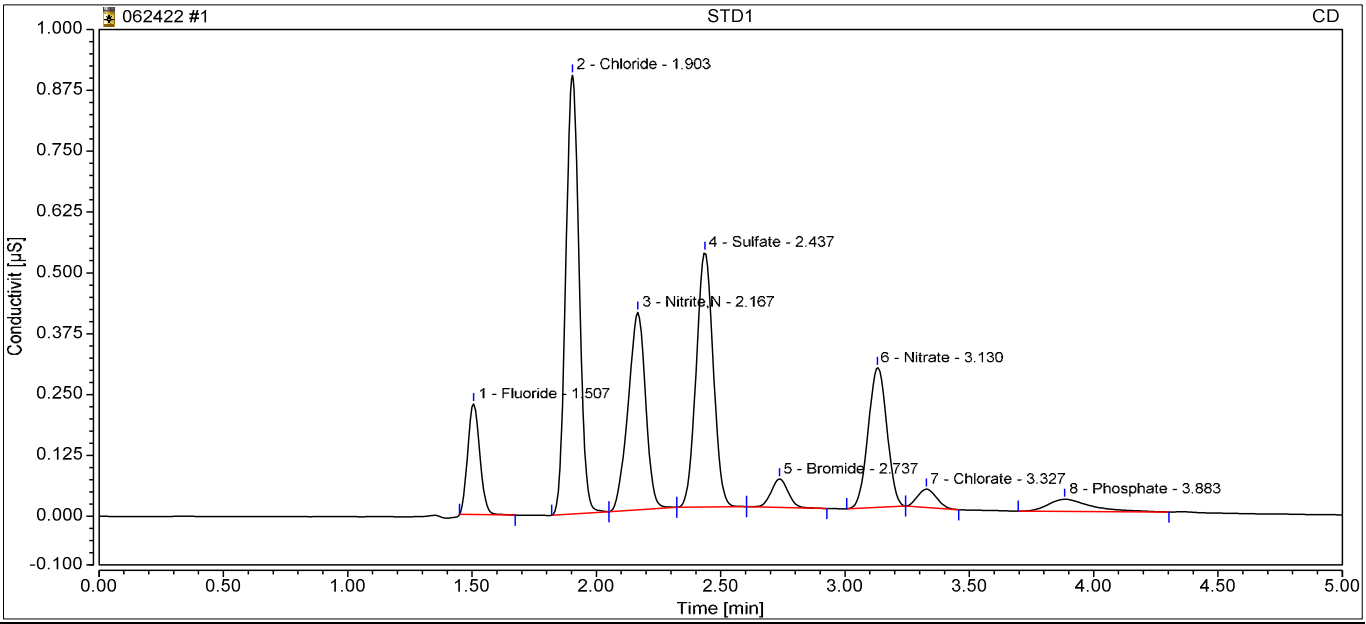
Calibration

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*	*26.4691*	*0.99701*	*-0.0097*	*0.2161*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	5.8427	0.99984	-0.0218	0.1418	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	26.3006	0.99568	0.0108	0.2746	0.0000
4	Sulfate	Lin, WithOffset, 1/	Area	6	5.9882	0.99984	-0.0169	0.1061	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	19.1083	0.99846	-0.0030	0.0626	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	7.6223	0.99974	-0.0112	0.3307	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	16.8078	0.99862	-0.0007	0.0400	0.0000
8	Phosphate	Quad, WithOffset,	Area	6	20.1620	0.99899	-0.0094	0.1193	0.0006
Maximum					**26.4691**	0.99984			
Minimum					5.8427	**0.99568**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**RA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:43**	*Sample Weight:*	**1.0000**

Run Time:



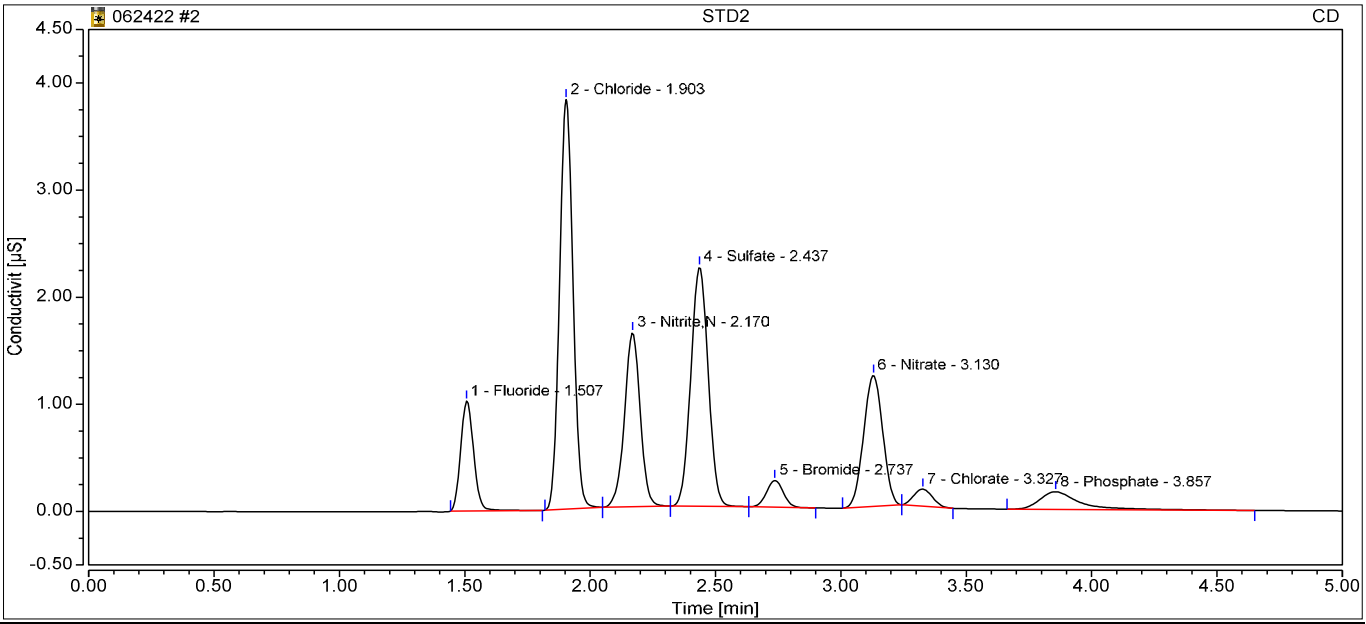
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.013	0.1044	0.1044	1.0000
2	1.90	Chloride	BMB	0.056	0.5484	0.5484	1.0000
3	2.17	Nitrite,N	BMB	0.033	0.0810	0.0810	1.0000
4	2.44	Sulfate	BMB	0.042	0.5504	0.5504	1.0000
5	2.74	Bromide	BMB	0.005	0.1216	0.1216	1.0000
6	3.13	Nitrate	BMB	0.025	0.1097	0.1097	1.0000
7	3.33	Chlorate	BMB	0.003	0.1000	0.1000	1.0000
8	3.88	Phosphate	BMB	0.005	0.1206	0.1206	1.0000
Total:			**0.000**	**0.181**		**1.74**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:48**	*Sample Weight:*	**1.0000**

Run Time:



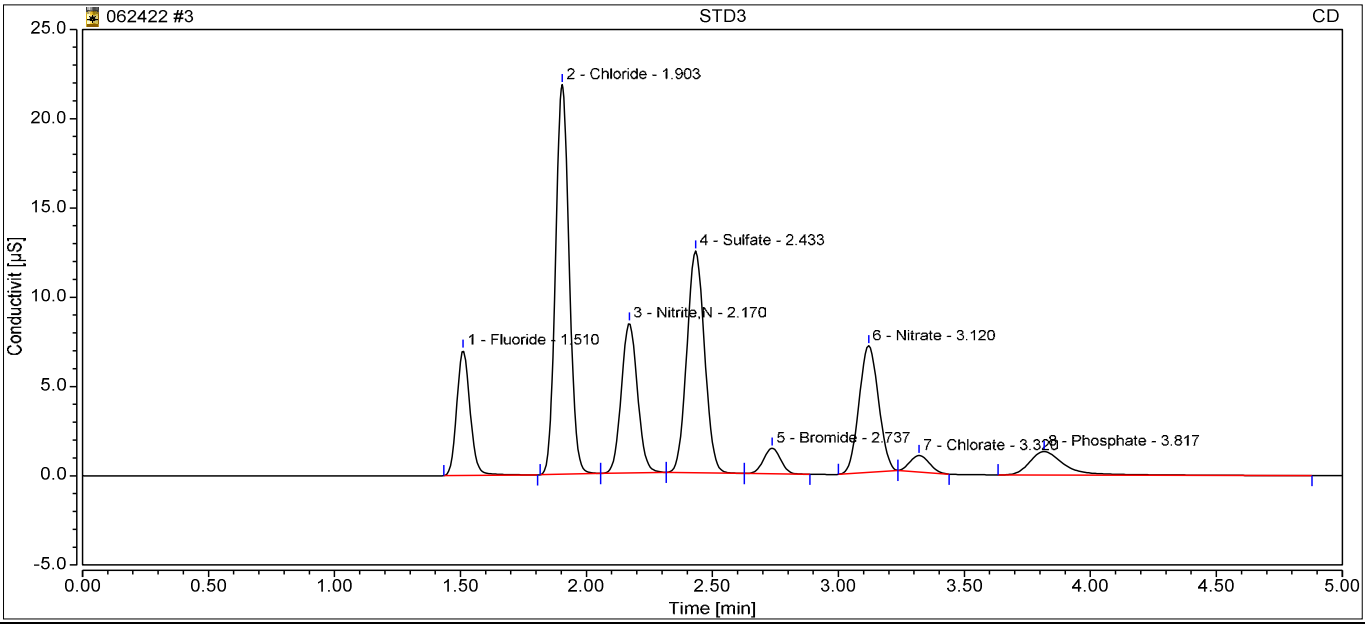
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.062	0.3309	0.3309	1.0000
2	1.90	Chloride	BMB	0.237	1.8250	1.8250	1.0000
3	2.17	Nitrite,N	BMB	0.118	0.3914	0.3914	1.0000
4	2.44	Sulfate	BMB	0.180	1.8530	1.8530	1.0000
5	2.74	Bromide	BMB	0.019	0.3561	0.3561	1.0000
6	3.13	Nitrate	BMB	0.108	0.3602	0.3602	1.0000
7	3.33	Chlorate	BMB	0.014	0.3632	0.3632	1.0000
8	3.86	Phosphate	BMB	0.031	0.3376	0.3376	1.0000
Total:			**0.000**	**0.769**		**5.82**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:54**	*Sample Weight:*	**1.0000**

Run Time:



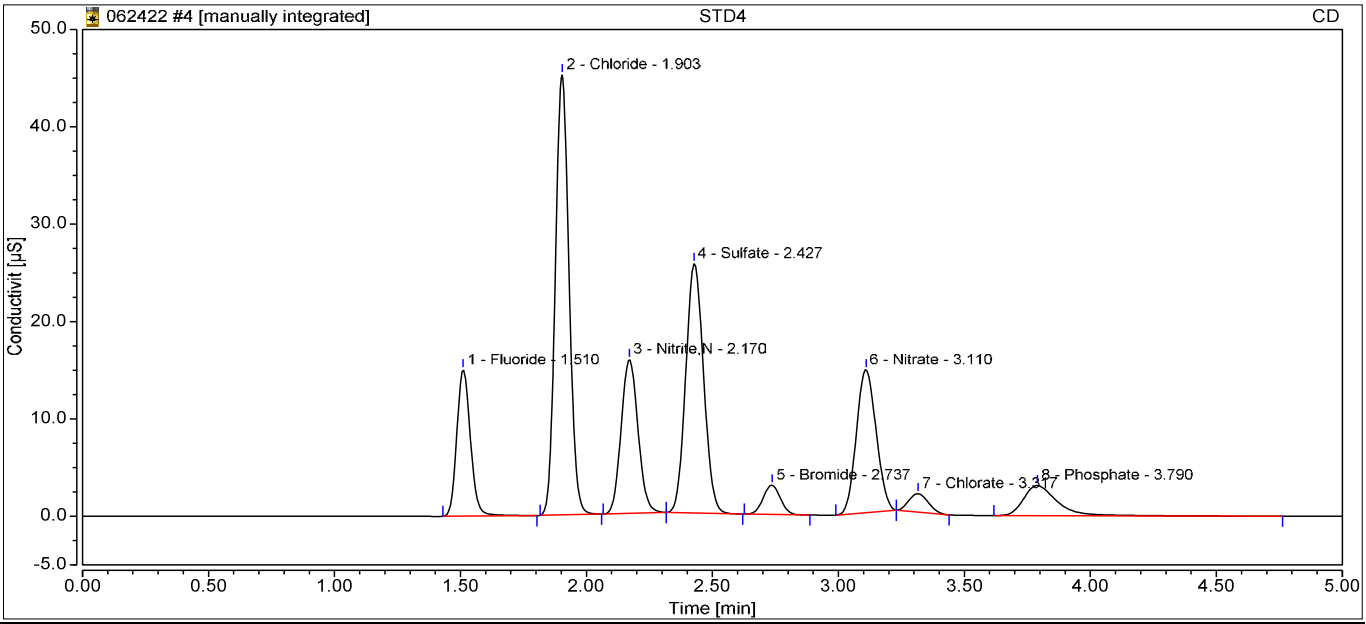
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.433	2.0503	2.0503	1.0000
2	1.90	Chloride	BMB	1.366	9.7882	9.7882	1.0000
3	2.17	Nitrite,N	BMB	0.624	2.2318	2.2318	1.0000
4	2.43	Sulfate	BMB	1.012	9.6989	9.6989	1.0000
5	2.74	Bromide	BMB	0.113	1.8543	1.8543	1.0000
6	3.12	Nitrate	BMB	0.635	1.9555	1.9555	1.0000
7	3.32	Chlorate	BMB	0.081	2.0522	2.0522	1.0000
8	3.82	Phosphate	BMB	0.211	1.8314	1.8314	1.0000
Total:			**0.000**	**4.476**		**31.46**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:59**	*Sample Weight:*	**1.0000**

Run Time:



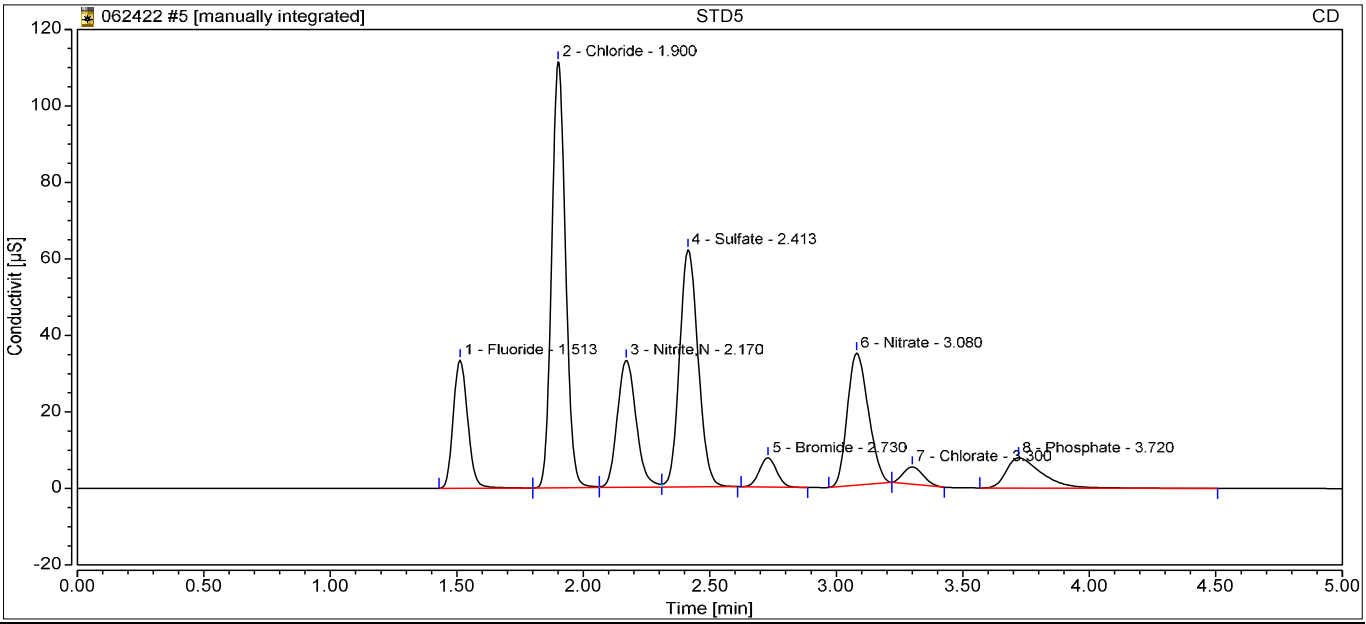
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.947	4.4264	4.4264	1.0000
2	1.90	Chloride	BMB	2.841	20.1942	20.1942	1.0000
3	2.17	Nitrite,N	BMb*	1.227	4.4291	4.4291	1.0000
4	2.43	Sulfate	bMB*	2.105	19.9970	19.9970	1.0000
5	2.74	Bromide	BMB	0.239	3.8700	3.8700	1.0000
6	3.11	Nitrate	BMB	1.337	4.0782	4.0782	1.0000
7	3.32	Chlorate	BMB	0.170	4.2596	4.2596	1.0000
8	3.79	Phosphate	BMB	0.484	4.0508	4.0508	1.0000
Total:			**0.000**	**9.351**		**65.31**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:04**	*Sample Weight:*	**1.0000**

Run Time:

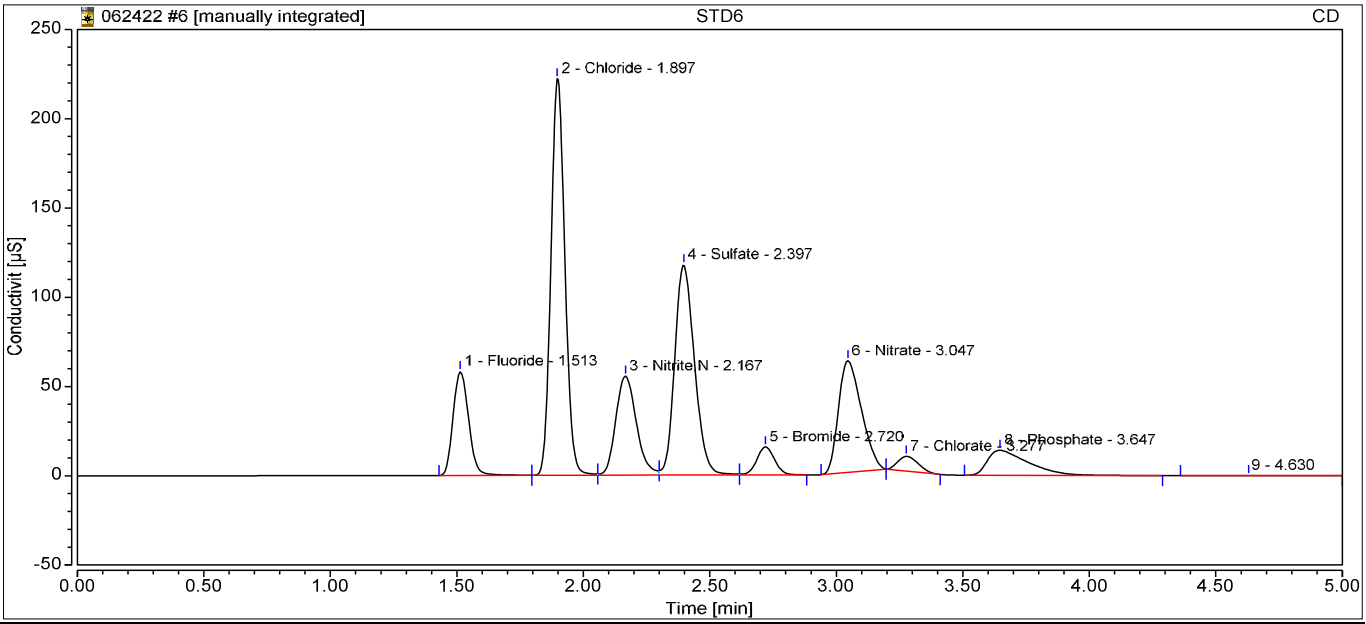


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMb*	2.229	10.3595	10.3595	1.0000
2	1.90	Chloride	bM *	7.078	50.0739	50.0739	1.0000
3	2.17	Nitrite,N	M *	2.867	10.4035	10.4035	1.0000
4	2.41	Sulfate	MB*	5.277	49.8959	49.8959	1.0000
5	2.73	Bromide	BMB	0.604	9.6932	9.6932	1.0000
6	3.08	Nitrate	BMB	3.328	10.0976	10.0976	1.0000
7	3.30	Chlorate	BMB	0.412	10.2967	10.2967	1.0000
8	3.72	Phosphate	BMB	1.283	10.2769	10.2769	1.0000
Total:			**0.000**	**23.078**		**161.10**	

6 STD6			
Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**RA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:10**	*Sample Weight:*	**1.0000**

Run Time:



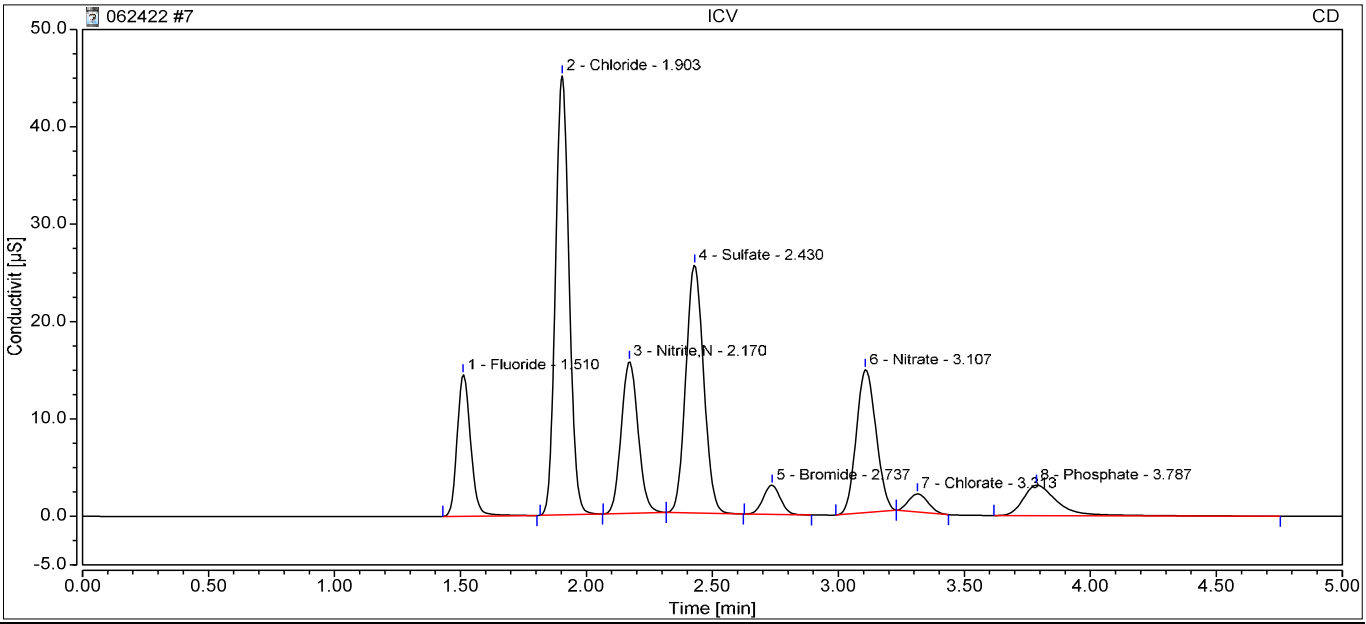
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMb*	4.146	19.2286	19.2286	1.0000
2	1.90	Chloride	bM *	14.167	100.0702	100.0702	1.0000
3	2.17	Nitrite,N	M *	5.217	18.9633	18.9633	1.0000
4	2.40	Sulfate	M *	10.646	100.5049	100.5049	1.0000
5	2.72	Bromide	MB*	1.287	20.6049	20.6049	1.0000
6	3.05	Nitrate	BMB	6.569	19.8987	19.8987	1.0000
7	3.28	Chlorate	BMB	0.777	19.4282	19.4282	1.0000
8	3.65	Phosphate	BMB	2.612	19.8798	19.8798	1.0000
Total:			**0.000**	**45.421**		**318.58**	

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**RA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:15**	*Sample Weight:*	**1.0000**

Run Time:



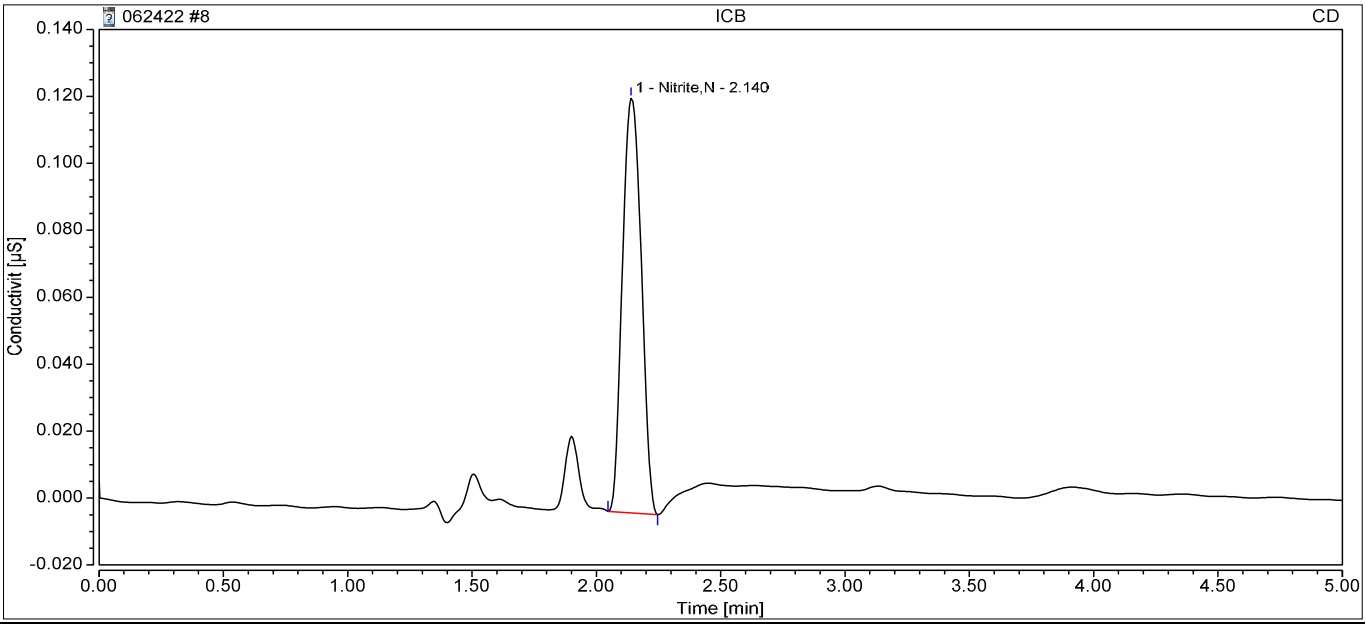
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.906	4.2360	4.2360	1.0000
2	1.90	Chloride	BMB	2.829	20.1029	20.1029	1.0000
3	2.17	Nitrite,N	BMB	1.206	4.3541	4.3541	1.0000
4	2.43	Sulfate	BMB	2.088	19.8413	19.8413	1.0000
5	2.74	Bromide	BMB	0.236	3.8269	3.8269	1.0000
6	3.11	Nitrate	BMB	1.333	4.0636	4.0636	1.0000
7	3.31	Chlorate	BMB	0.166	4.1702	4.1702	1.0000
8	3.79	Phosphate	BMB	0.491	4.1057	4.1057	1.0000
Total:			**0.000**	**9.255**		**64.70**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**R7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:26**	*Sample Weight:*	**1.0000**

Run Time:



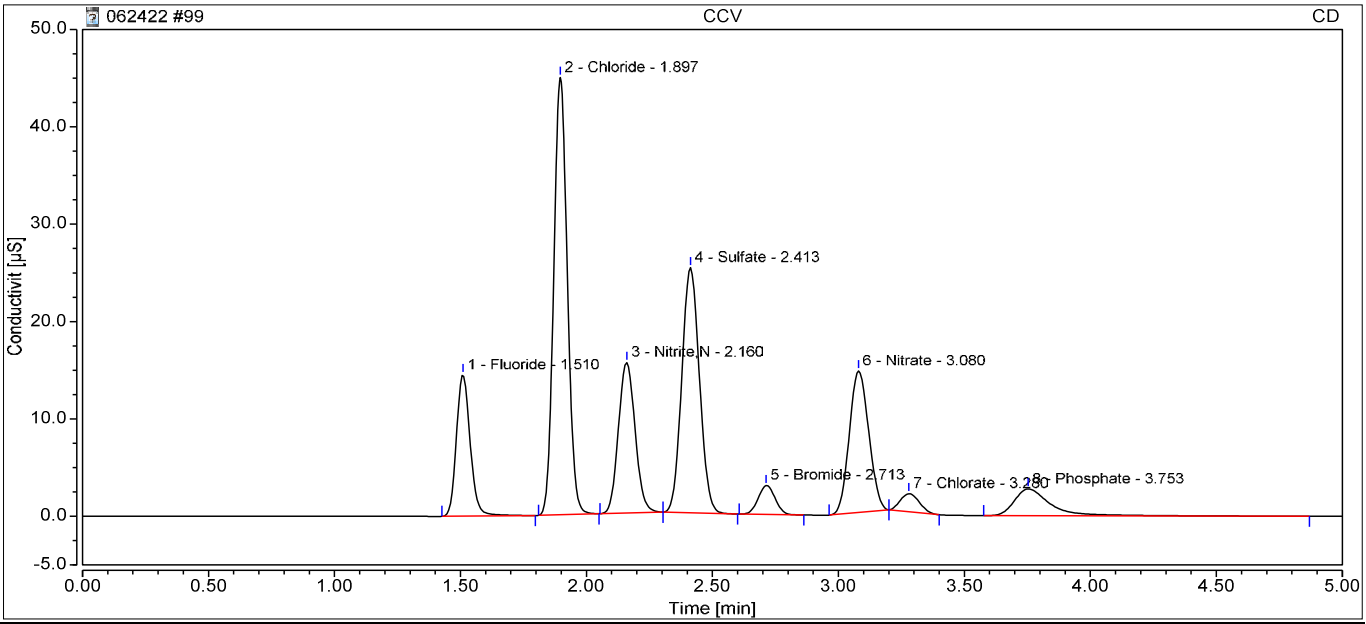
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.14	Nitrite,N	BMB	0.011	0.0002	0.0002	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**	**0.011**		**0.00**	

99 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 17:51**	*Sample Weight:*	**1.0000**

Run Time:



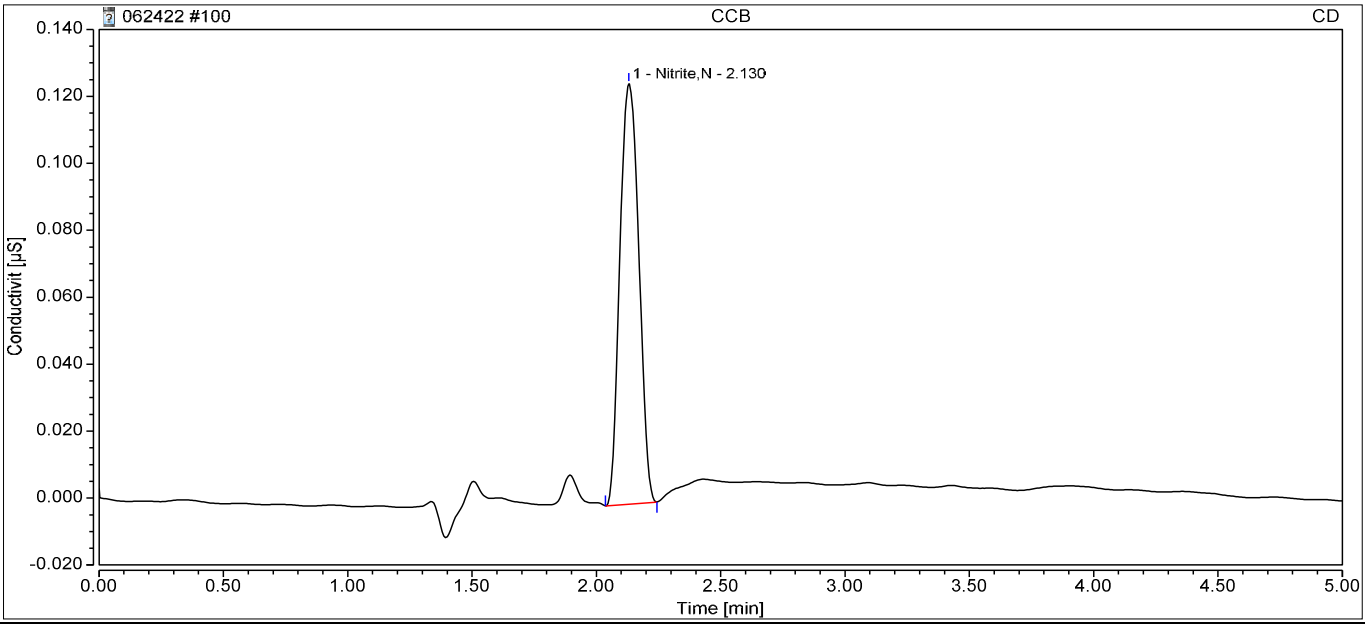
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.925	4.3263	4.3263	1.0000
2	1.90	Chloride	BMB	2.800	19.9046	19.9046	1.0000
3	2.16	Nitrite,N	BMB	1.189	4.2930	4.2930	1.0000
4	2.41	Sulfate	BMB	2.041	19.3998	19.3998	1.0000
5	2.71	Bromide	BMB	0.232	3.7601	3.7601	1.0000
6	3.08	Nitrate	BMB	1.301	3.9686	3.9686	1.0000
7	3.28	Chlorate	BMB	0.163	4.1010	4.1010	1.0000
8	3.75	Phosphate	BMB	0.461	3.8631	3.8631	1.0000
Total:			**0.000**	**9.114**		**63.62**	

100 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 18:02**	*Sample Weight:*	**1.0000**

Run Time:



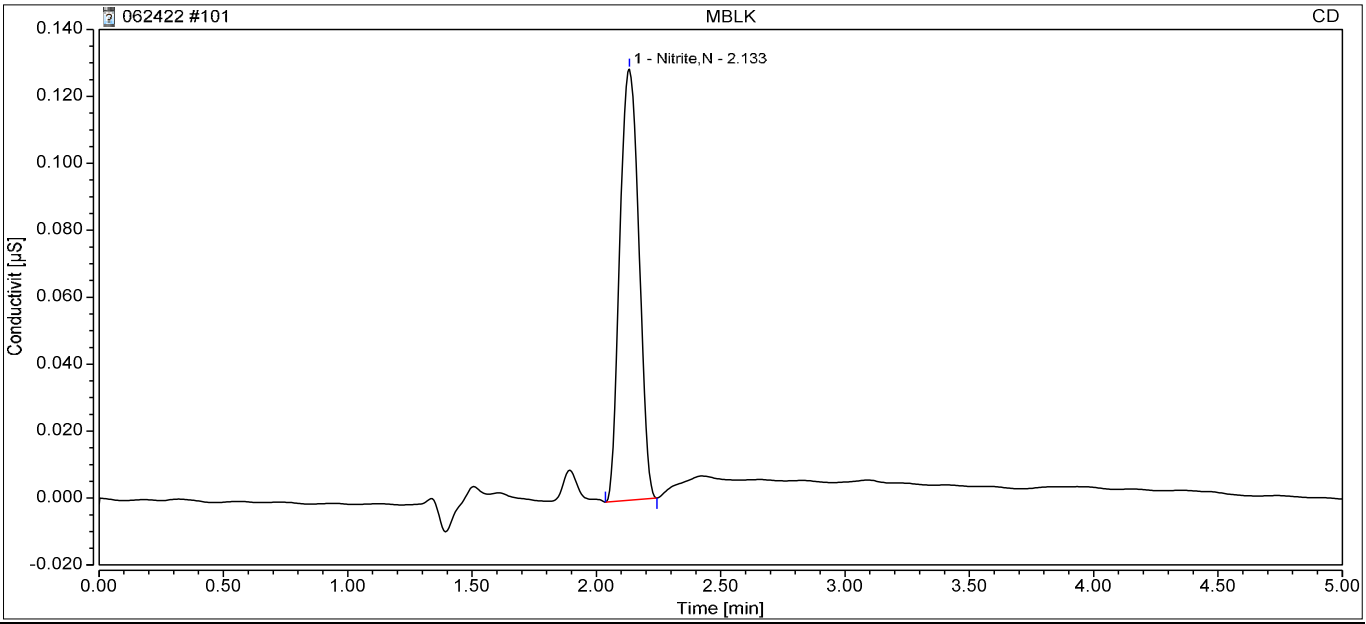
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.13	Nitrite,N	BMB	0.011	0.0010	0.0010	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**	**0.011**		**0.00**	

101 MBLK

Sample Name:	**MBLK**	*Injection Volume:*	**5.00**
Vial Number:	**R5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 18:07**	*Sample Weight:*	**1.0000**

Run Time:



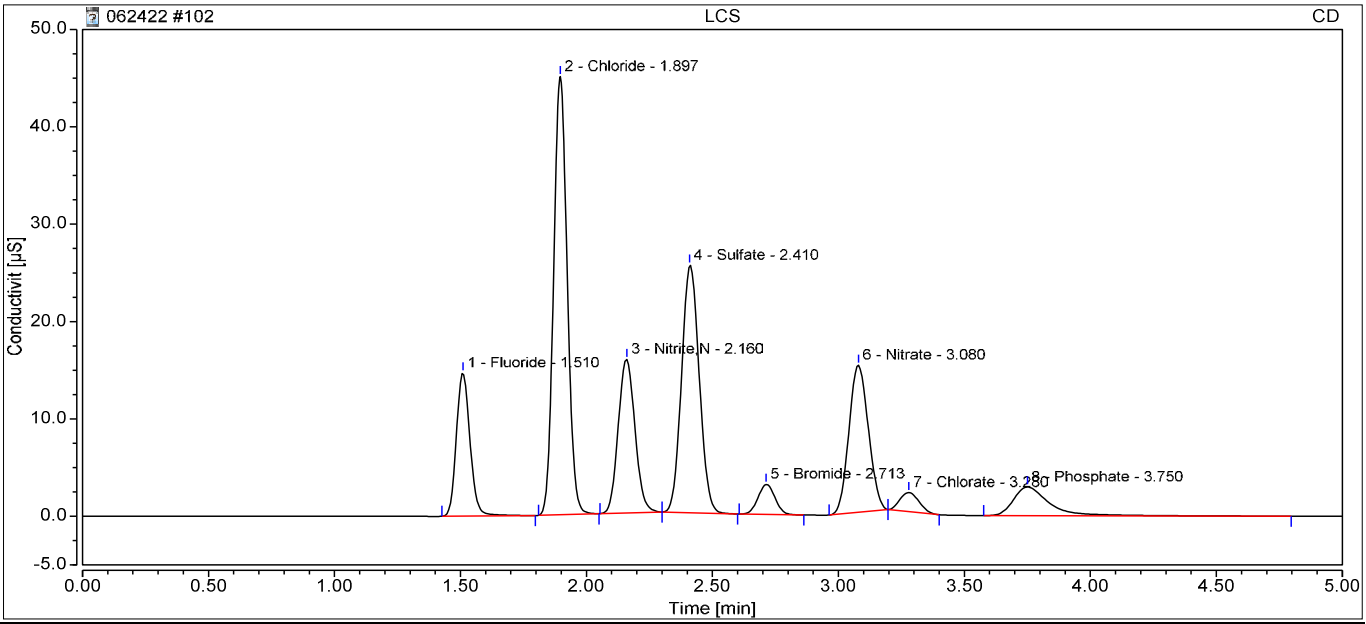
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.13	Nitrite,N	BMB	0.012	0.0024	0.0024	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**	**0.012**		**0.00**	

102 LCS

Sample Name:	**LCS**	*Injection Volume:*	**5.00**
Vial Number:	**R2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 18:12**	*Sample Weight:*	**1.0000**

Run Time:



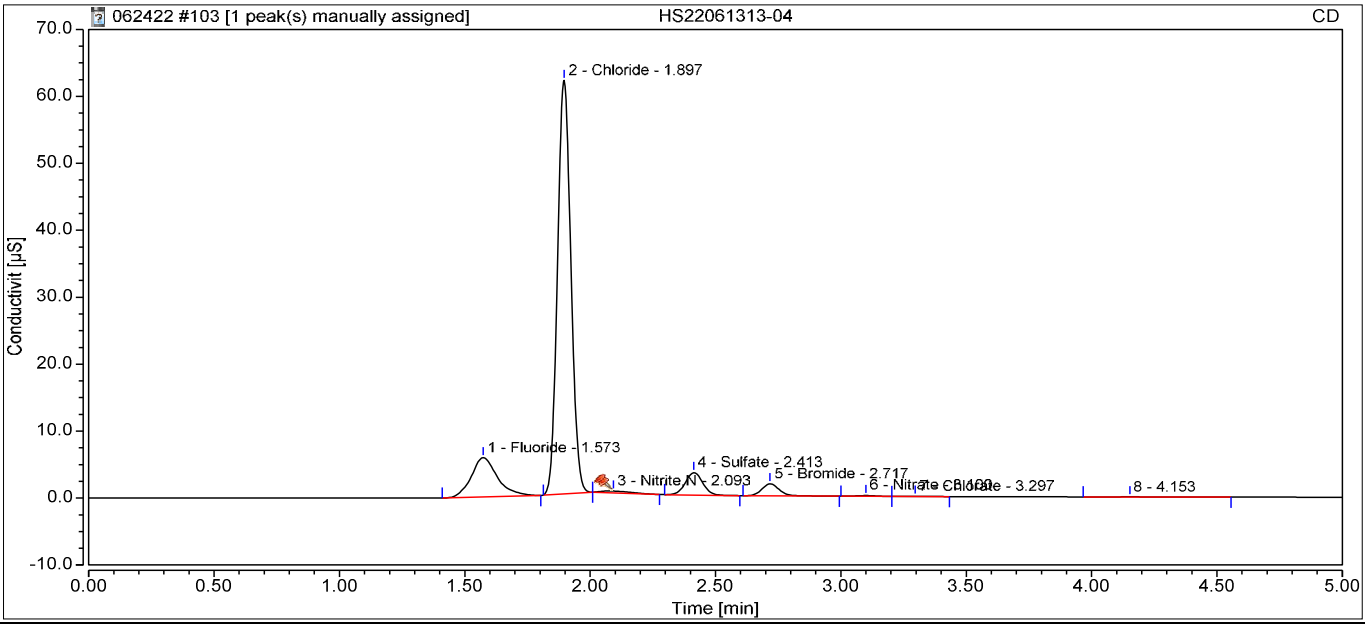
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.928	4.3389	4.3389	1.0000
2	1.90	Chloride	BMB	2.804	19.9330	19.9330	1.0000
3	2.16	Nitrite,N	BMB	1.216	4.3898	4.3898	1.0000
4	2.41	Sulfate	BMB	2.064	19.6096	19.6096	1.0000
5	2.71	Bromide	BMB	0.241	3.8927	3.8927	1.0000
6	3.08	Nitrate	BMB	1.352	4.1222	4.1222	1.0000
7	3.28	Chlorate	BMB	0.173	4.3357	4.3357	1.0000
8	3.75	Phosphate	BMB	0.490	4.0971	4.0971	1.0000
Total:			**0.000**	**9.268**		**64.72**	

103 HS22061313-04

Sample Name:	**HS22061313-04**	*Injection Volume:*	**5.00**
Vial Number:	**RA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 18:18**	*Sample Weight:*	**1.0000**

Run Time:



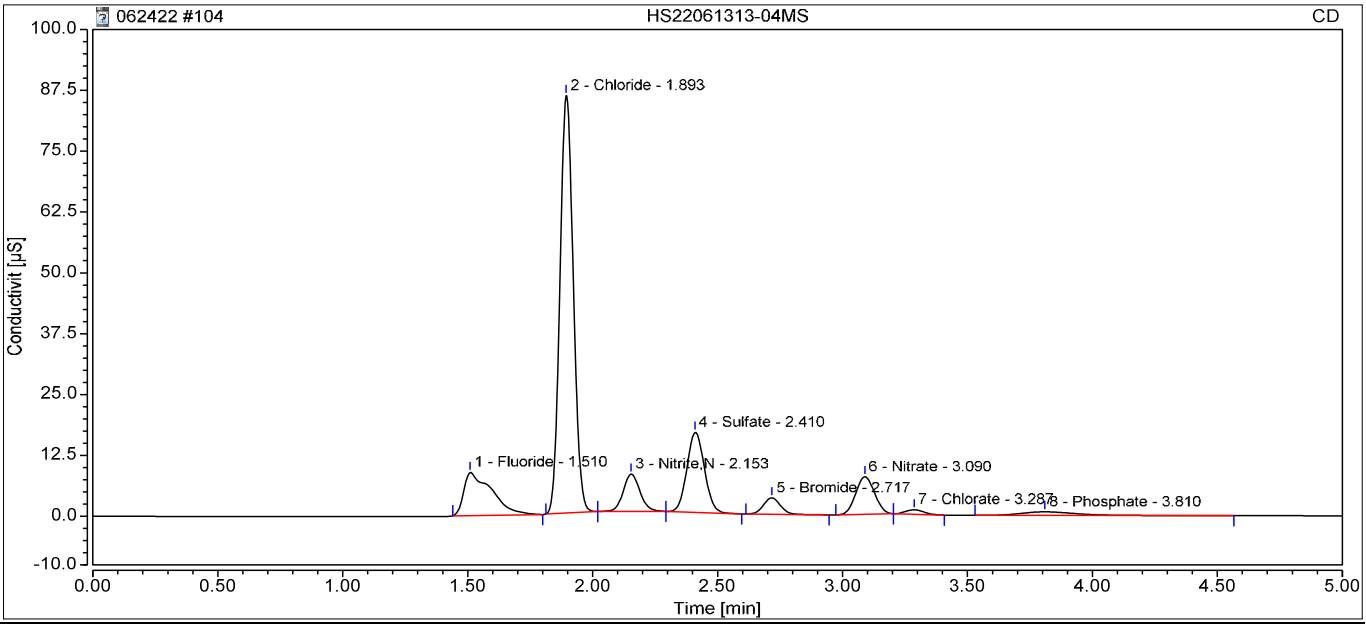
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.57	Fluoride	BMB	0.716	3.3584	3.3584	1.0000
2	1.90	Chloride	BMB	3.812	27.0394	27.0394	1.0000
3	2.09	Nitrite,N	BMB^	0.037	0.0955	0.0955	1.0000
4	2.41	Sulfate	BMB	0.270	2.7010	2.7010	1.0000
5	2.72	Bromide	BMB	0.144	2.3554	2.3554	1.0000
6	3.10	Nitrate	BMB	0.009	0.0620	0.0620	1.0000
7	3.30	Chlorate	BMB	0.003	0.0888	0.0888	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**4.991**		**35.70**	

104 HS22061313-04MS

Sample Name:	**HS22061313-04MS**	*Injection Volume:*	**5.00**
Vial Number:	**RA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 18:23**	*Sample Weight:*	**1.0000**

Run Time:



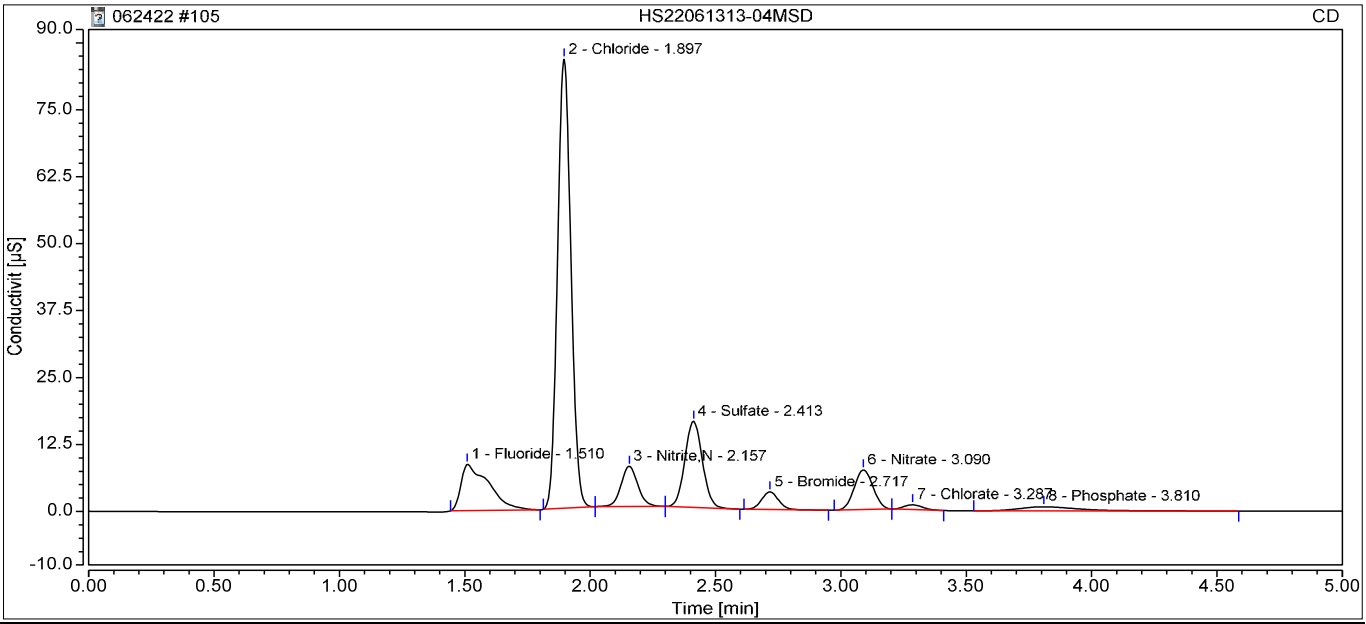
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	1.139	5.3160	5.3160	1.0000
2	1.89	Chloride	BMB	5.311	37.6143	37.6143	1.0000
3	2.15	Nitrite,N	BMB	0.599	2.1422	2.1422	1.0000
4	2.41	Sulfate	BMB	1.339	12.7772	12.7772	1.0000
5	2.72	Bromide	BMB	0.265	4.2777	4.2777	1.0000
6	3.09	Nitrate	BMB	0.672	2.0665	2.0665	1.0000
7	3.29	Chlorate	BMB	0.079	1.9937	1.9937	1.0000
8	3.81	Phosphate	BMB	0.190	1.6591	1.6591	1.0000
Total:			**0.000**	**9.595**		**67.85**	

105 HS22061313-04MSD

Sample Name:	**HS22061313-04MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 18:28**	*Sample Weight:*	**1.0000**

Run Time:



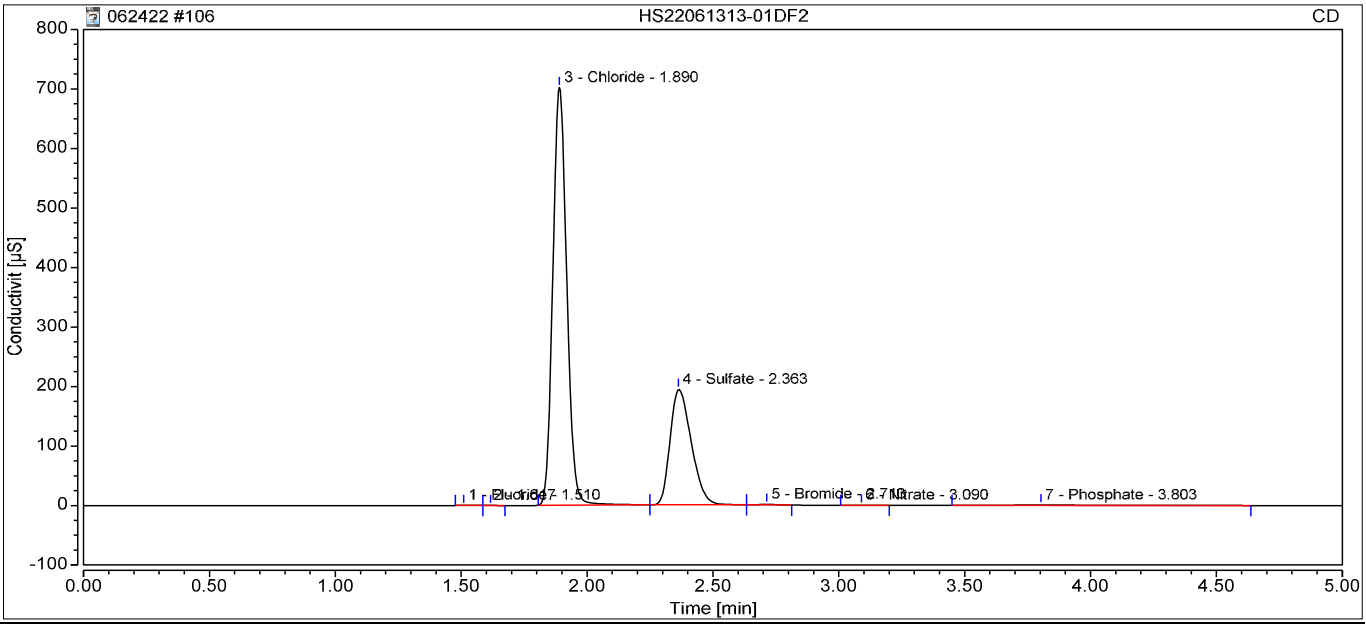
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	1.107	5.1656	5.1656	1.0000
2	1.90	Chloride	BMB	5.186	36.7282	36.7282	1.0000
3	2.16	Nitrite,N	BMB	0.587	2.0976	2.0976	1.0000
4	2.41	Sulfate	BMB	1.307	12.4750	12.4750	1.0000
5	2.72	Bromide	BMB	0.258	4.1757	4.1757	1.0000
6	3.09	Nitrate	BMB	0.646	1.9867	1.9867	1.0000
7	3.29	Chlorate	BMB	0.077	1.9492	1.9492	1.0000
8	3.81	Phosphate	BMB	0.205	1.7829	1.7829	1.0000
Total:			**0.000**	**9.373**		**66.36**	

106 HS22061313-01DF2

Sample Name:	**HS22061313-01DF2**	*Injection Volume:*	**5.00**
Vial Number:	**RB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**2.0000**
Recording Time:	**06/24/2022 18:34**	*Sample Weight:*	**1.0000**

Run Time:



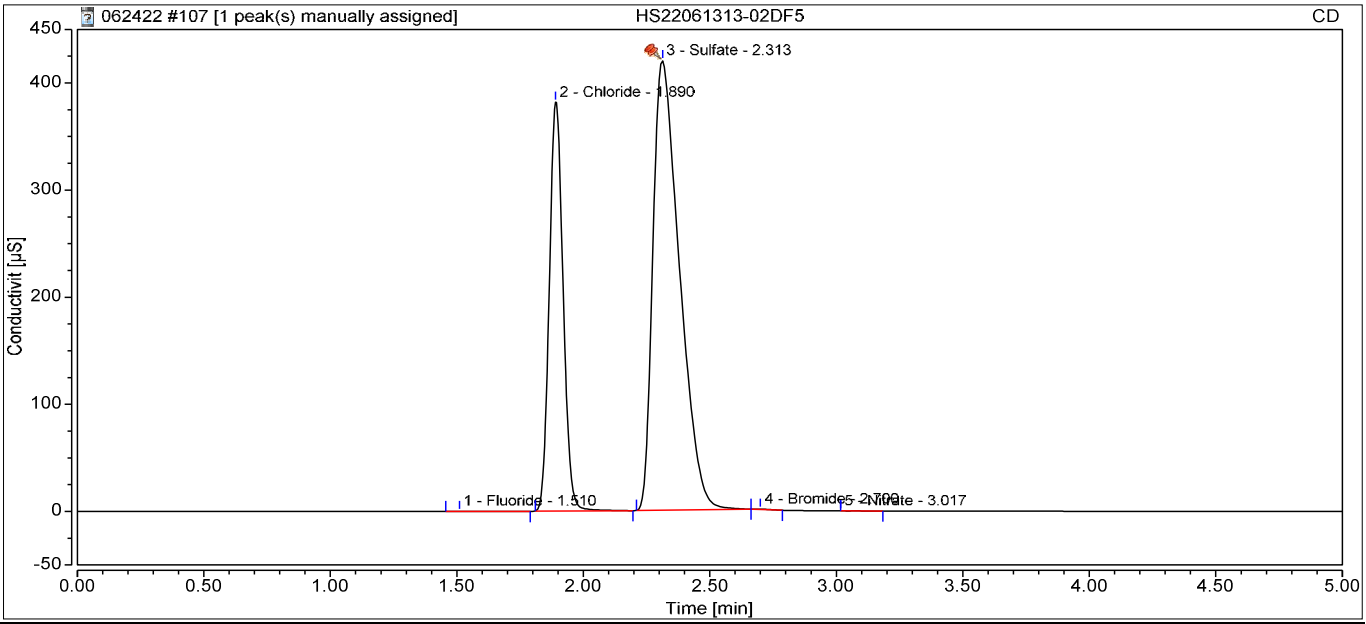
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.006	0.0733	0.1466	2.0000
3	1.89	Chloride	BMB	44.911	316.9041	633.8081	2.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	2.0000
4	2.36	Sulfate	BMB	18.829	177.6312	355.2625	2.0000
5	2.71	Bromide	BMB	0.080	1.3233	2.6466	2.0000
6	3.09	Nitrate	BMB	0.006	0.0529	0.1058	2.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	2.0000
7	3.80	Phosphate	BMB	0.235	2.0296	4.0591	2.0000
Total:			**0.000**	**64.067**		**996.03**	

107 HS22061313-02DF5

Sample Name:	**HS22061313-02DF5**	*Injection Volume:*	**5.00**
Vial Number:	**RB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**5.0000**
Recording Time:	**06/24/2022 18:39**	*Sample Weight:*	**1.0000**

Run Time:



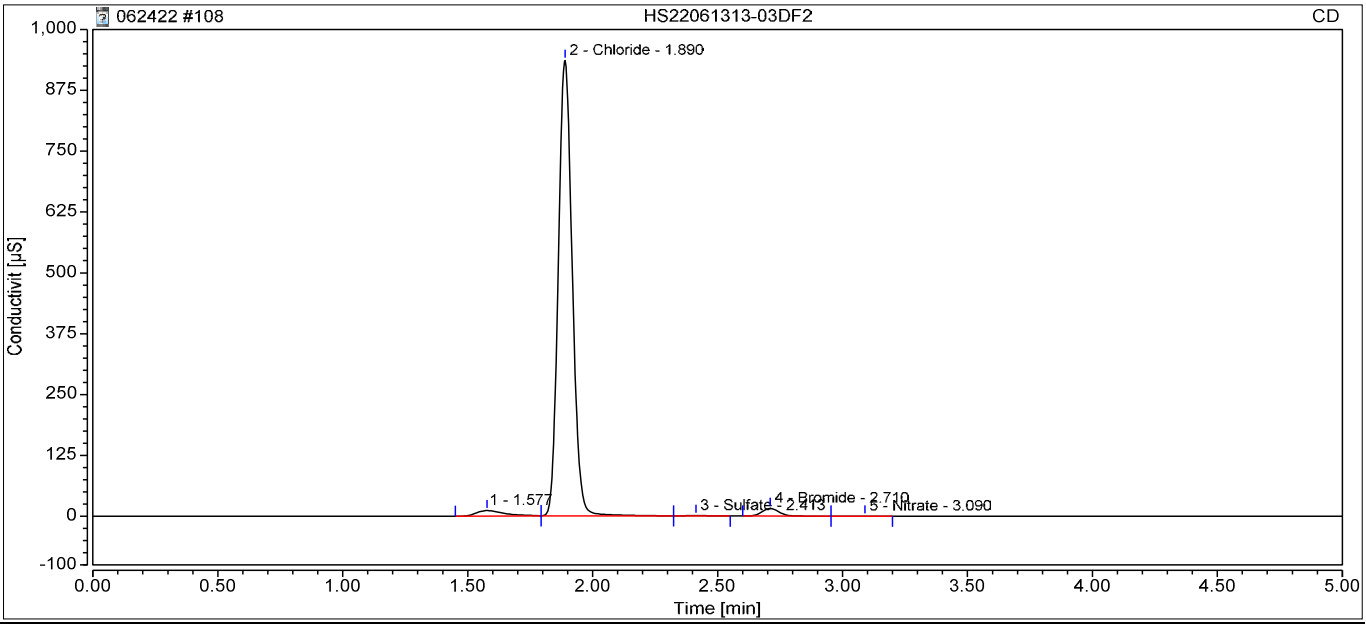
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.014	0.1110	0.5549	5.0000
2	1.89	Chloride	BMB	24.162	170.5623	852.8113	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
3	2.31	Sulfate	BMB^	51.070	481.5260	2407.6302	5.0000
4	2.70	Bromide	BMB	0.025	0.4550	2.2749	5.0000
5	3.02	Nitrate	BMB	0.005	0.0477	0.2387	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**	**75.276**		**3263.51**	

108 HS22061313-03DF2

Sample Name:	**HS22061313-03DF2**	*Injection Volume:*	**5.00**
Vial Number:	**RB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**2.0000**
Recording Time:	**06/24/2022 18:44**	*Sample Weight:*	**1.0000**

Run Time:



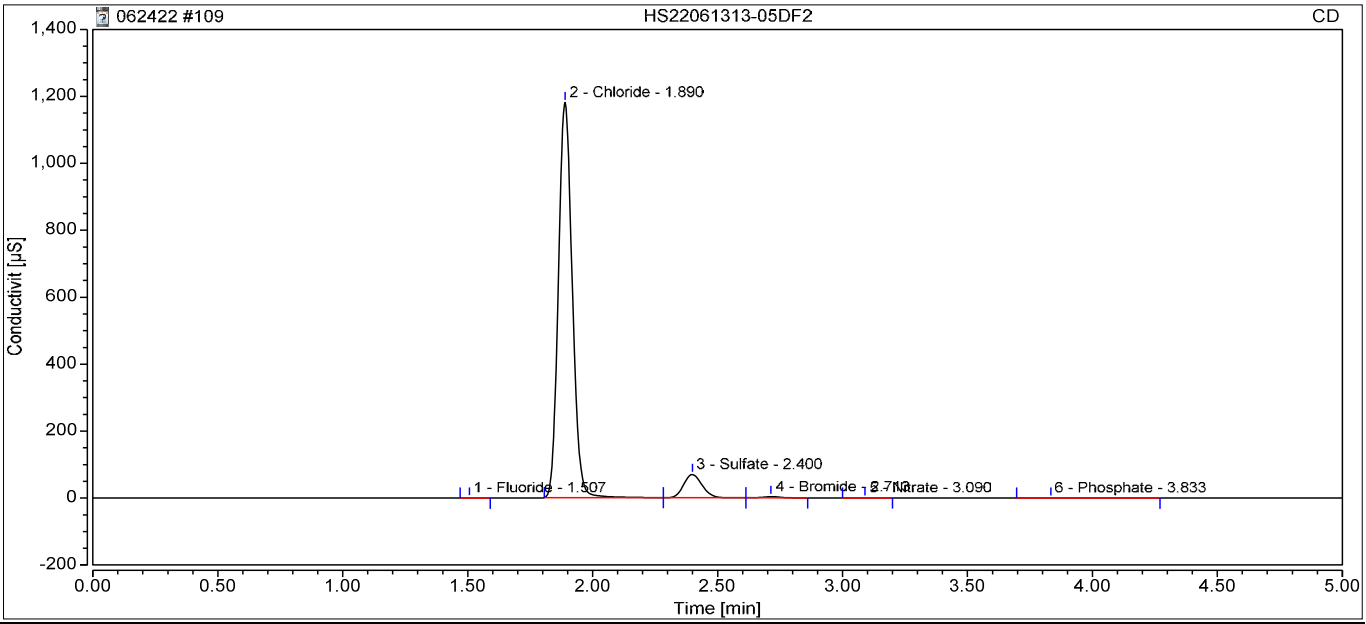
Integration Results

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.	2.0000
2	1.89	Chloride	BMB	60.579	427.4055	854.8111	2.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	2.0000
3	2.41	Sulfate	BMB	0.075	0.8629	1.7258	2.0000
4	2.71	Bromide	BMB	1.254	20.0795	40.1591	2.0000
5	3.09	Nitrate	BMB	0.013	0.0734	0.1467	2.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	2.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	2.0000
Total:			**0.000**	**61.920**		**896.84**	

109 HS22061313-05DF2

Sample Name:	**HS22061313-05DF2**	*Injection Volume:*	**5.00**
Vial Number:	**RB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**2.0000**
Recording Time:	**06/24/2022 18:50**	*Sample Weight:*	**1.0000**

Run Time:



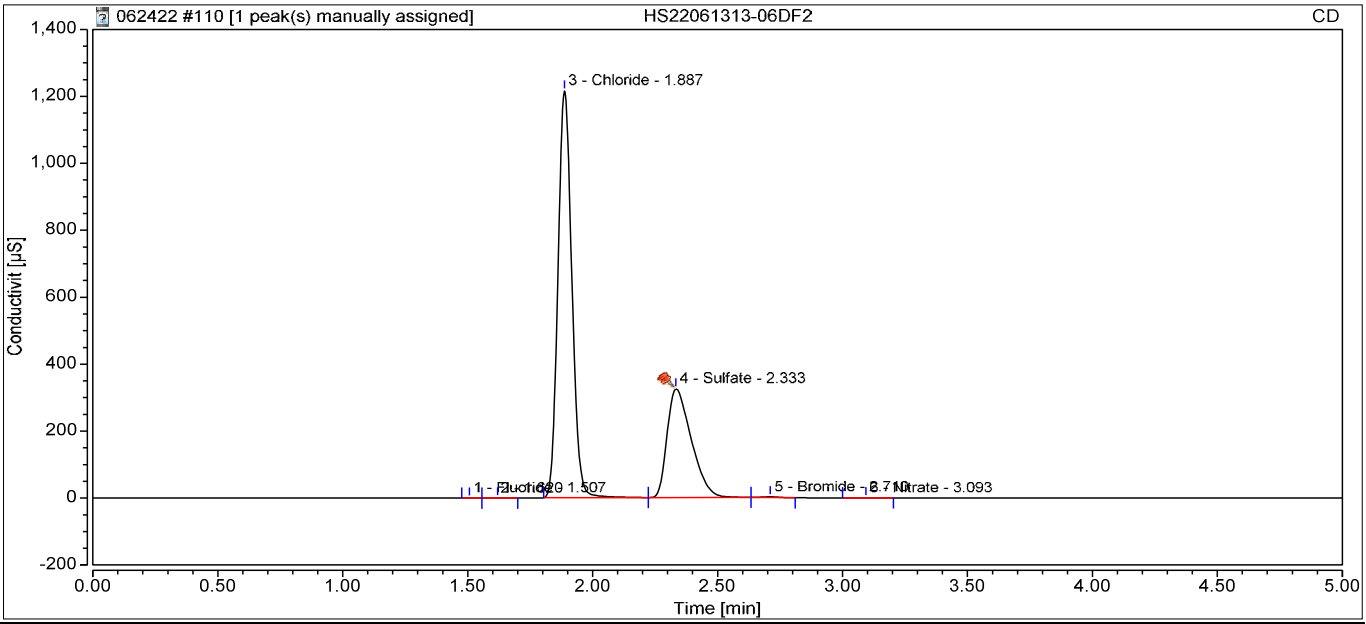
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.021	0.1404	0.2807	2.0000
2	1.89	Chloride	BMB	76.065	536.6277	1073.2554	2.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	2.0000
3	2.40	Sulfate	BMB	5.909	55.8558	111.7116	2.0000
4	2.71	Bromide	BMB	0.289	4.6688	9.3376	2.0000
5	3.09	Nitrate	BMB	0.006	0.0529	0.1058	2.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	2.0000
6	3.83	Phosphate	BMB	0.005	0.1210	0.2419	2.0000
Total:			**0.000**	**82.295**		**1194.93**	

110 HS22061313-06DF2

Sample Name:	**HS22061313-06DF2**	*Injection Volume:*	**5.00**
Vial Number:	**RB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**2.0000**
Recording Time:	**06/24/2022 18:55**	*Sample Weight:*	**1.0000**

Run Time:



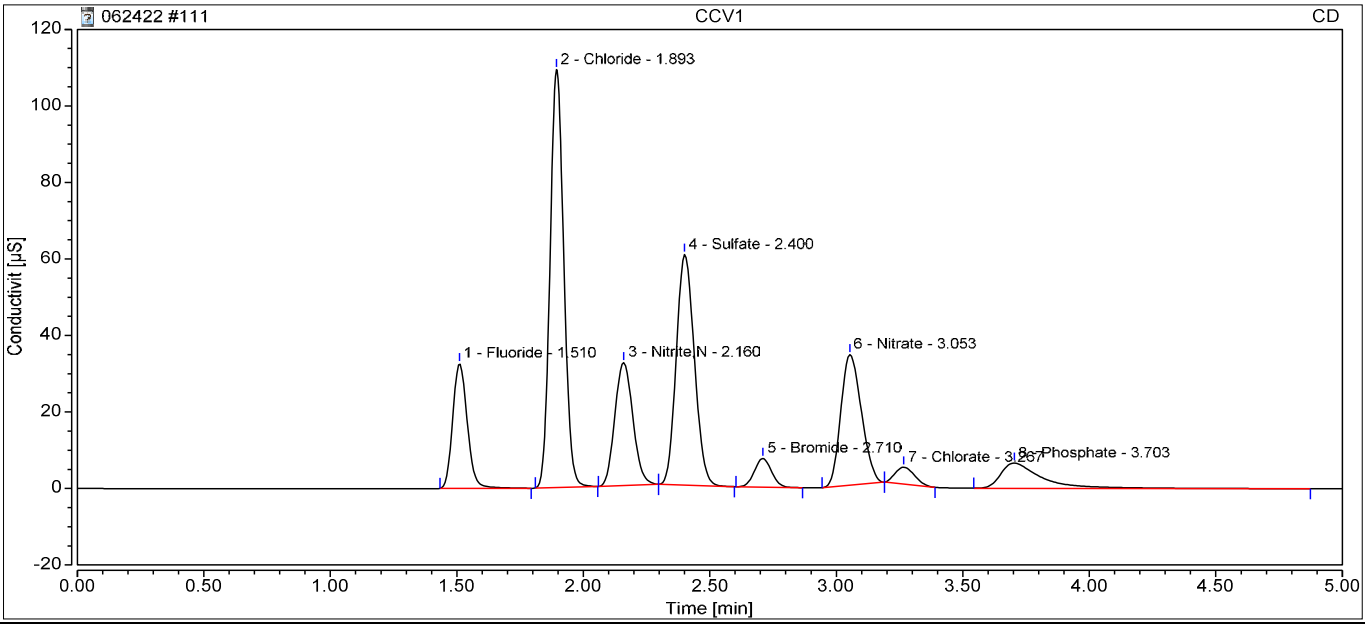
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.008	0.0807	0.1613	2.0000
3	1.89	Chloride	BMB	78.411	553.1726	1106.3453	2.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	2.0000
4	2.33	Sulfate	BMB^	36.276	342.0847	684.1694	2.0000
5	2.71	Bromide	BMB	0.173	2.8070	5.6141	2.0000
6	3.09	Nitrate	BMB	0.014	0.0757	0.1514	2.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	2.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	2.0000
Total:			**0.000**	**114.881**		**1796.44**	

111 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 19:11**	*Sample Weight:*	**1.0000**

Run Time:



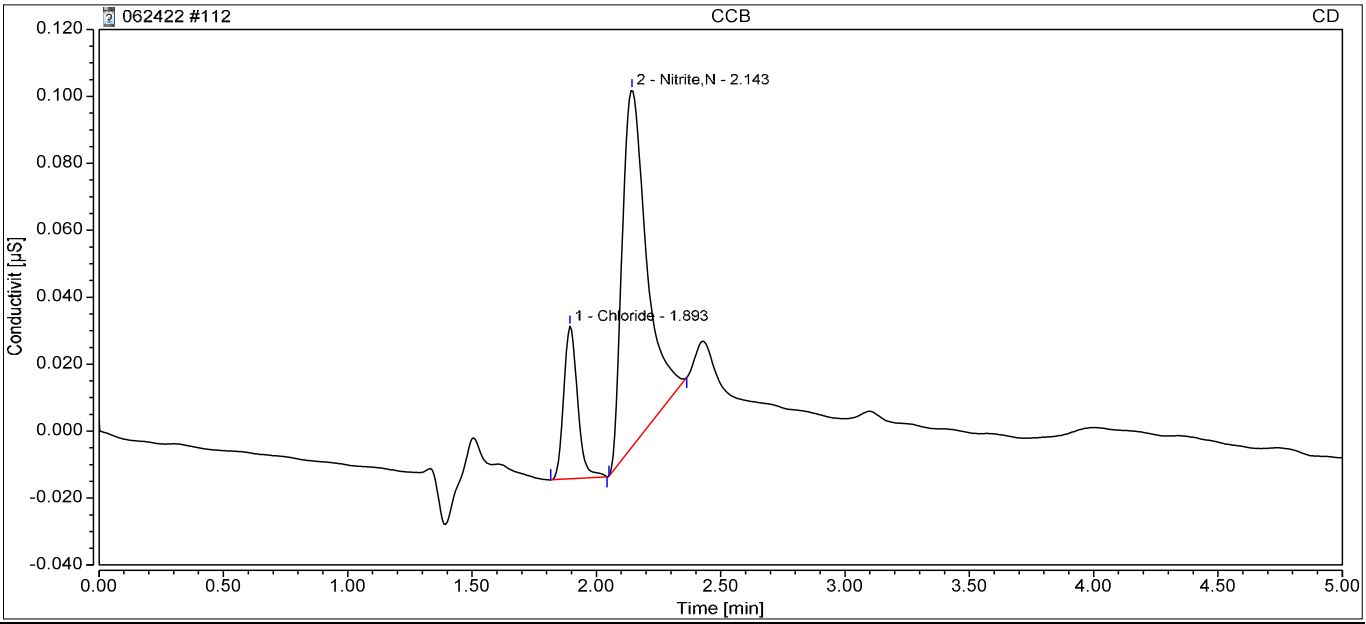
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	2.179	10.1252	10.1252	1.0000
2	1.89	Chloride	BMB	6.853	48.4881	48.4881	1.0000
3	2.16	Nitrite,N	BMB	2.658	9.6421	9.6421	1.0000
4	2.40	Sulfate	BMB	5.007	47.3492	47.3492	1.0000
5	2.71	Bromide	BMB	0.584	9.3759	9.3759	1.0000
6	3.05	Nitrate	BMB	3.220	9.7720	9.7720	1.0000
7	3.27	Chlorate	BMB	0.394	9.8473	9.8473	1.0000
8	3.70	Phosphate	BMB	1.235	9.9079	9.9079	1.0000
Total:			**0.000**	**22.129**		**154.51**	

112 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/24/2022 19:21**	*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	1.89	Chloride	BMB	0.003	0.1744	0.1744	1.0000
2	2.14	Nitrite,N	BMB	0.012	0.0046	0.0046	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**	**0.015**		**0.18**	

Sequence: 062522
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1		Calibratio	RA1	1.00	1	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:43:36 PM -05:00
	STD2		Calibratio	RA2	1.00	2	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:48:55 PM -05:00
	STD3		Calibratio	RA3	1.00	3	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:54:13 PM -05:00
	STD4		Calibratio	RA4	1.00	4	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 7:59:31 PM -05:00
	STD5		Calibratio	RA5	1.00	5	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:04:49 PM -05:00
	STD6		Calibratio	RA6	1.00	6	Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:10:07 PM -05:00
	ICV		Unknown	RA7	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:15:25 PM -05:00
	ICB		Unknown	R7	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/12/2022 8:26:02 PM -05:00
	CCV		Unknown	R1	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 3:35:16 PM -05:00
	CCB		Unknown	R4	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 3:45:53 PM -05:00
	LCS	9056-W-P	Unknown	R2	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 4:38:54 PM -05:00
	CCV		Unknown	R1	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 4:44:12 PM -05:00
	CCB		Unknown	R4	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 4:49:30 PM -05:00
	MBLK	9056-W-P	Unknown	R5	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 4:54:49 PM -05:00
	HS22061091-04		Unknown	GC2	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:00:07 PM -05:00
	HS22061091-04MS		Unknown	GC3	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:05:25 PM -05:00
	HS22061091-04MSD		Unknown	GC4	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:10:43 PM -05:00
	HS22061313-01DF10		Unknown	GC5	10.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:16:01 PM -05:00
	HS22061313-02DF50		Unknown	GC6	50.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:21:19 PM -05:00
	HS22061313-03DF10		Unknown	GC7	10.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:26:37 PM -05:00
	HS22061313-06DF20	9056-W-P	Unknown	GC8	20.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:31:55 PM -05:00
	CCV1		Unknown	R3	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 5:53:07 PM -05:00
	CCB		Unknown	R8	1.00		Anions Program IS	Anions Processing M	5.0	Finished	6/25/2022 6:03:44 PM -05:00

Sequence: 062522
Injection #6: STD6

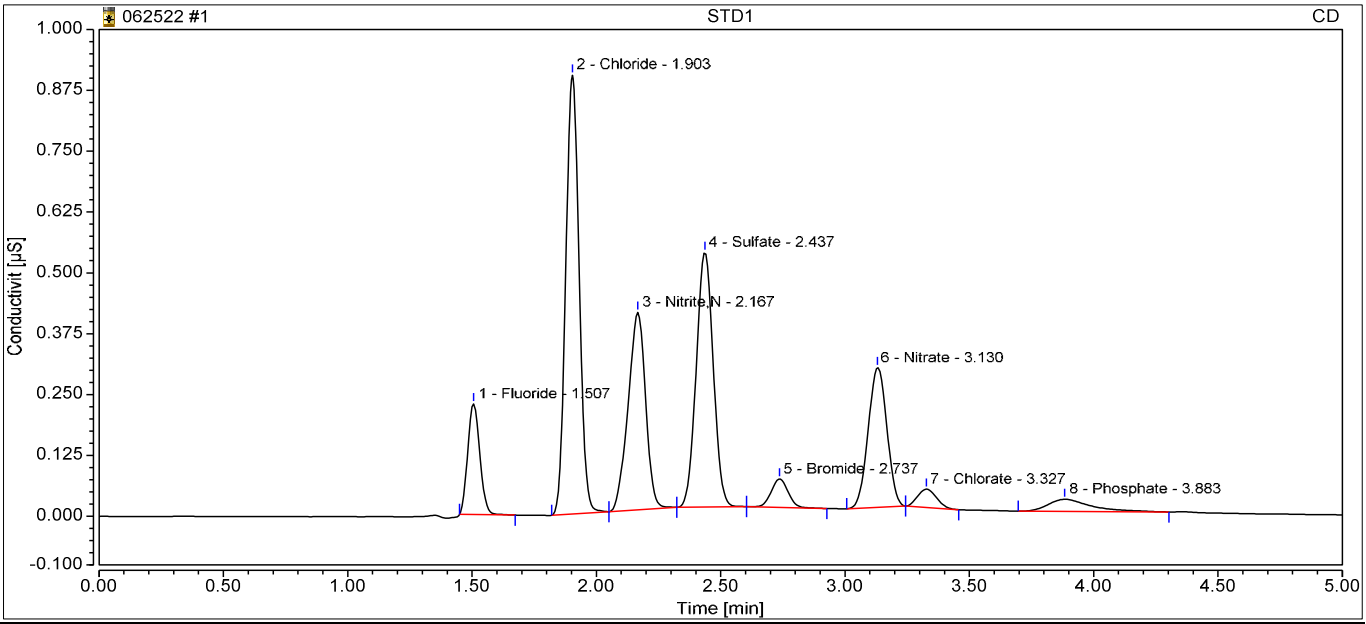
Calibration

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***	***26.4691***	***0.99701***	***-0.0097***	***0.2161***	***0.0000***
2	Chloride	Lin, WithOffset, 1/	Area	6	5.8427	0.99984	-0.0218	0.1418	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	26.3006	0.99568	0.0108	0.2746	0.0000
4	Sulfate	Lin, WithOffset, 1/	Area	6	5.9882	0.99984	-0.0169	0.1061	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	19.1083	0.99846	-0.0030	0.0626	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	7.6223	0.99974	-0.0112	0.3307	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	16.8078	0.99862	-0.0007	0.0400	0.0000
8	Phosphate	Quad, WithOffset,	Area	6	20.1620	0.99899	-0.0094	0.1193	0.0006
Maximum					**26.4691**	0.99984			
Minimum					5.8427	**0.99568**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**RA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:43**	*Sample Weight:*	**1.0000**

Run Time:

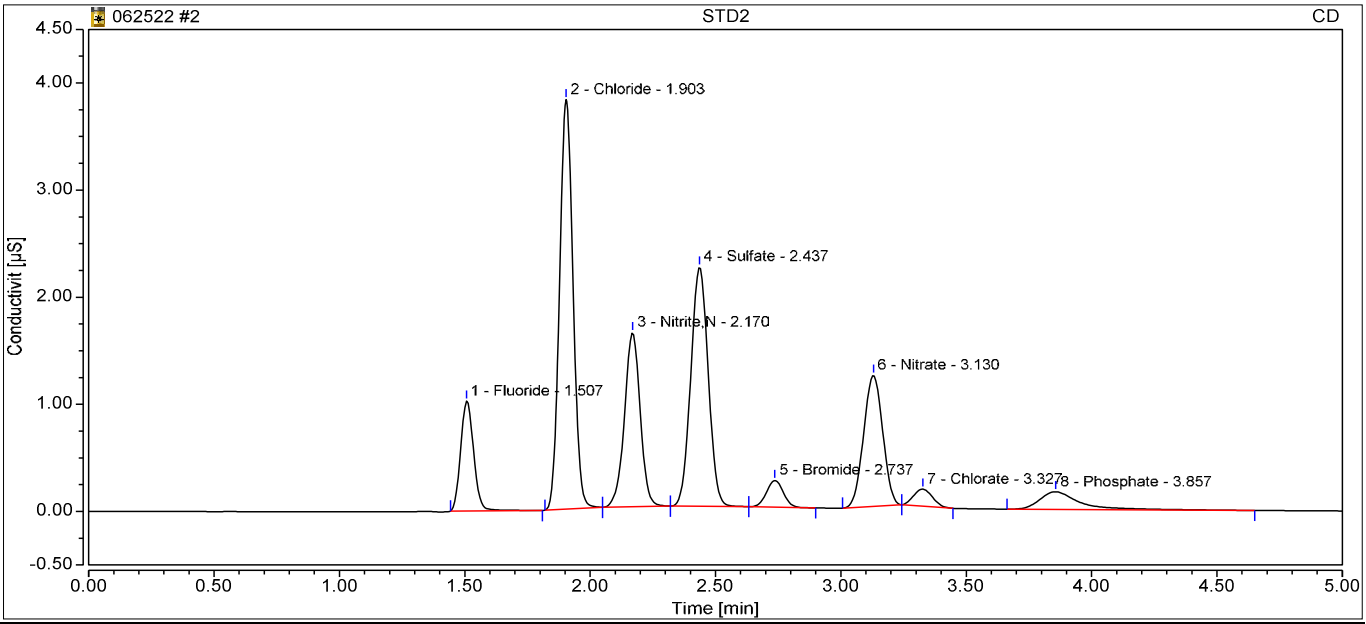


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.013	0.1044	0.1044	1.0000
2	1.90	Chloride	BMB	0.056	0.5484	0.5484	1.0000
3	2.17	Nitrite,N	BMB	0.033	0.0810	0.0810	1.0000
4	2.44	Sulfate	BMB	0.042	0.5504	0.5504	1.0000
5	2.74	Bromide	BMB	0.005	0.1216	0.1216	1.0000
6	3.13	Nitrate	BMB	0.025	0.1097	0.1097	1.0000
7	3.33	Chlorate	BMB	0.003	0.1000	0.1000	1.0000
8	3.88	Phosphate	BMB	0.005	0.1206	0.1206	1.0000
Total:			**0.000**	**0.181**		**1.74**	

2 STD2			
Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:48**	*Sample Weight:*	**1.0000**

Run Time:



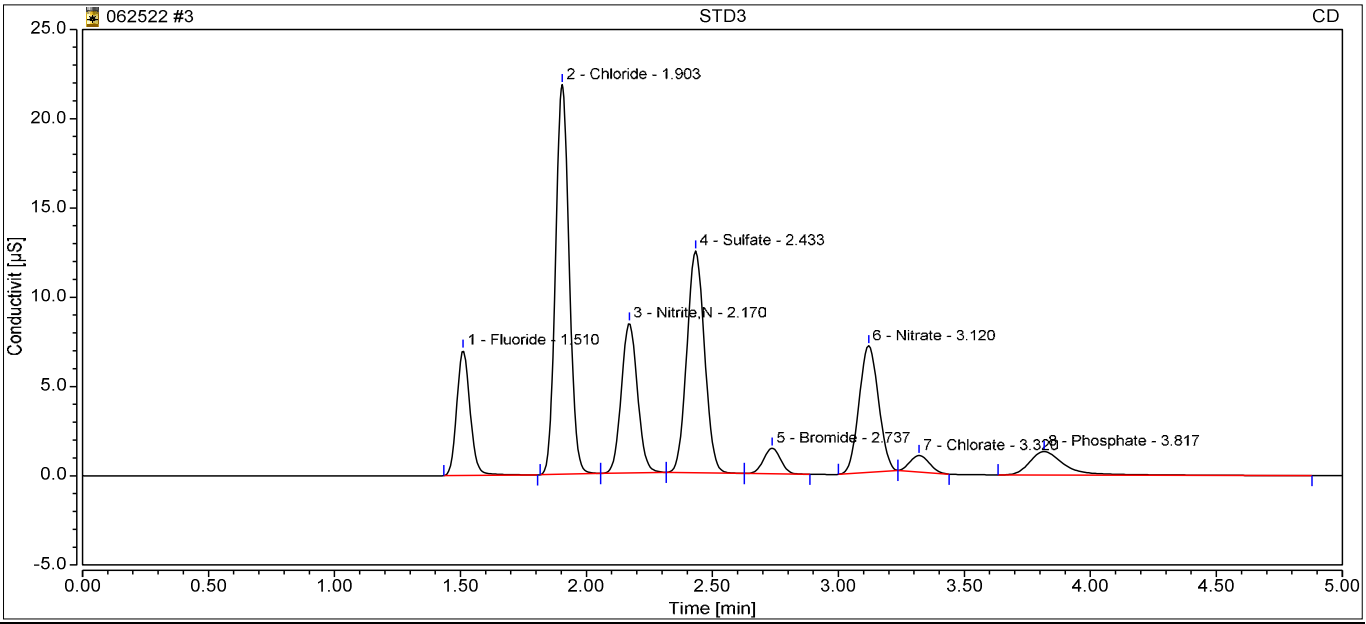
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.062	0.3309	0.3309	1.0000
2	1.90	Chloride	BMB	0.237	1.8250	1.8250	1.0000
3	2.17	Nitrite,N	BMB	0.118	0.3914	0.3914	1.0000
4	2.44	Sulfate	BMB	0.180	1.8530	1.8530	1.0000
5	2.74	Bromide	BMB	0.019	0.3561	0.3561	1.0000
6	3.13	Nitrate	BMB	0.108	0.3602	0.3602	1.0000
7	3.33	Chlorate	BMB	0.014	0.3632	0.3632	1.0000
8	3.86	Phosphate	BMB	0.031	0.3376	0.3376	1.0000
Total:			**0.000**	**0.769**		**5.82**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:54**	*Sample Weight:*	**1.0000**

Run Time:



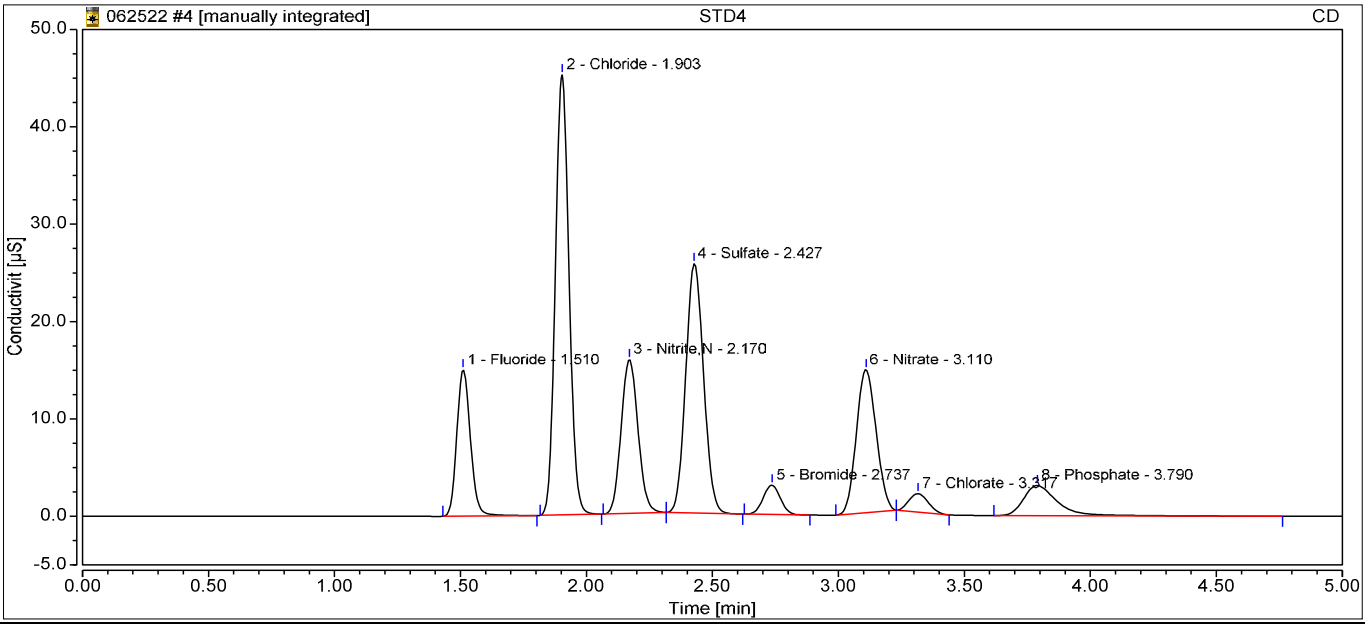
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.433	2.0503	2.0503	1.0000
2	1.90	Chloride	BMB	1.366	9.7882	9.7882	1.0000
3	2.17	Nitrite,N	BMB	0.624	2.2318	2.2318	1.0000
4	2.43	Sulfate	BMB	1.012	9.6989	9.6989	1.0000
5	2.74	Bromide	BMB	0.113	1.8543	1.8543	1.0000
6	3.12	Nitrate	BMB	0.635	1.9555	1.9555	1.0000
7	3.32	Chlorate	BMB	0.081	2.0522	2.0522	1.0000
8	3.82	Phosphate	BMB	0.211	1.8314	1.8314	1.0000
Total:			**0.000**	**4.476**		**31.46**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 19:59**	*Sample Weight:*	**1.0000**

Run Time:



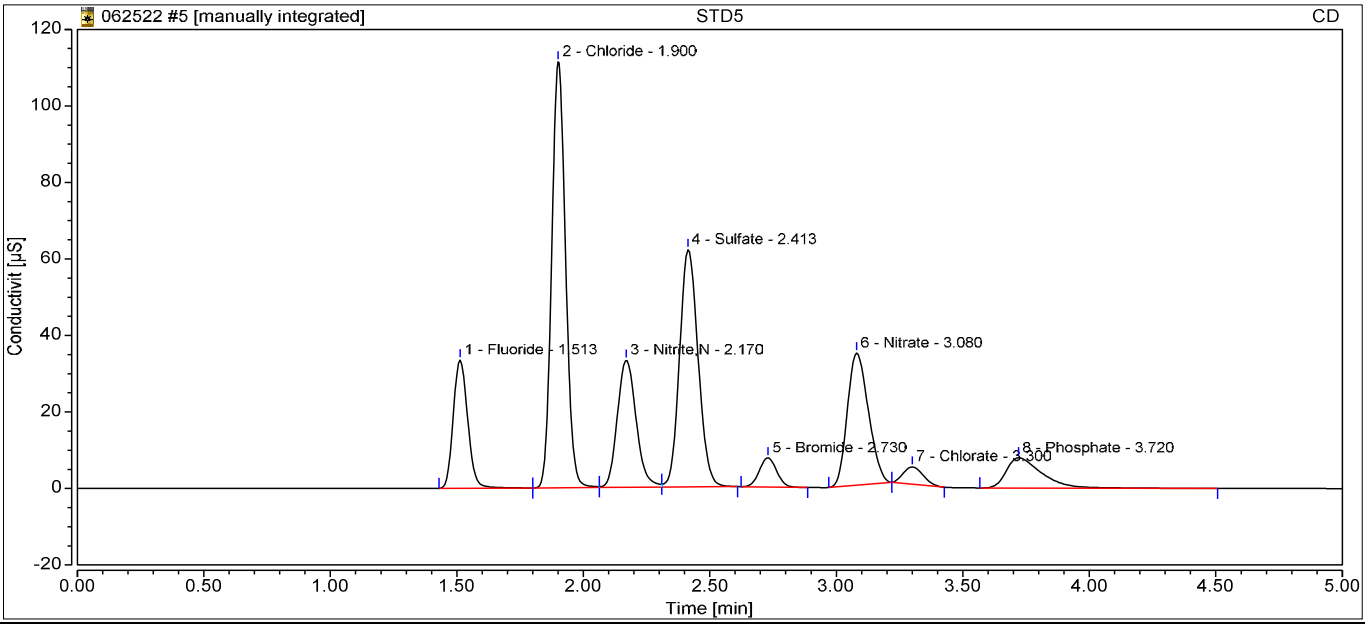
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.947	4.4264	4.4264	1.0000
2	1.90	Chloride	BMB	2.841	20.1942	20.1942	1.0000
3	2.17	Nitrite,N	BMb*	1.227	4.4291	4.4291	1.0000
4	2.43	Sulfate	bMB*	2.105	19.9970	19.9970	1.0000
5	2.74	Bromide	BMB	0.239	3.8700	3.8700	1.0000
6	3.11	Nitrate	BMB	1.337	4.0782	4.0782	1.0000
7	3.32	Chlorate	BMB	0.170	4.2596	4.2596	1.0000
8	3.79	Phosphate	BMB	0.484	4.0508	4.0508	1.0000
Total:			**0.000**	**9.351**		**65.31**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:04**	*Sample Weight:*	**1.0000**

Run Time:

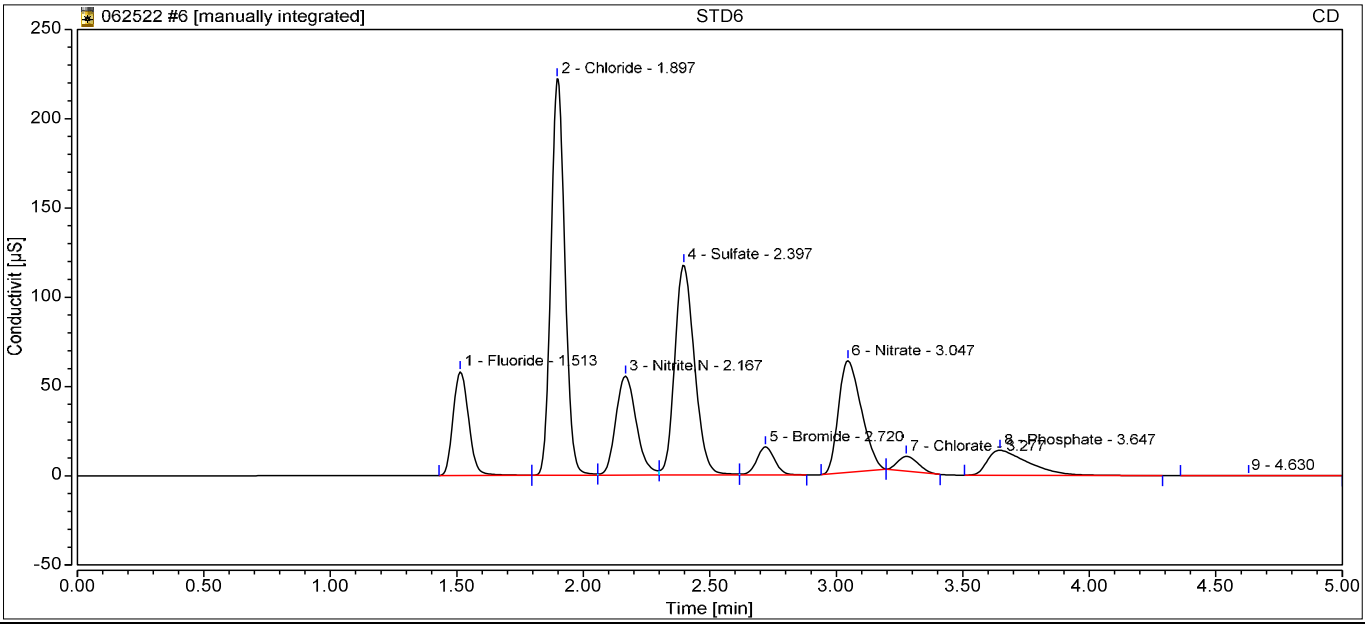


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMb*	2.229	10.3595	10.3595	1.0000
2	1.90	Chloride	bM *	7.078	50.0739	50.0739	1.0000
3	2.17	Nitrite,N	M *	2.867	10.4035	10.4035	1.0000
4	2.41	Sulfate	MB*	5.277	49.8959	49.8959	1.0000
5	2.73	Bromide	BMB	0.604	9.6932	9.6932	1.0000
6	3.08	Nitrate	BMB	3.328	10.0976	10.0976	1.0000
7	3.30	Chlorate	BMB	0.412	10.2967	10.2967	1.0000
8	3.72	Phosphate	BMB	1.283	10.2769	10.2769	1.0000
Total:			**0.000**	**23.078**		**161.10**	

6 STD6			
Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**RA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:10**	*Sample Weight:*	**1.0000**

Run Time:



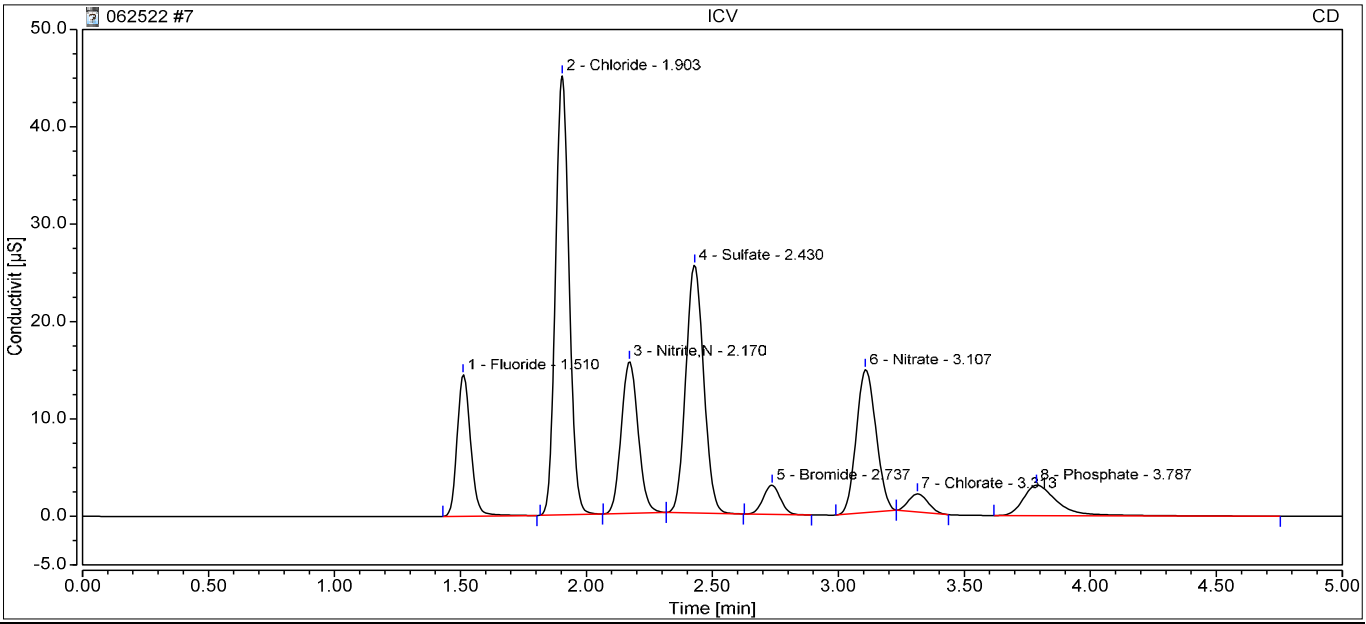
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMb*	4.146	19.2286	19.2286	1.0000
2	1.90	Chloride	bM *	14.167	100.0702	100.0702	1.0000
3	2.17	Nitrite,N	M *	5.217	18.9633	18.9633	1.0000
4	2.40	Sulfate	M *	10.646	100.5049	100.5049	1.0000
5	2.72	Bromide	MB*	1.287	20.6049	20.6049	1.0000
6	3.05	Nitrate	BMB	6.569	19.8987	19.8987	1.0000
7	3.28	Chlorate	BMB	0.777	19.4282	19.4282	1.0000
8	3.65	Phosphate	BMB	2.612	19.8798	19.8798	1.0000
Total:			**0.000**	**45.421**		**318.58**	

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**RA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:15**	*Sample Weight:*	**1.0000**

Run Time:



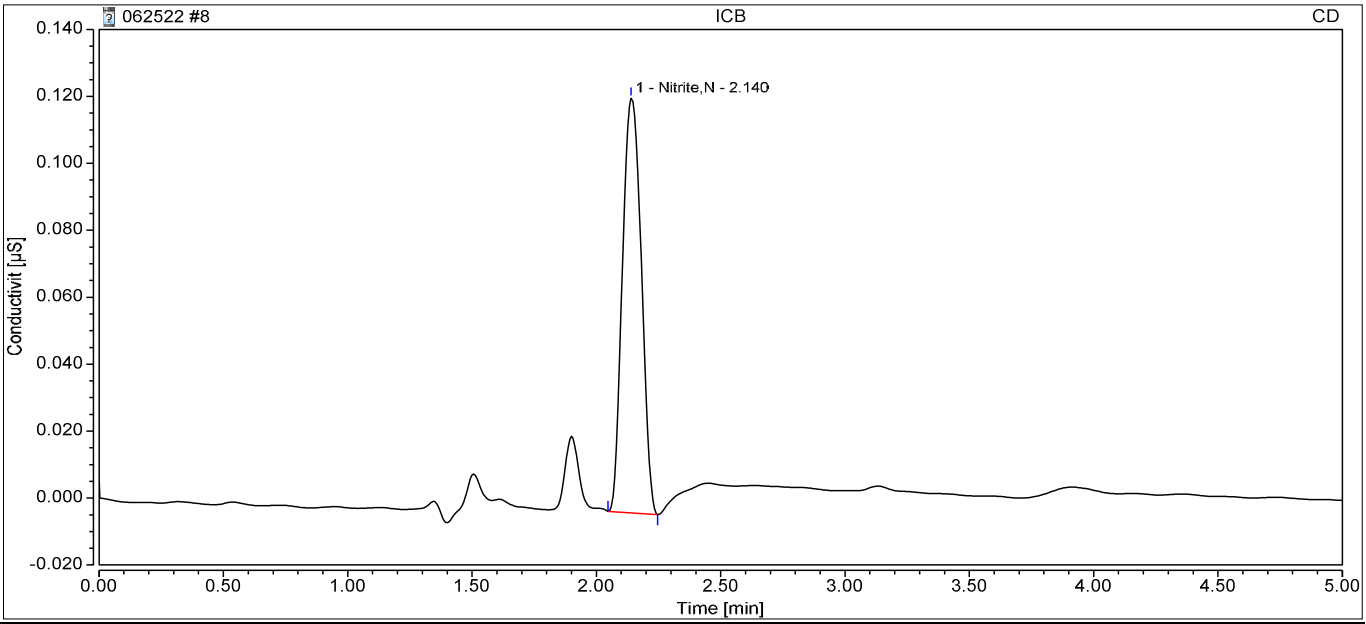
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.906	4.2360	4.2360	1.0000
2	1.90	Chloride	BMB	2.829	20.1029	20.1029	1.0000
3	2.17	Nitrite,N	BMB	1.206	4.3541	4.3541	1.0000
4	2.43	Sulfate	BMB	2.088	19.8413	19.8413	1.0000
5	2.74	Bromide	BMB	0.236	3.8269	3.8269	1.0000
6	3.11	Nitrate	BMB	1.333	4.0636	4.0636	1.0000
7	3.31	Chlorate	BMB	0.166	4.1702	4.1702	1.0000
8	3.79	Phosphate	BMB	0.491	4.1057	4.1057	1.0000
Total:			**0.000**	**9.255**		**64.70**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**R7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/12/2022 20:26**	*Sample Weight:*	**1.0000**

Run Time:



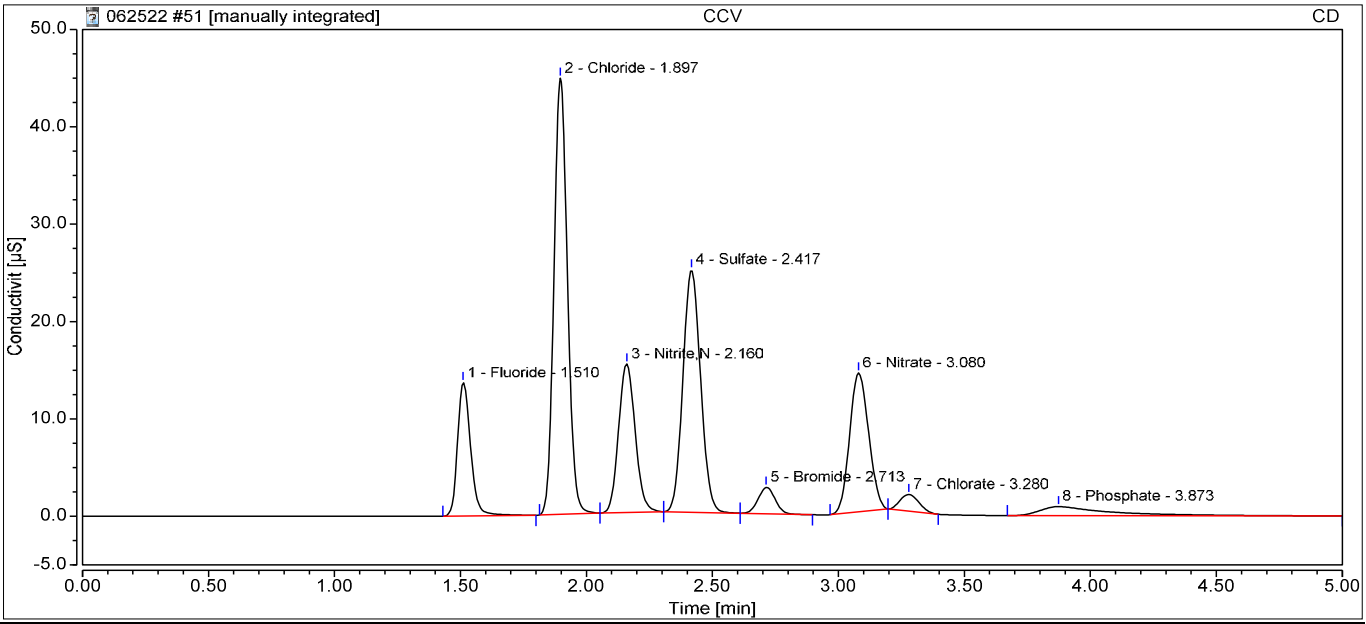
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.14	Nitrite,N	BMB	0.011	0.0002	0.0002	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**	**0.011**		**0.00**	

51 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 15:35**	*Sample Weight:*	**1.0000**

Run Time:



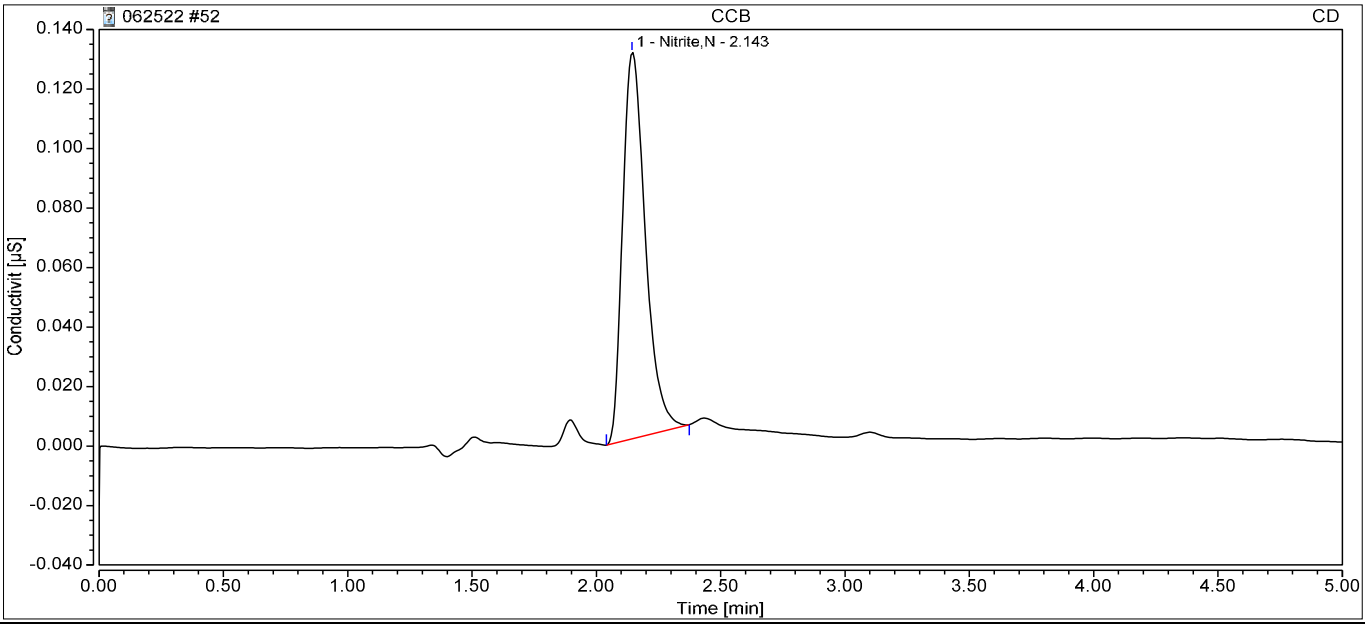
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.832	3.8929	3.8929	1.0000
2	1.90	Chloride	BMb*	2.768	19.6769	19.6769	1.0000
3	2.16	Nitrite,N	bMb*	1.165	4.2046	4.2046	1.0000
4	2.42	Sulfate	bMb*	2.020	19.2022	19.2022	1.0000
5	2.71	Bromide	bMB*	0.212	3.4282	3.4282	1.0000
6	3.08	Nitrate	BMB	1.249	3.8102	3.8102	1.0000
7	3.28	Chlorate	BMB	0.151	3.7766	3.7766	1.0000
8	3.87	Phosphate	BMB	0.301	2.5661	2.5661	1.0000
Total:			**0.000**	**8.697**		**60.56**	

52 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 15:45**	*Sample Weight:*	**1.0000**

Run Time:



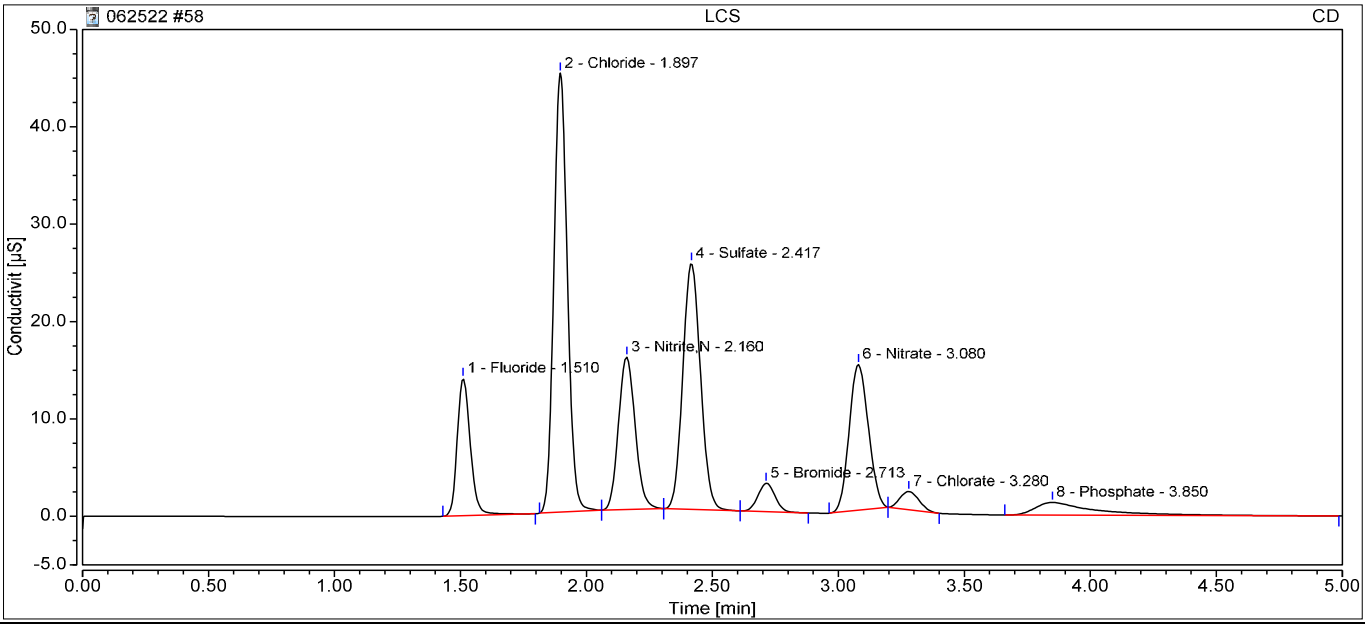
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.14	Nitrite,N	BMB	0.014	0.0106	0.0106	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**	**0.014**		**0.01**	

58 LCS

Sample Name:	**LCS**	*Injection Volume:*	**5.00**
Vial Number:	**R2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 16:38**	*Sample Weight:*	**1.0000**

Run Time:



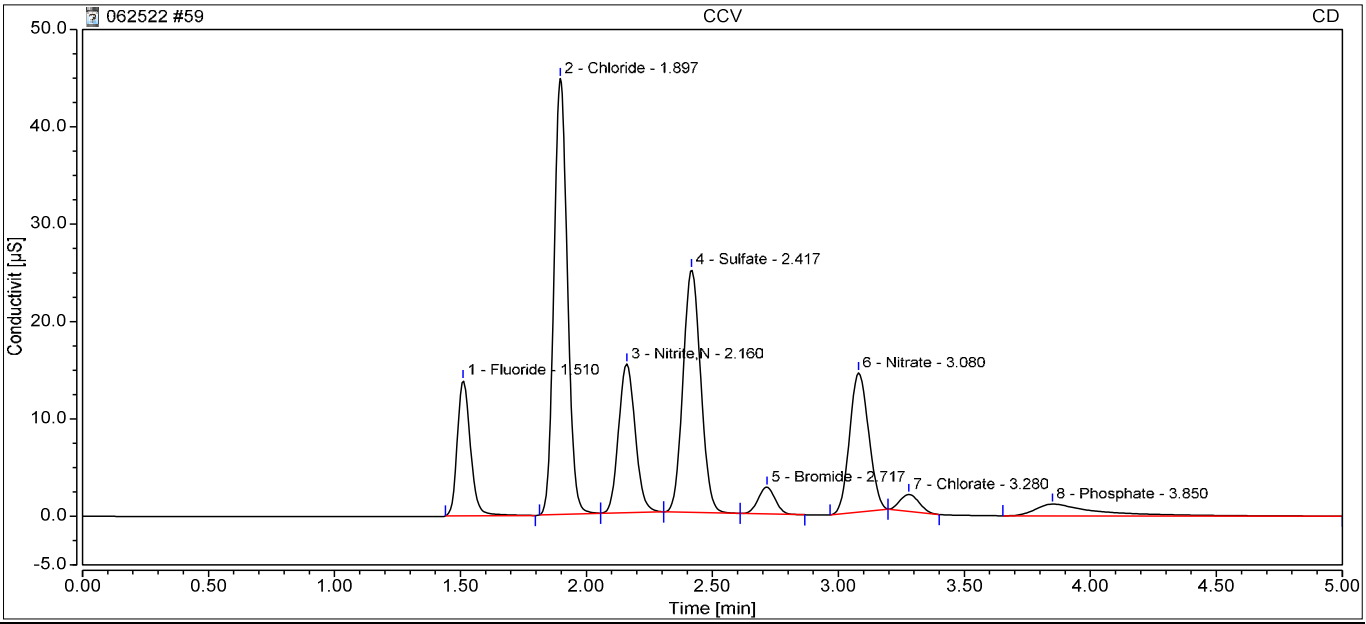
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.855	4.0007	4.0007	1.0000
2	1.90	Chloride	BMB	2.803	19.9230	19.9230	1.0000
3	2.16	Nitrite,N	BMB	1.205	4.3477	4.3477	1.0000
4	2.42	Sulfate	BMB	2.058	19.5596	19.5596	1.0000
5	2.71	Bromide	BMB	0.228	3.6913	3.6913	1.0000
6	3.08	Nitrate	BMB	1.325	4.0413	4.0413	1.0000
7	3.28	Chlorate	BMB	0.164	4.1199	4.1199	1.0000
8	3.85	Phosphate	BMB	0.364	3.0833	3.0833	1.0000
Total:			**0.000**	**9.003**		**62.77**	

59 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 16:44**	*Sample Weight:*	**1.0000**

Run Time:



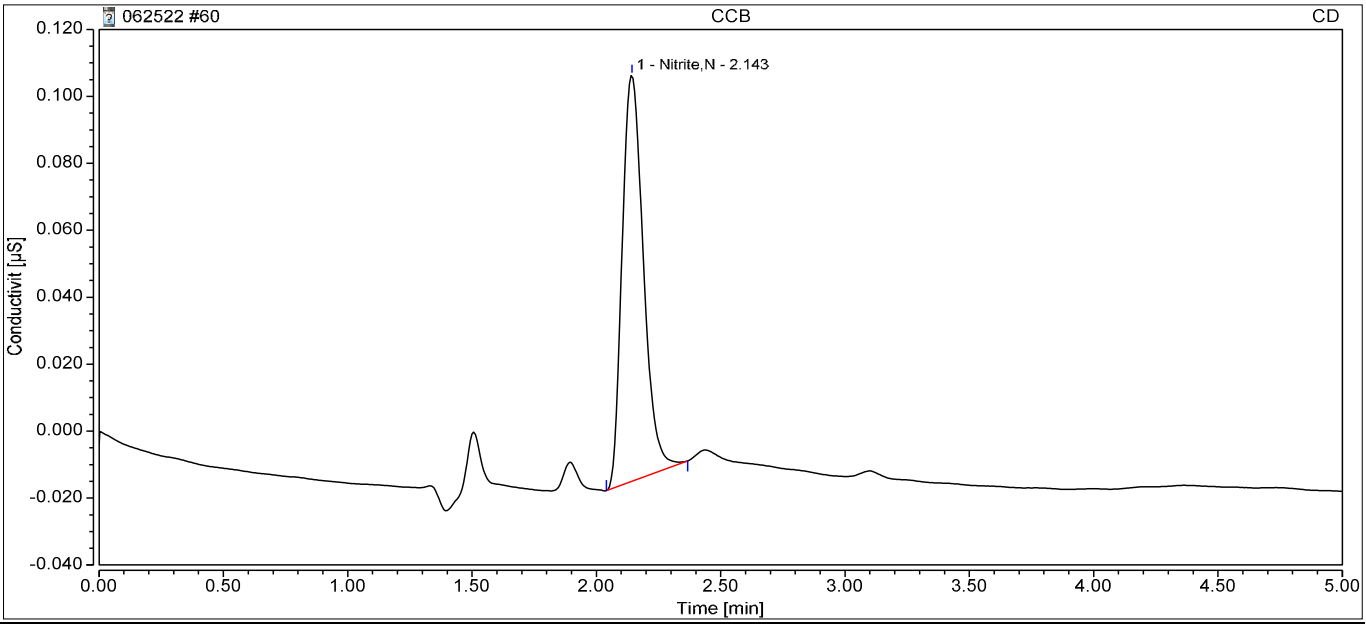
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.845	3.9560	3.9560	1.0000
2	1.90	Chloride	BMB	2.774	19.7164	19.7164	1.0000
3	2.16	Nitrite,N	BMB	1.169	4.2172	4.2172	1.0000
4	2.42	Sulfate	BMB	2.025	19.2469	19.2469	1.0000
5	2.72	Bromide	BMB	0.215	3.4820	3.4820	1.0000
6	3.08	Nitrate	BMB	1.258	3.8381	3.8381	1.0000
7	3.28	Chlorate	BMB	0.153	3.8288	3.8288	1.0000
8	3.85	Phosphate	BMB	0.344	2.9204	2.9204	1.0000
Total:			**0.000**	**8.783**		**61.21**	

60 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 16:49**	*Sample Weight:*	**1.0000**

Run Time:



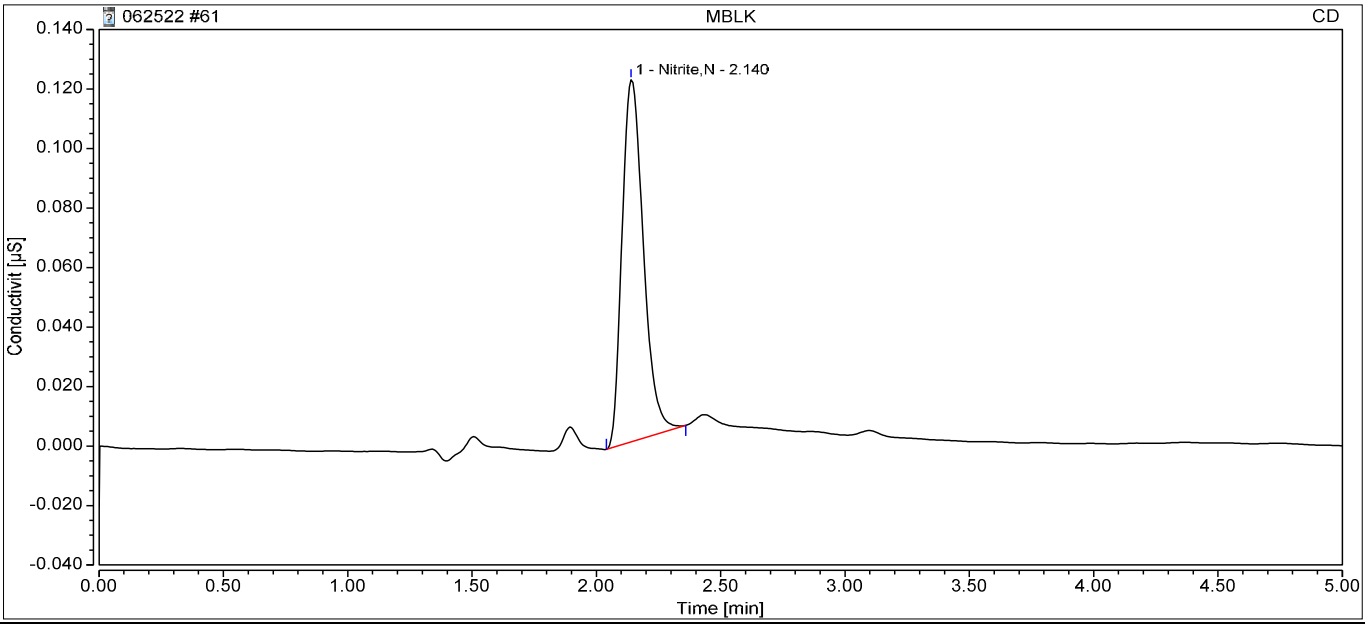
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.14	Nitrite,N	BMB	0.012	0.0044	0.0044	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**	**0.012**		**0.00**	

61 MBLK

Sample Name:	**MBLK**	*Injection Volume:*	**5.00**
Vial Number:	**R5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 16:54**	*Sample Weight:*	**1.0000**

Run Time:



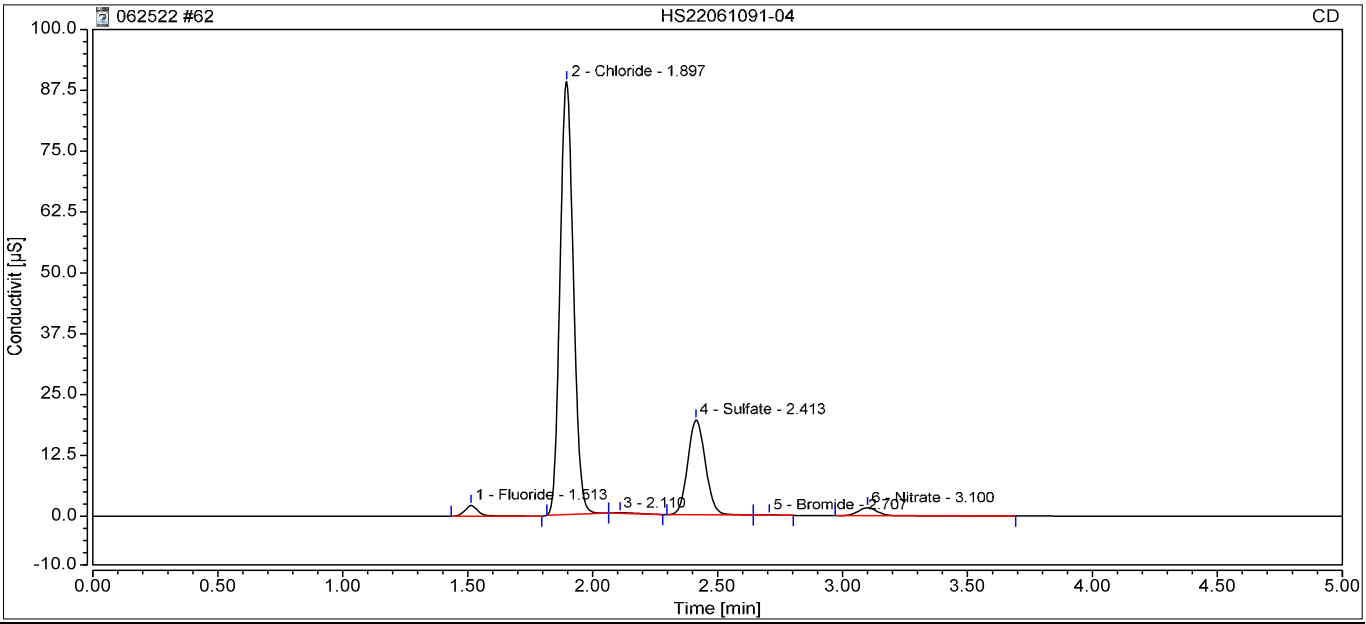
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.14	Nitrite,N	BMB	0.012	0.0046	0.0046	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**	**0.012**		**0.00**	

62 HS22061091-04

Sample Name:	**HS22061091-04**	*Injection Volume:*	**5.00**
Vial Number:	**GC2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 17:00**	*Sample Weight:*	**1.0000**

Run Time:



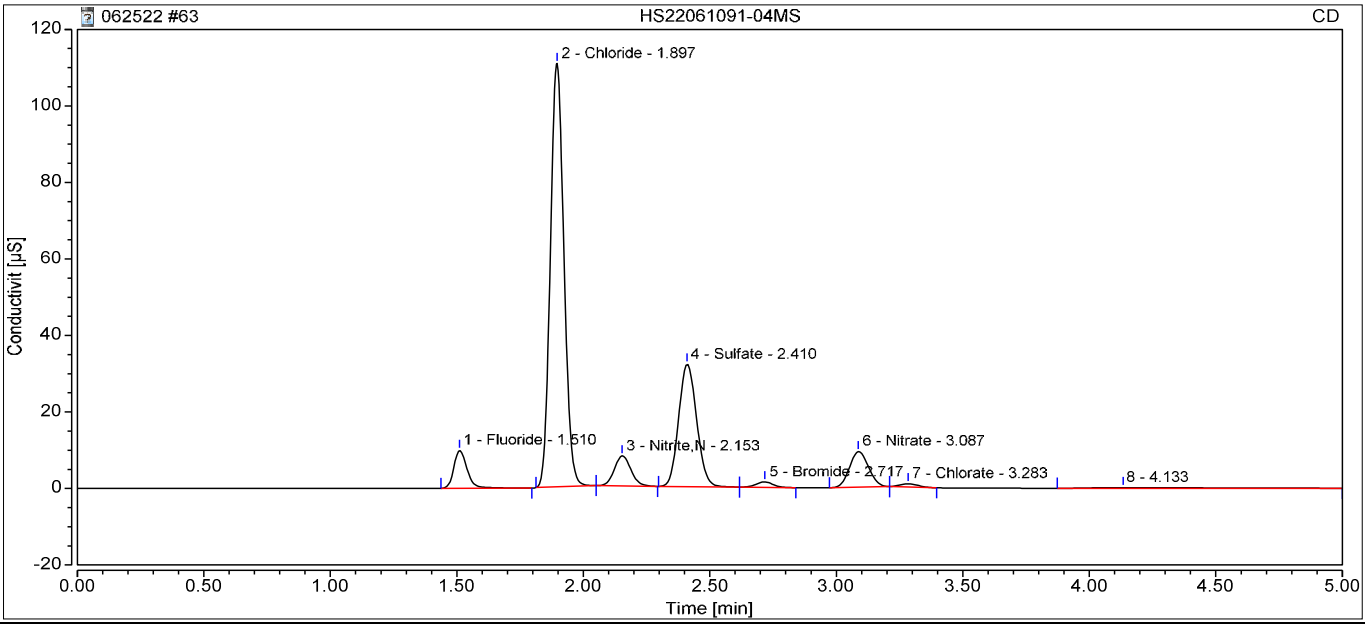
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.140	0.6945	0.6945	1.0000
2	1.90	Chloride	BMB	5.486	38.8435	38.8435	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	2.41	Sulfate	BMB	1.587	15.1206	15.1206	1.0000
5	2.71	Bromide	BMB	0.004	0.1083	0.1083	1.0000
6	3.10	Nitrate	BMB	0.148	0.4816	0.4816	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**	**7.365**		**55.25**	

63 HS22061091-04MS

Sample Name:	**HS22061091-04MS**	*Injection Volume:*	**5.00**
Vial Number:	**GC3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 17:05**	*Sample Weight:*	**1.0000**

Run Time:



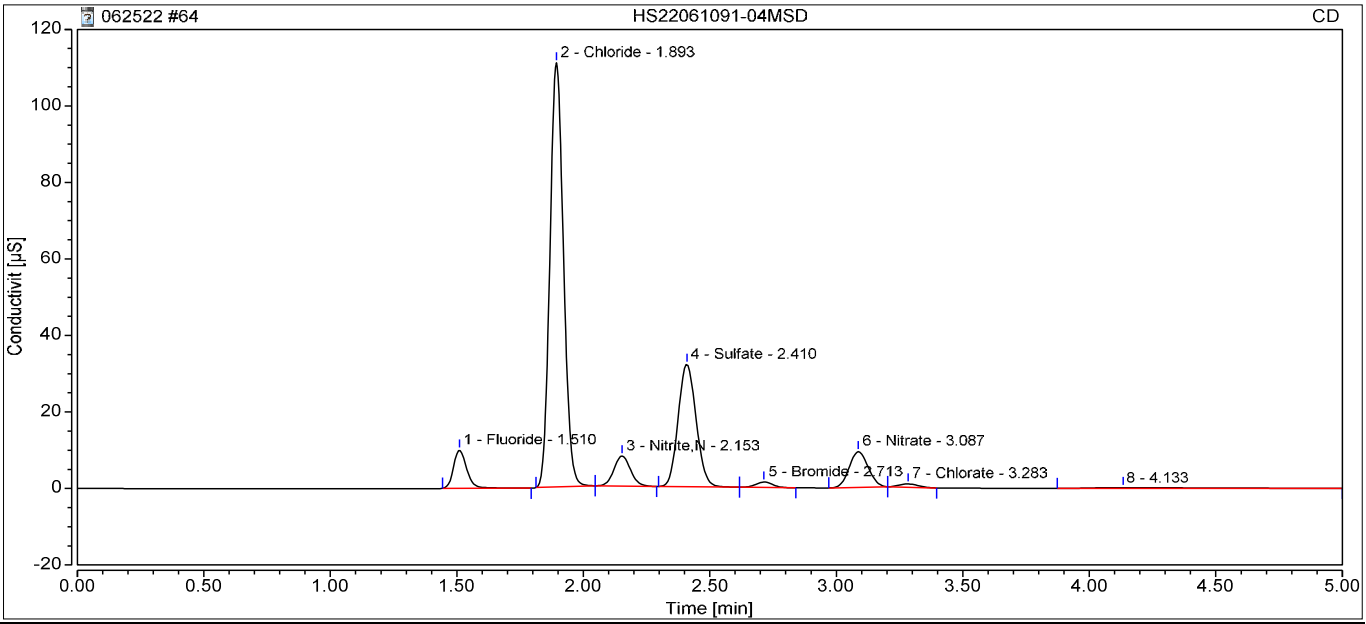
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.609	2.8646	2.8646	1.0000
2	1.90	Chloride	BMB	6.882	48.6930	48.6930	1.0000
3	2.15	Nitrite,N	BMB	0.597	2.1359	2.1359	1.0000
4	2.41	Sulfate	BMB	2.643	25.0726	25.0726	1.0000
5	2.72	Bromide	BMB	0.108	1.7733	1.7733	1.0000
6	3.09	Nitrate	BMB	0.814	2.4954	2.4954	1.0000
7	3.28	Chlorate	BMB	0.072	1.8049	1.8049	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**11.726**		**84.84**	

64 HS22061091-04MSD

Sample Name:	**HS22061091-04MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GC4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 17:10**	*Sample Weight:*	**1.0000**

Run Time:



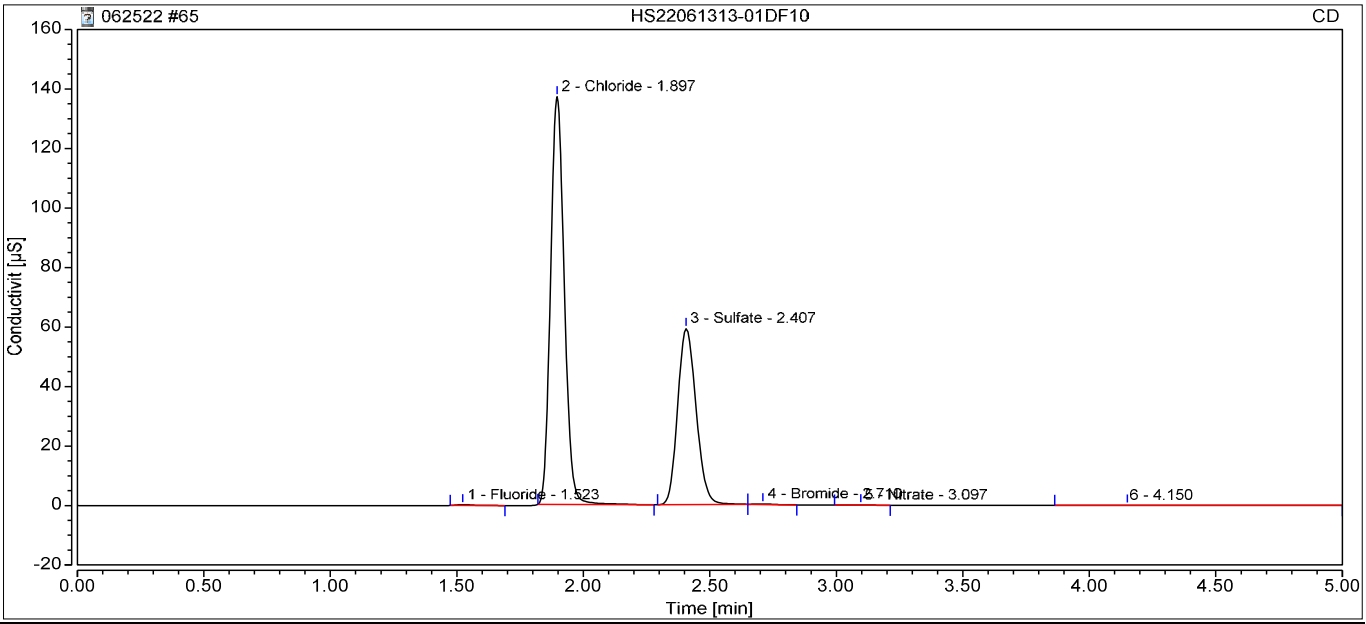
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.605	2.8443	2.8443	1.0000
2	1.89	Chloride	BMB	6.871	48.6137	48.6137	1.0000
3	2.15	Nitrite,N	BMB	0.598	2.1393	2.1393	1.0000
4	2.41	Sulfate	BMB	2.644	25.0767	25.0767	1.0000
5	2.71	Bromide	BMB	0.108	1.7741	1.7741	1.0000
6	3.09	Nitrate	BMB	0.811	2.4861	2.4861	1.0000
7	3.28	Chlorate	BMB	0.073	1.8394	1.8394	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**11.710**		**84.77**	

65 HS22061313-01DF10

Sample Name:	**HS22061313-01DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GC5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**10.0000**
Recording Time:	**06/25/2022 17:16**	*Sample Weight:*	**1.0000**

Run Time:



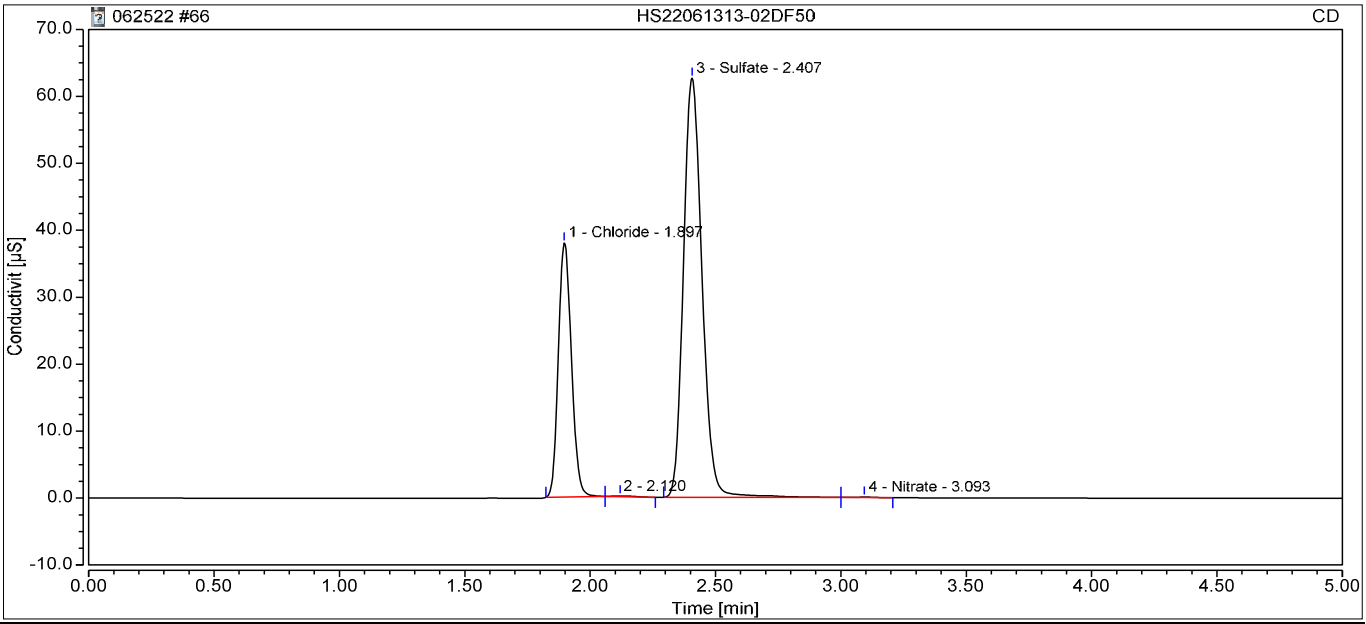
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.52	Fluoride	BMB	0.021	0.1414	1.4142	10.0000
2	1.90	Chloride	BMB	8.650	61.1634	611.6343	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
3	2.41	Sulfate	BMB	4.997	47.2591	472.5914	10.0000
4	2.71	Bromide	BMB	0.013	0.2482	2.4820	10.0000
5	3.10	Nitrate	BMB	0.009	0.0608	0.6083	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**13.690**		**1088.73**	

66 HS22061313-02DF50

Sample Name:	**HS22061313-02DF50**	*Injection Volume:*	**5.00**
Vial Number:	**GC6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**50.0000**
Recording Time:	**06/25/2022 17:21**	*Sample Weight:*	**1.0000**

Run Time:



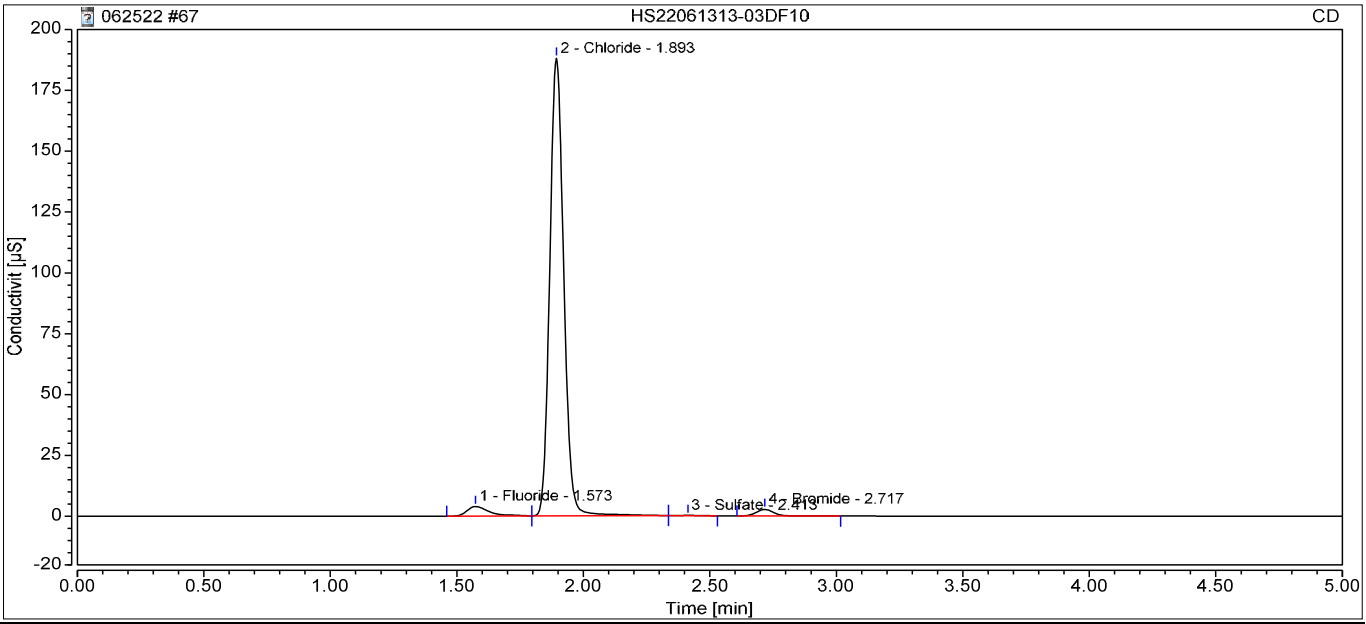
Integration Results

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
1	1.90	Chloride	BMB	2.295	16.3393	816.9631	50.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	50.0000
3	2.41	Sulfate	BMB	5.382	50.8850	2544.2495	50.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	50.0000
4	3.09	Nitrate	BMB	0.005	0.0501	2.5056	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**	**7.682**		**3363.72**	

67 HS22061313-03DF10

Sample Name:	**HS22061313-03DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GC7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**10.0000**
Recording Time:	**06/25/2022 17:26**	*Sample Weight:*	**1.0000**

Run Time:



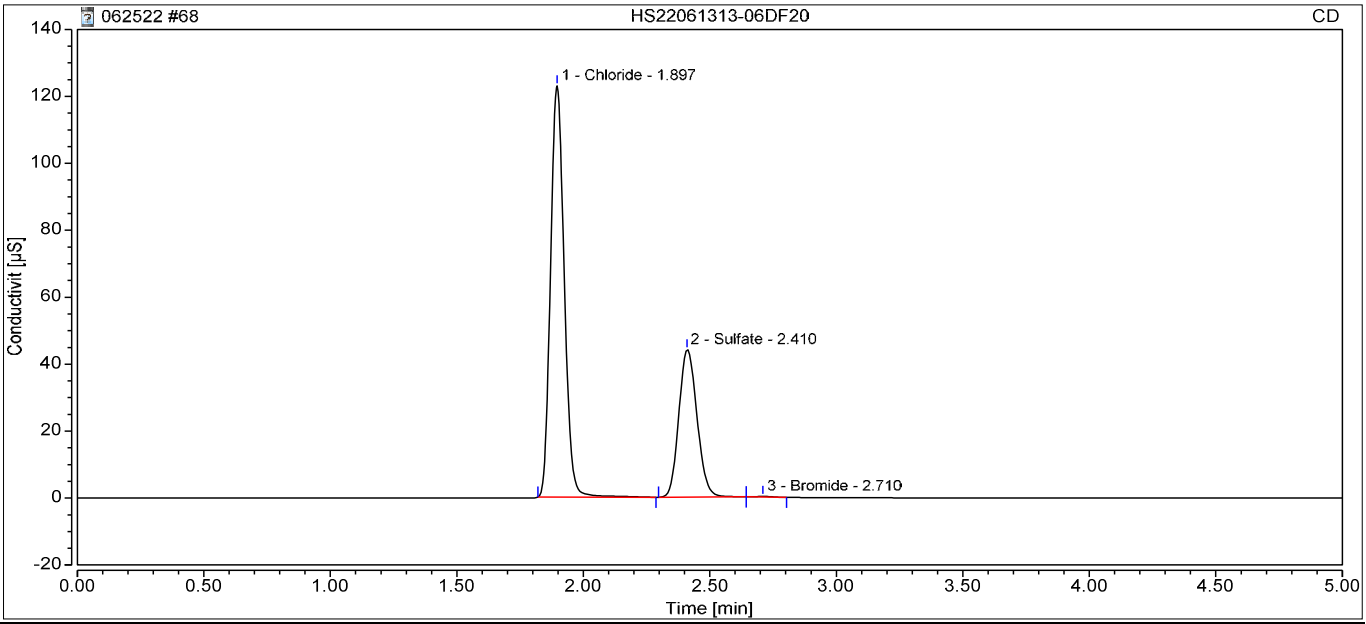
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.57	Fluoride	BMB	0.405	1.9182	19.1815	10.0000
2	1.89	Chloride	BMB	12.009	84.8527	848.5272	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
3	2.41	Sulfate	BMB	0.008	0.2338	2.3380	10.0000
4	2.72	Bromide	BMB	0.208	3.3765	33.7647	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**12.630**		**903.81**	

68 HS22061313-06DF20

Sample Name:	**HS22061313-06DF20**	*Injection Volume:*	**5.00**
Vial Number:	**GC8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**20.0000**
Recording Time:	**06/25/2022 17:31**	*Sample Weight:*	**1.0000**

Run Time:



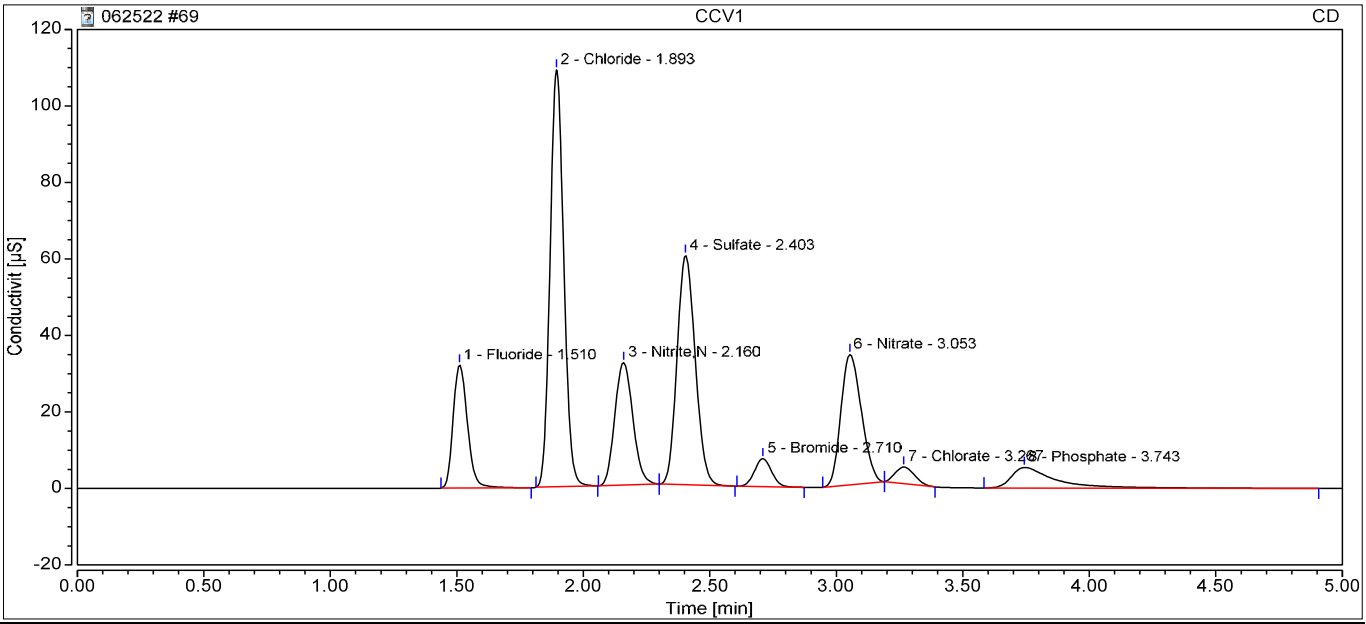
Integration Results

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.	20.0000
1	1.90	Chloride	BMB	7.726	54.6458	1092.9154	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
2	2.41	Sulfate	BMB	3.666	34.7134	694.2687	20.0000
3	2.71	Bromide	BMB	0.014	0.2660	5.3191	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**11.406**		**1792.50**	

69 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 17:53**	*Sample Weight:*	**1.0000**

Run Time:



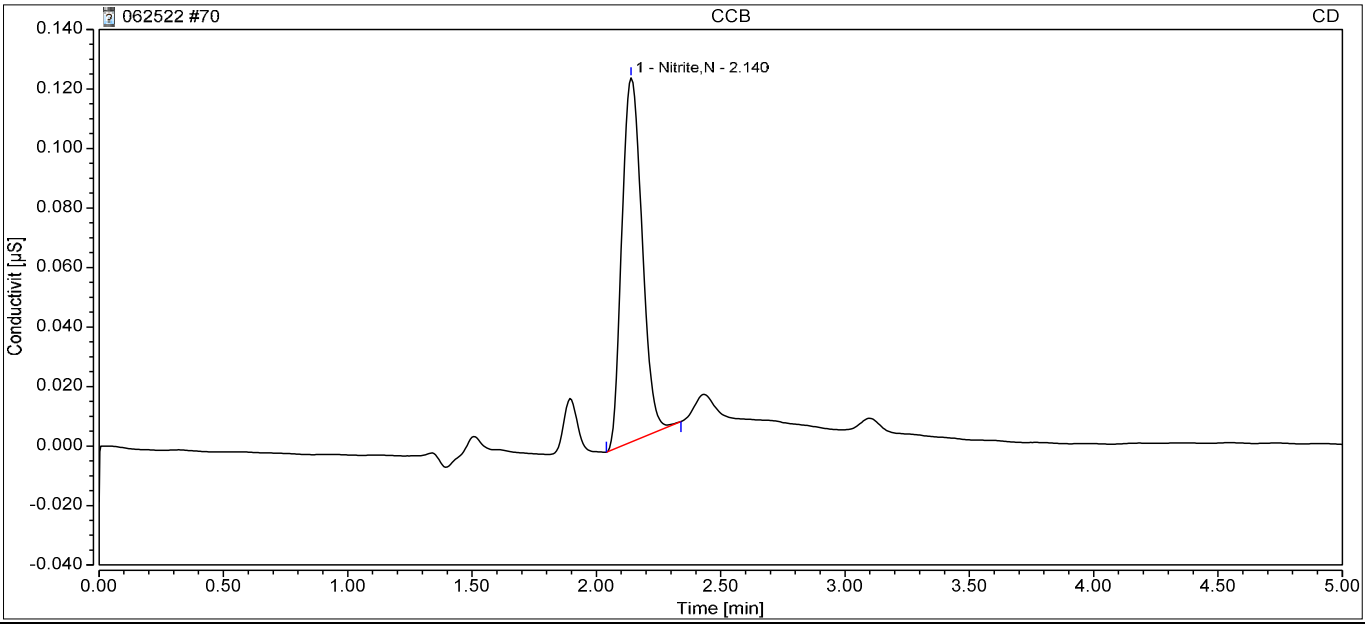
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	2.118	9.8436	9.8436	1.0000
2	1.89	Chloride	BMB	6.823	48.2736	48.2736	1.0000
3	2.16	Nitrite,N	BMB	2.655	9.6303	9.6303	1.0000
4	2.40	Sulfate	BMB	4.994	47.2332	47.2332	1.0000
5	2.71	Bromide	BMB	0.569	9.1468	9.1468	1.0000
6	3.05	Nitrate	BMB	3.195	9.6959	9.6959	1.0000
7	3.27	Chlorate	BMB	0.385	9.6214	9.6214	1.0000
8	3.74	Phosphate	BMB	1.078	8.7120	8.7120	1.0000
Total:			**0.000**	**21.817**		**152.16**	

70 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program ISO37mM 150mm short 0.4 Constant current**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/25/2022 18:03**	*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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
1	2.14	Nitrite,N	BMB	0.012	0.0025	0.0025	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**	**0.012**		**0.00**	

HS22061313 SUB Pace Analytical Lab Level IV Report 222062838

ALS WO# HS22061313

Pace Analytical®

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 07/16/2022

Report # 222062838

Project HS22061313

Samples Collected 6/23/22

Deliver To	***Additional Recipients***
Dane Wacasey ALS 10450 Stancliff Rd., Ste 210 Houston, TX 770994338	Jumoke Lawal, ALS Houston

PJLA Testing DoD ELAP

ISO 17025

NELAP ACCREDITED TNI LABORATORY

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

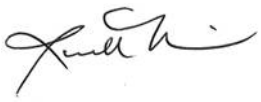
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (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 222062838

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:** 222062838

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.

This report was completed in accordance with DOD QSM 5.3 as specified in the contract.

VOLATILES GAS CHROMATOGRAPHY

In the EPA RSK-175 analysis for analytical batch 744842, the LCS/LCSD exhibited RPD failures.

Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22206283801	16WW58-220623	Water	6/23/22 07:00	6/28/22 09:28
22206283802	16WW57-220623	Water	6/23/22 07:45	6/28/22 09:28
22206283803	16IW10-220623	Water	6/23/22 08:40	6/28/22 09:28
22206283804	16IW09-220623	Water	6/23/22 09:30	6/28/22 09:28
22206283805	16IW20-220623	Water	6/23/22 10:25	6/28/22 09:28
22206283806	16WW55-220623	Water	6/23/22 11:15	6/28/22 09:28

Test Summary

EPA RSK-175					
Lab ID	**Client ID**	**Matrix**	**Batch**	**Instru**	**RunDate**
22206283801	16WW58-220623	Water	744842	GCV8B	7/07/22 11:11
22206283802	16WW57-220623	Water	744842	GCV8B	7/07/22 11:28
22206283803	16IW10-220623	Water	744842	GCV8B	7/07/22 11:34
22206283804	16IW09-220623	Water	744842	GCV8B	7/07/22 11:41
22206283805	16IW20-220623	Water	744842	GCV8B	7/07/22 11:48
22206283806	16WW55-220623	Water	744842	GCV8B	7/07/22 12:00

Manual Integrations

Manual Integrations for LC and IC (if performed) are documented in the raw data.
No other manual integrations were performed by Pace Gulf Coast.

Q Flag Summary

Client Sample ID: **16WW58-220623** Lab Sample ID: **22206283801**

EPA RSK-175 Analysis Date: 7/7/2022 11:11:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16WW57-220623** Lab Sample ID: **22206283802**

EPA RSK-175 Analysis Date: 7/7/2022 11:28:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16IW10-220623** Lab Sample ID: **22206283803**

EPA RSK-175 Analysis Date: 7/7/2022 11:34:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16IW09-220623** Lab Sample ID: **22206283804**

EPA RSK-175 Analysis Date: 7/7/2022 11:41:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16IW20-220623** Lab Sample ID: **22206283805**

EPA RSK-175 Analysis Date: 7/7/2022 11:48:00 AM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

Client Sample ID: **16WW55-220623** Lab Sample ID: **22206283806**

EPA RSK-175 Analysis Date: 7/7/2022 12:00:00 PM						
CAS	**Analyte**	**CCV**	**LCS/D**	**SURR**	**ISTD**	**CLCCV**
124-38-9	Carbon Dioxide		X			

CCV=Initial or Continuing CCV out of limits
LCS/D=LCS/LCSD out of limits
SURR=Surrogate out of limits
ISTD=Internal Standard out of limits
CLCCV=Closing CCV out of limits

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**
22206283801	16WW58-220623	Carbon Dioxide	ug/L	167000Q	10	NA
22206283802	16WW57-220623	Carbon Dioxide	ug/L	327000Q	30	NA
22206283803	16IW10-220623	Carbon Dioxide	ug/L	312000Q	30	NA
22206283804	16IW09-220623	Carbon Dioxide	ug/L	200000Q	30	NA
22206283805	16IW20-220623	Carbon Dioxide	ug/L	144000Q	30	NA
22206283806	16WW55-220623	Carbon Dioxide	ug/L	135000Q	30	NA

EPA RSK-175

Form 1D

Results

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	16WW58-220623
Collect Date:	06/23/22 Time: 0700	GCAL Sample ID:	22206283801
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8021
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	10 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1111
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	167000	Q	1270	3860	9000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8021.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8021.d
Lab Smp Id: 22206283801
Inj Date : 07-JUL-2022 11:11
Operator : BDP Inst ID: gcv8b.i
Smp Info : 22206283801*10
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.d
Als bottle: 1
Dil Factor: 10.00000
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	0.978	0.991	-0.013	71556446	16677.2	167000

Data File: /var/chem/gcv8b.i/2220707.b/v8021.d

Page 1

Date : 07-JUL-2022 11:11

Client ID:

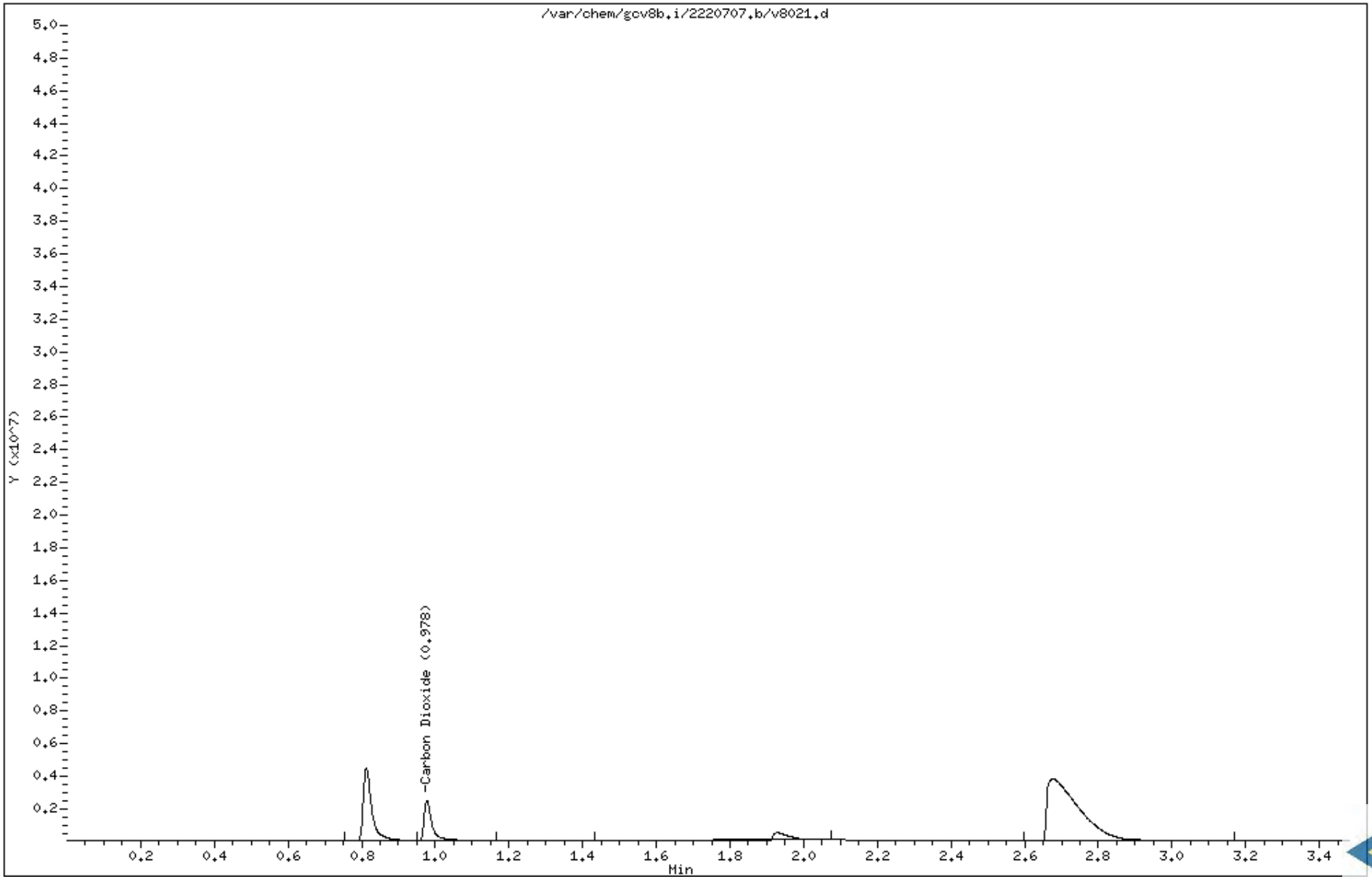
Instrument: gcv8b.i

Sample Info: 22206283801*10

Operator: BDP

Column phase: GS-Q-30

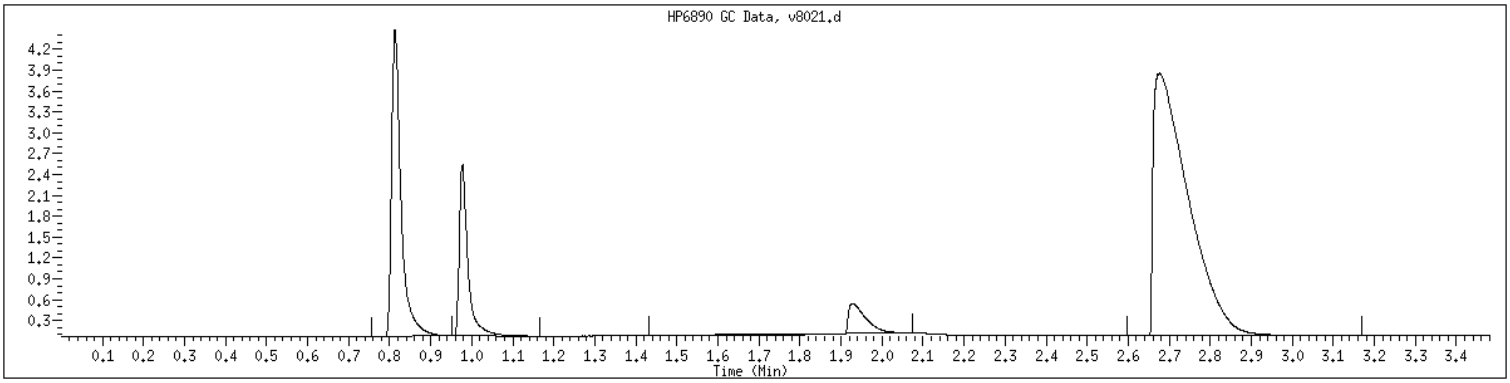
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8021.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22206283801 SampleType : SAMPLE
Injection Date: 07/07/2022 11:11 Instrument : gcv8b.i
Operator : BDP
Sample Info : 22206283801*10
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Dilution : 10.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	16WW57-220623
Collect Date:	06/23/22 Time: 0745	GCAL Sample ID:	22206283802
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8023
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	30 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1128
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	327000	Q	3810	11600	27000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8023.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8023.d
Lab Smp Id: 22206283802
Inj Date : 07-JUL-2022 11:28
Operator : BDP Inst ID: gcv8b.i
Smp Info : 22206283802*30
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.d
Als bottle: 1
Dil Factor: 30.00000
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	0.994	0.991	0.003	46803960	10908.3	327000

Data File: /var/chem/gcv8b.i/2220707.b/v8023.d

Page 1

Date : 07-JUL-2022 11:28

Client ID:

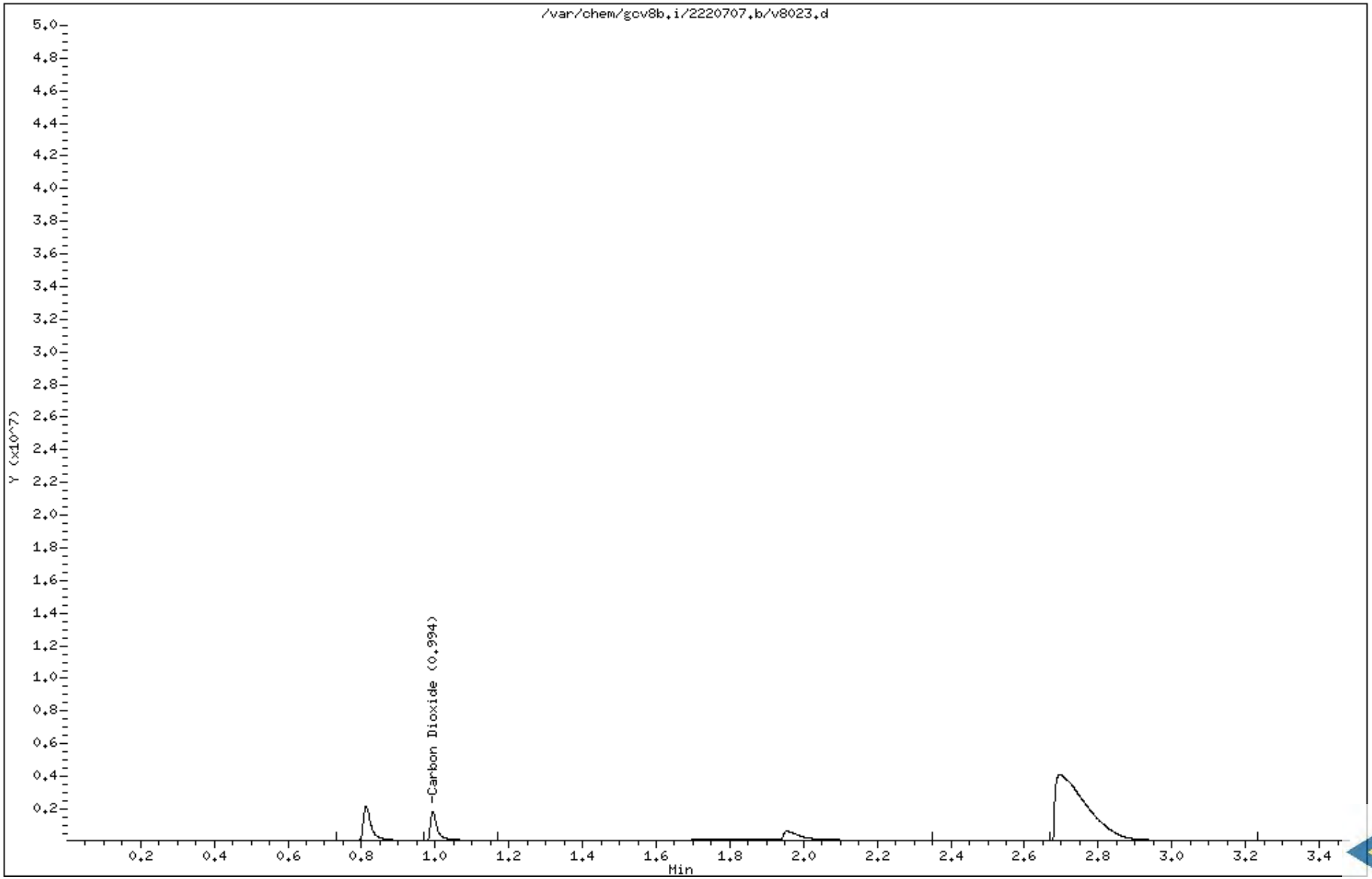
Instrument: gcv8b.i

Sample Info: 22206283802*30

Operator: BDP

Column phase: GS-Q-30

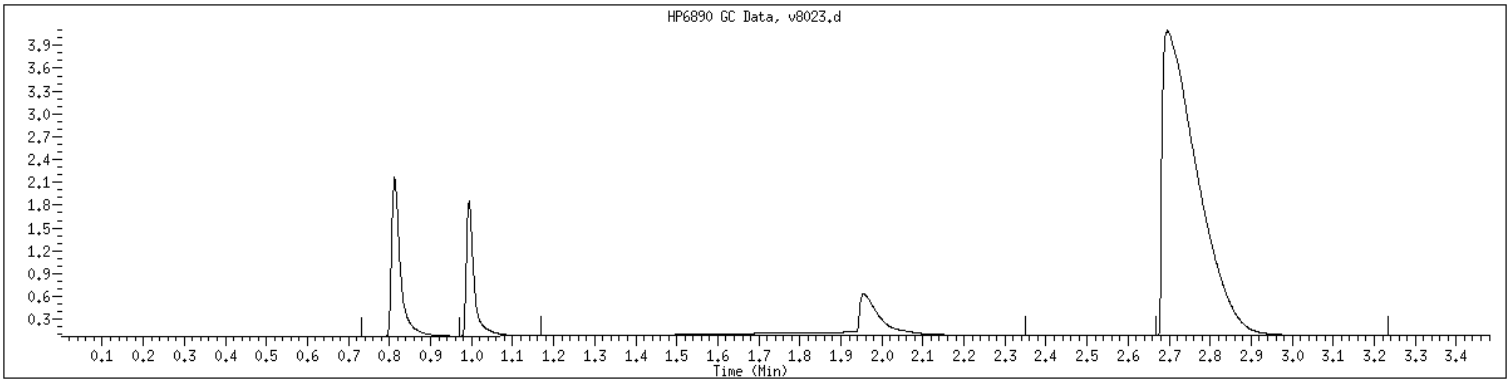
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8023.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 22206283802	SampleType	: SAMPLE
Injection Date	: 07/07/2022 11:28	Instrument	: gcv8b.i
Operator	: BDP		
Sample Info	: 22206283802*30		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220707.b/CO2h.m		
Dilution	: 30.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	16IW10-220623
Collect Date:	06/23/22 Time: 0840	GCAL Sample ID:	22206283803
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8024
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	30 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1134
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	312000	Q	3810	11600	27000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8024.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8024.d
Lab Smp Id: 22206283803
Inj Date : 07-JUL-2022 11:34
Operator : BDP Inst ID: gcv8b.i
Smp Info : 22206283803*30
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.d
Als bottle: 1
Dil Factor: 30.00000
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	0.983	0.991	-0.008	44676905	10412.6	312000

Data File: /var/chem/gcv8b.i/2220707.b/v8024.d

Page 1

Date : 07-JUL-2022 11:34

Client ID:

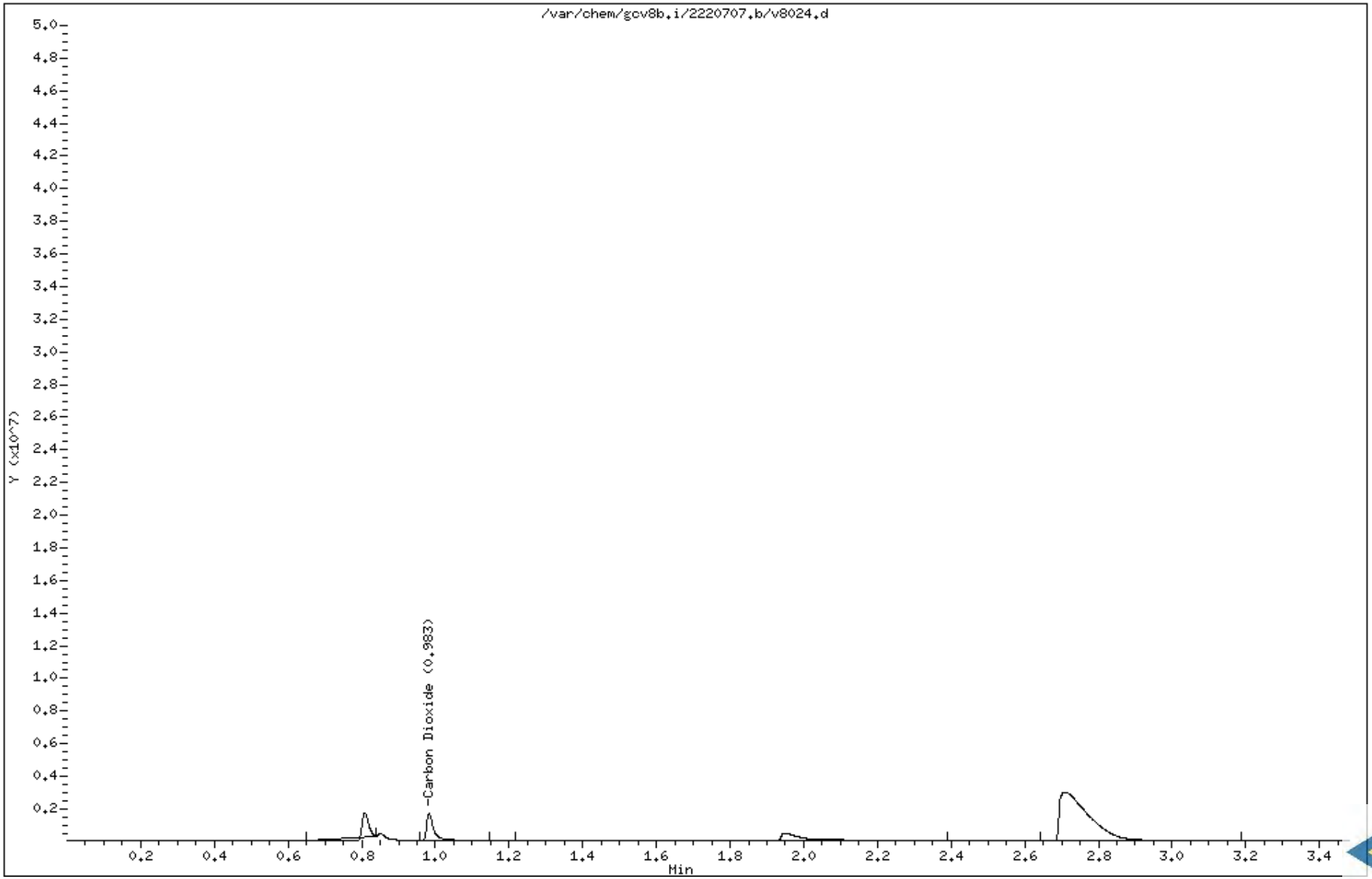
Instrument: gcv8b.i

Sample Info: 22206283803*30

Operator: BDP

Column phase: GS-Q-30

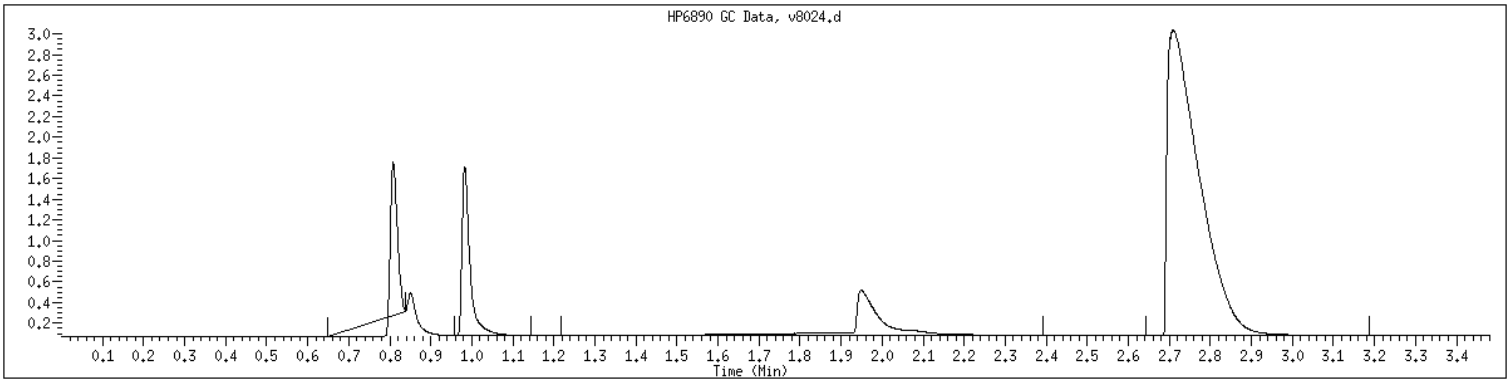
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8024.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22206283803 SampleType : SAMPLE
Injection Date: 07/07/2022 11:34 Instrument : gcv8b.i
Operator : BDP
Sample Info : 22206283803*30
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Dilution : 30.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	16IW09-220623
Collect Date:	06/23/22 Time: 0930	GCAL Sample ID:	22206283804
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8025
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	30 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1141
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	200000	Q	3810	11600	27000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8025.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8025.d
Lab Smp Id: 22206283804
Inj Date : 07-JUL-2022 11:41
Operator : BDP Inst ID: gcv8b.i
Smp Info : 22206283804*30
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.d
Als bottle: 1
Dil Factor: 30.00000
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	1.001	0.991	0.010	28553097	6654.68	200000

Data File: /var/chem/gcv8b.i/2220707.b/v8025.d

Page 1

Date : 07-JUL-2022 11:41

Client ID:

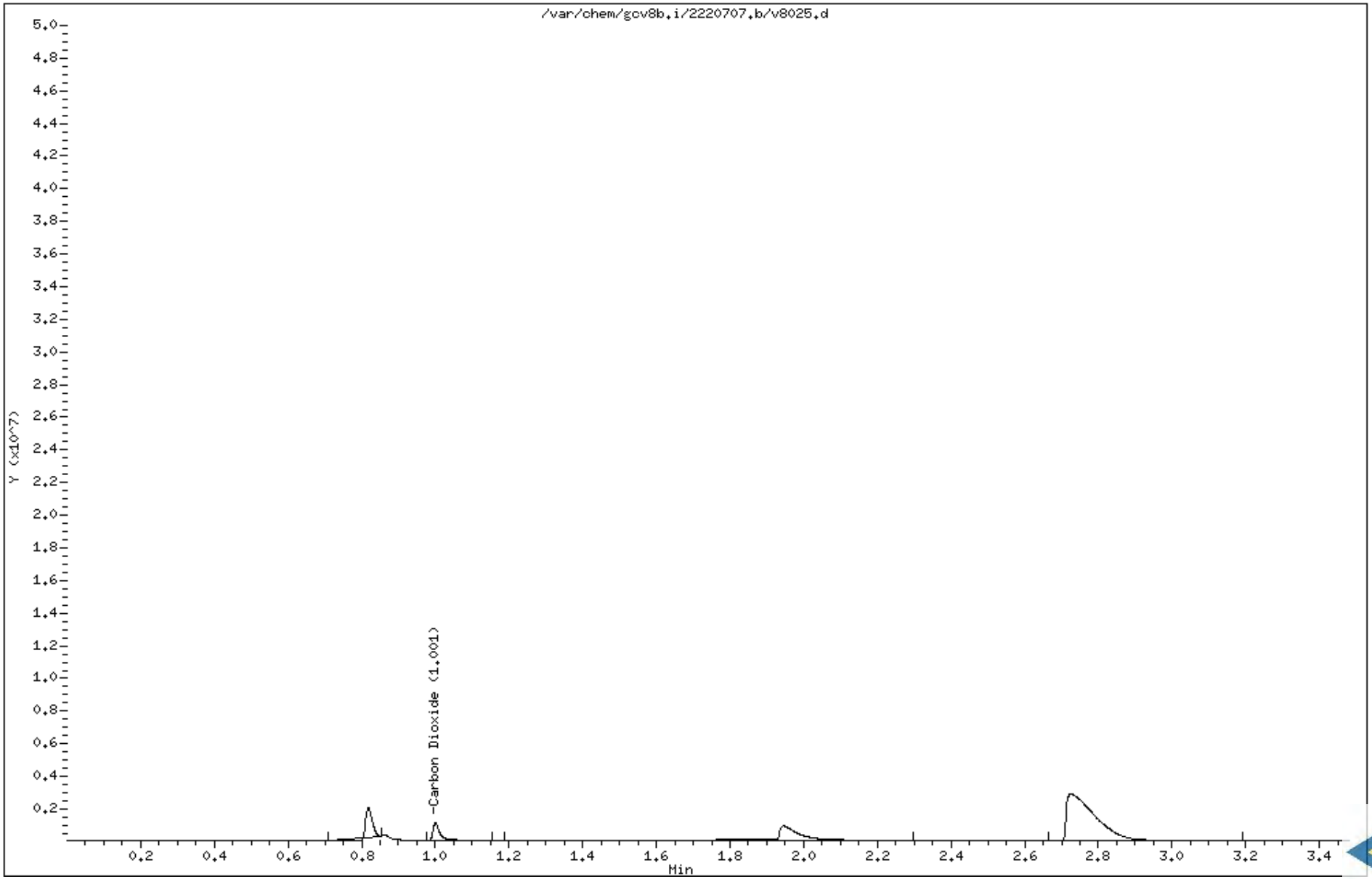
Instrument: gcv8b.i

Sample Info: 22206283804*30

Operator: BDP

Column phase: GS-Q-30

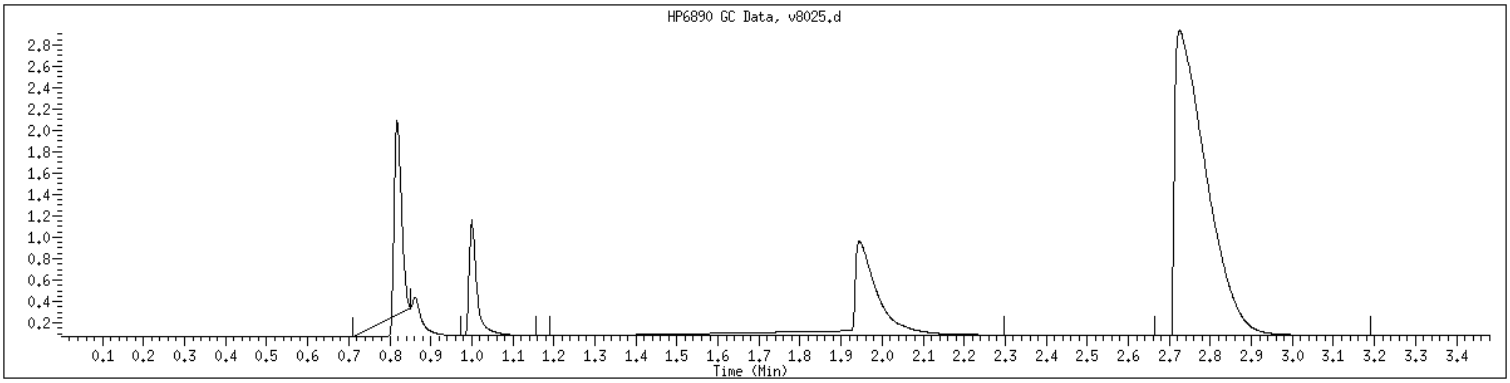
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8025.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22206283804 SampleType : SAMPLE
Injection Date: 07/07/2022 11:41 Instrument : gcv8b.i
Operator : BDP
Sample Info : 22206283804*30
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Dilution : 30.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	16IW20-220623
Collect Date:	06/23/22 Time: 1025	GCAL Sample ID:	22206283805
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8026
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	30 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1148
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	144000	Q	3810	11600	27000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8026.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8026.d
Lab Smp Id: 22206283805
Inj Date : 07-JUL-2022 11:48
Operator : BDP Inst ID: gcv8b.i
Smp Info : 22206283805*30
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.d
Als bottle: 1
Dil Factor: 30.00000
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	0.996	0.991	0.005	20646185	4811.87	144000

Data File: /var/chem/gcv8b.i/2220707.b/v8026.d

Page 1

Date : 07-JUL-2022 11:48

Client ID:

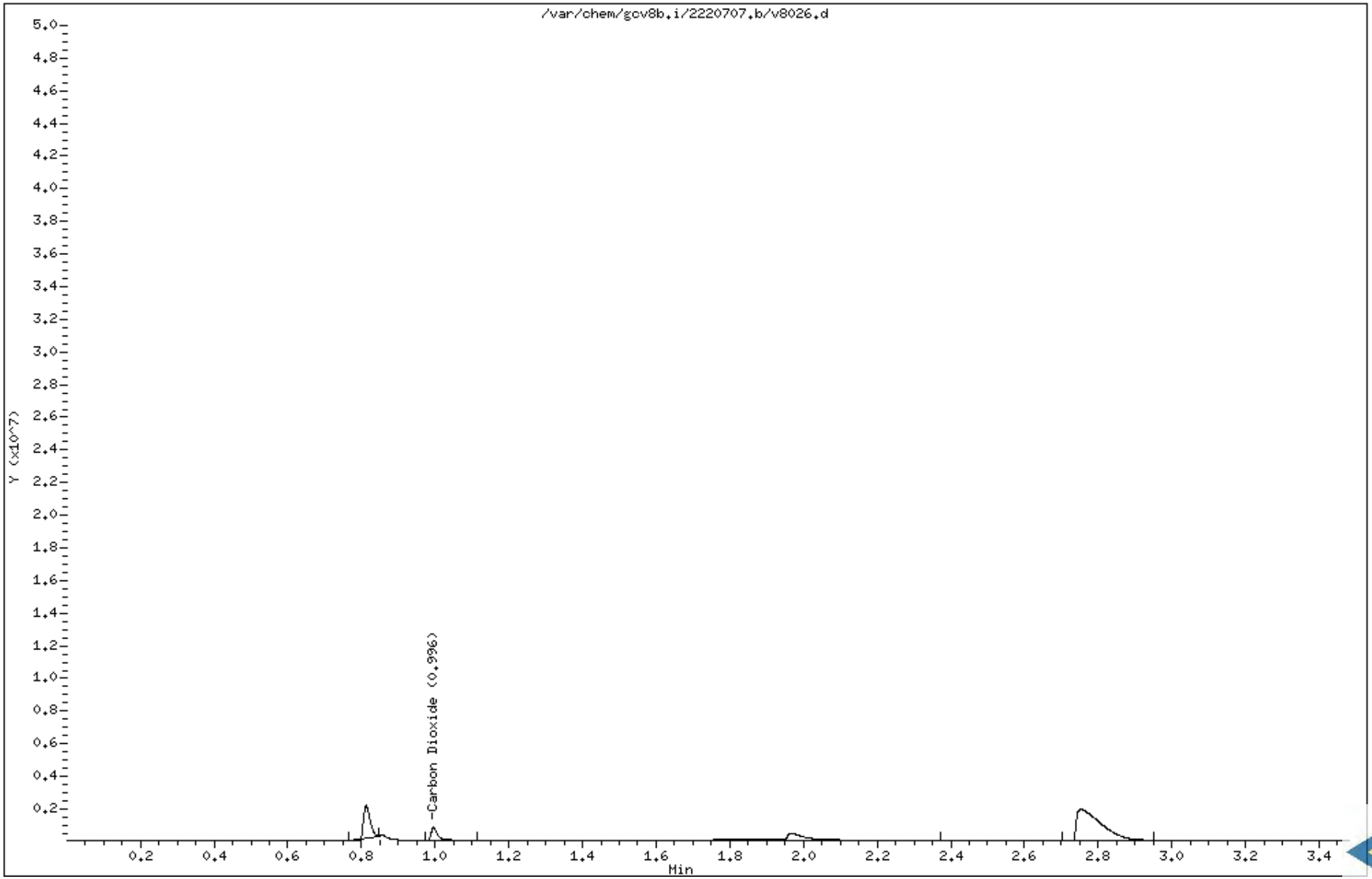
Instrument: gcv8b.i

Sample Info: 22206283805*30

Operator: BDP

Column phase: GS-Q-30

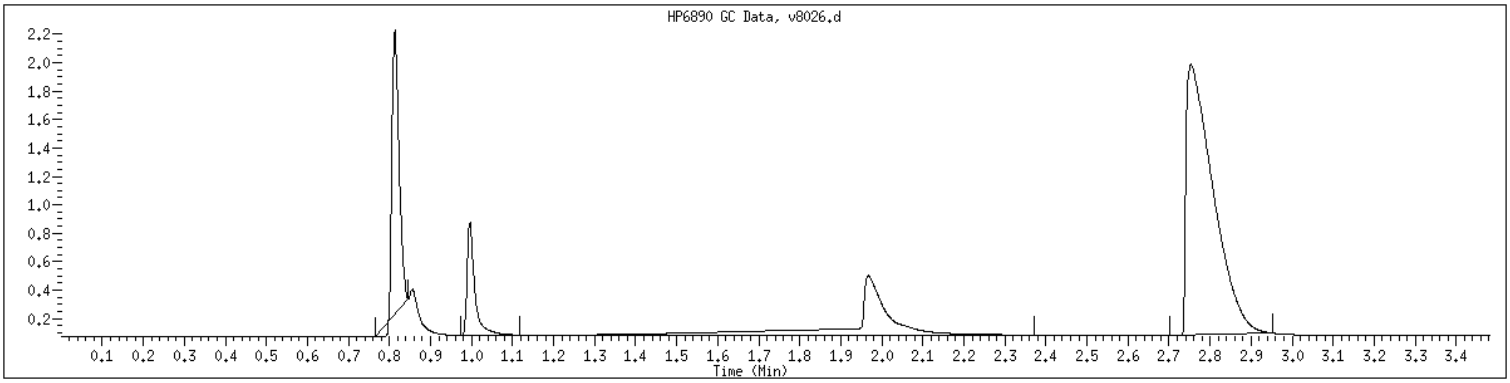
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8026.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22206283805 SampleType : SAMPLE
Injection Date: 07/07/2022 11:48 Instrument : gcv8b.i
Operator : BDP
Sample Info : 22206283805*30
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Dilution : 30.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	16WW55-220623
Collect Date:	06/23/22 Time: 1115	GCAL Sample ID:	22206283806
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8028
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	30 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1200
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	135000	Q	3810	11600	27000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8028.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8028.d
Lab Smp Id: 22206283806
Inj Date : 07-JUL-2022 12:00
Operator : BDP Inst ID: gcv8b.i
Smp Info : 22206283806*30
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.d
Als bottle: 1
Dil Factor: 30.00000
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

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.998	0.968	0.030	19316834	4502.05	135000

Data File: /var/chem/gcv8b.i/2220707.b/v8028.d

Page 1

Date : 07-JUL-2022 12:00

Client ID:

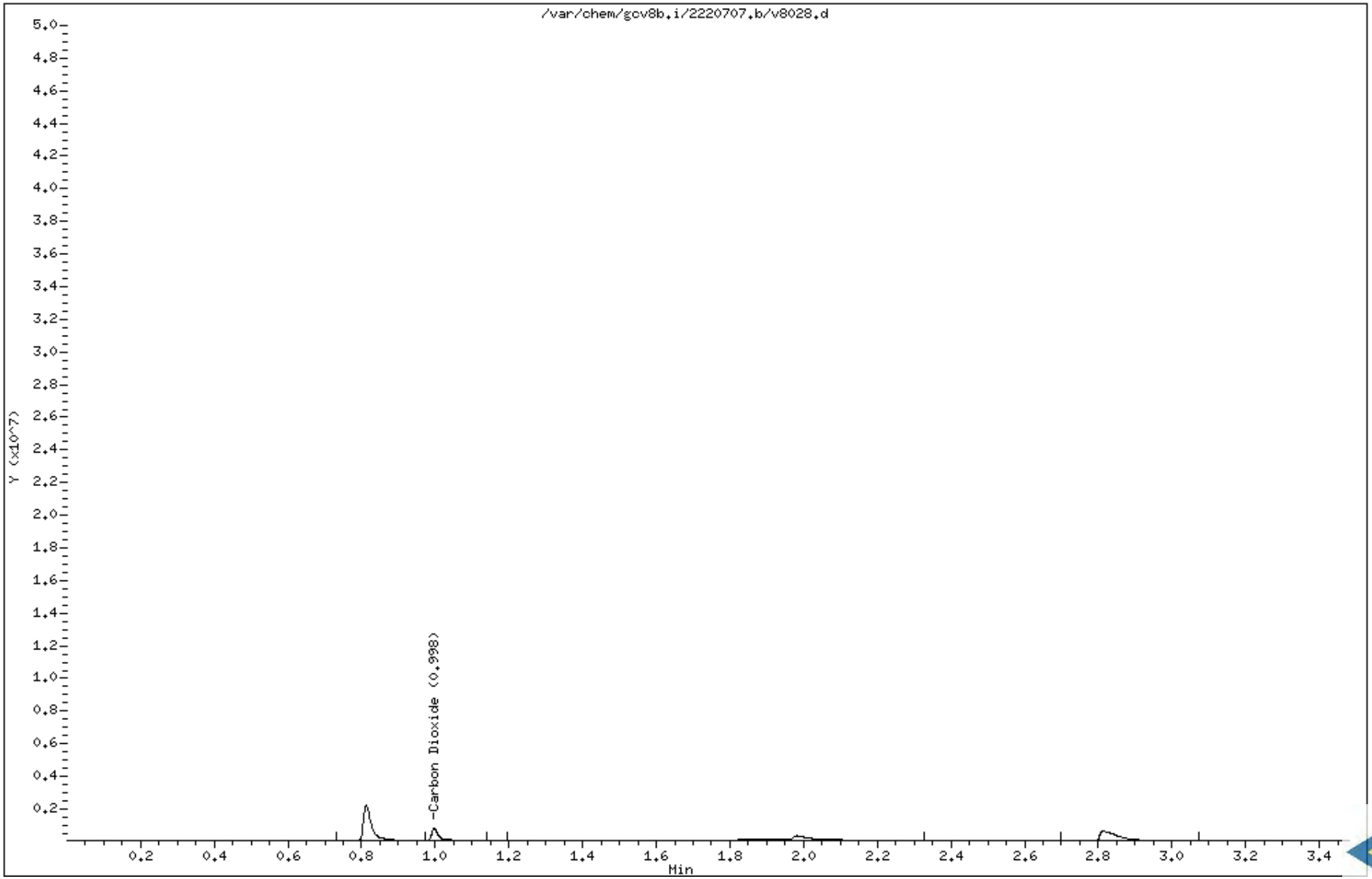
Instrument: gcv8b.i

Sample Info: 22206283806*30

Operator: BDP

Column phase: GS-Q-30

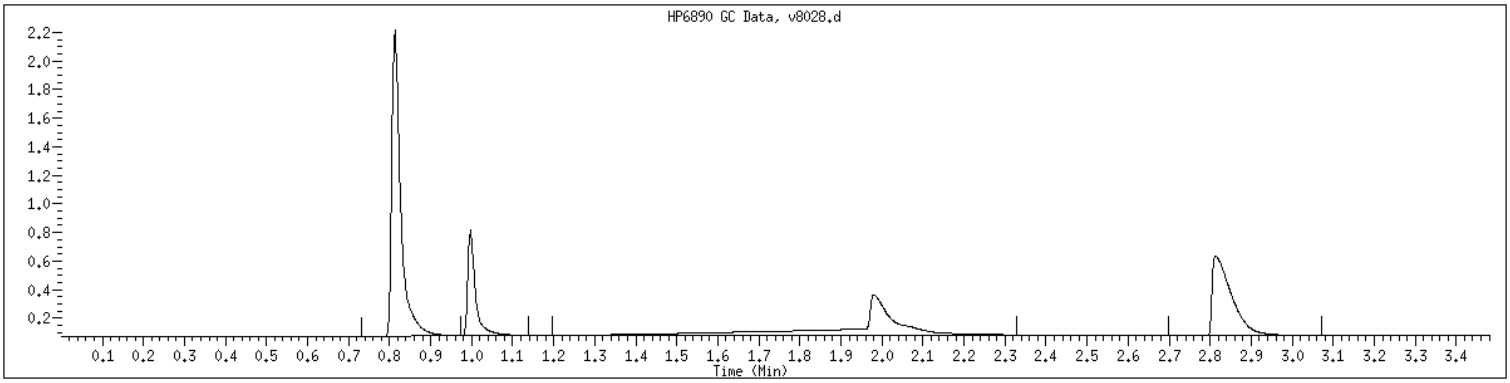
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8028.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22206283806 SampleType : SAMPLE
Injection Date: 07/07/2022 12:00 Instrument : gcv8b.i
Operator : BDP
Sample Info : 22206283806*30
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Dilution : 30.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	MB2367943
Collect Date:	NA Time: NA	GCAL Sample ID:	2367943
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8016
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1029
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	386	U	127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8016.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8016.d
Lab Smp Id: 2367943
Inj Date : 07-JUL-2022 10:29
Operator : BDP Inst ID: gcv8b.i
Smp Info : BLANK
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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)

Data File: /var/chem/gcv8b.i/2220707.b/v8016.d

Page 1

Date : 07-JUL-2022 10:29

Client ID:

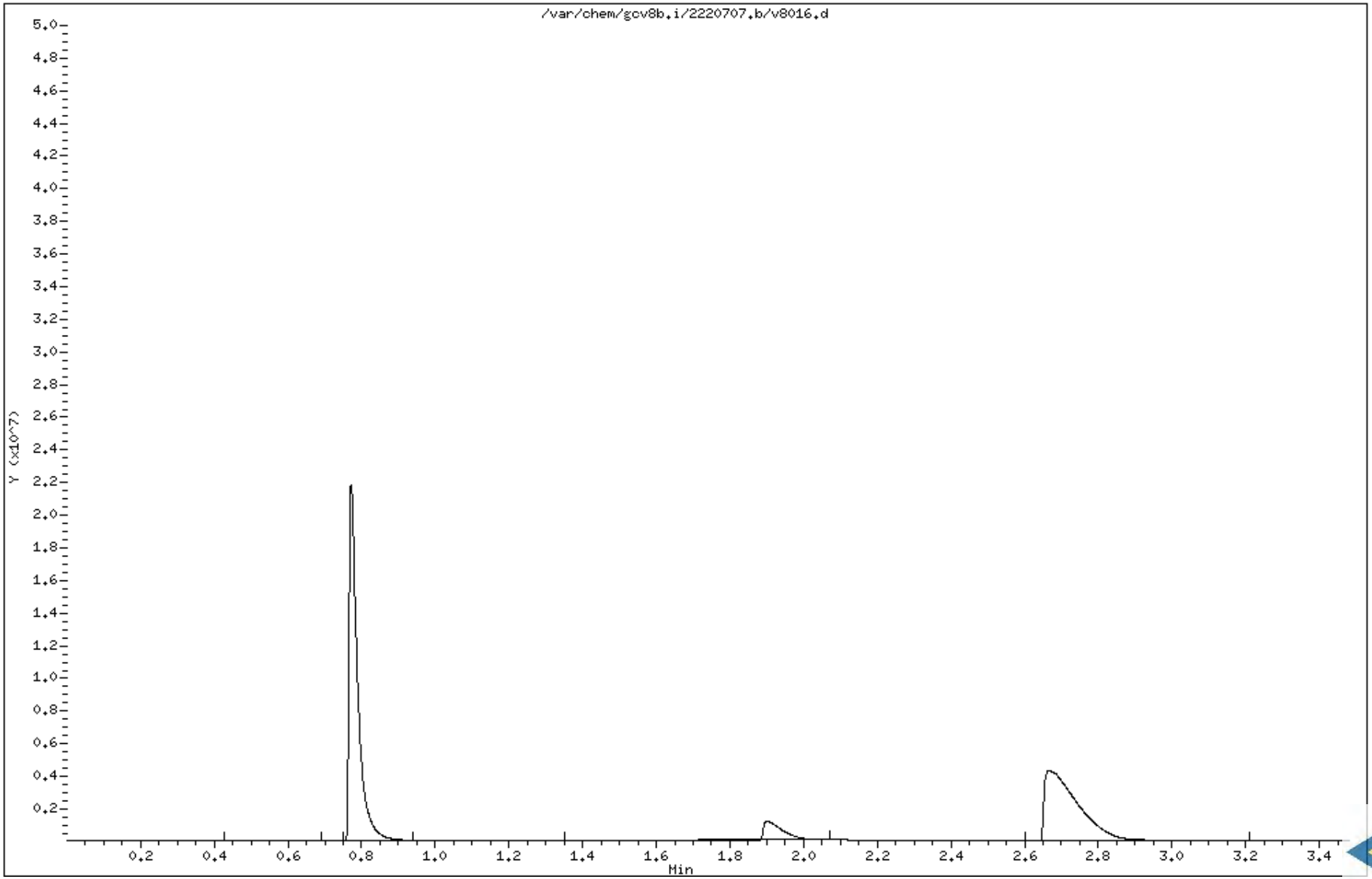
Instrument: gcv8b.i

Sample Info: BLANK

Operator: BDP

Column phase: GS-Q-30

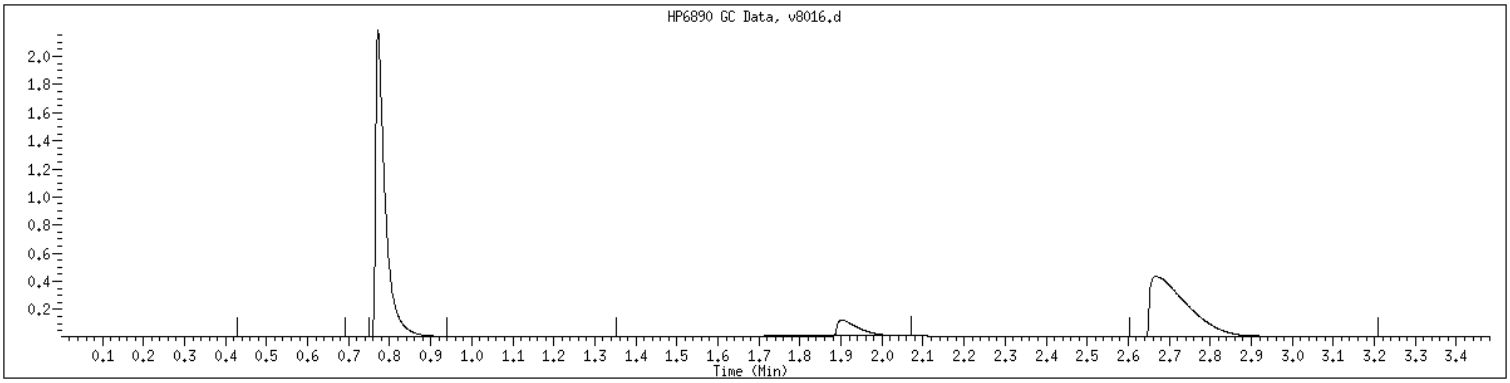
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8016.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 2367943	SampleType	: BLANK
Injection Date	: 07/07/2022 10:29	Instrument	: gcv8b.i
Operator	: BDP		
Sample Info	: BLANK		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220707.b/CO2h.m		
Dilution	: 1.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	LCS2367944
Collect Date:	NA Time: NA	GCAL Sample ID:	2367944
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8014
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1019
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	4210		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8014.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8014.d
Lab Smp Id: 2367944
Inj Date : 07-JUL-2022 10:19
Operator : BDP Inst ID: gcv8b.i
Smp Info : LCS
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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	0.984	0.991	-0.007	18072857	4212.12	4210

Data File: /var/chem/gcv8b.i/2220707.b/v8014.d

Page 1

Date : 07-JUL-2022 10:19

Client ID:

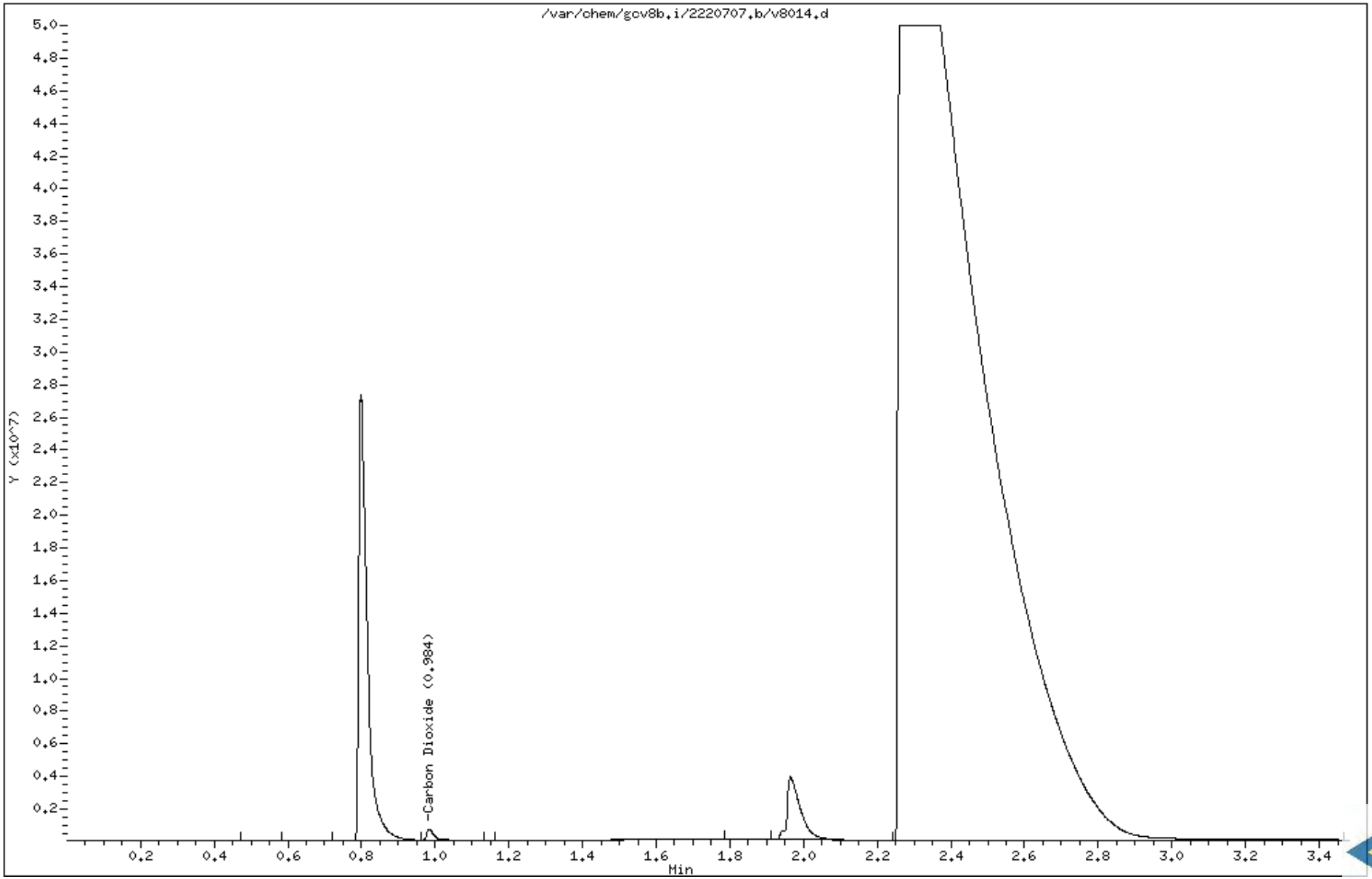
Instrument: gcv8b.i

Sample Info: LCS

Operator: BDP

Column phase: GS-Q-30

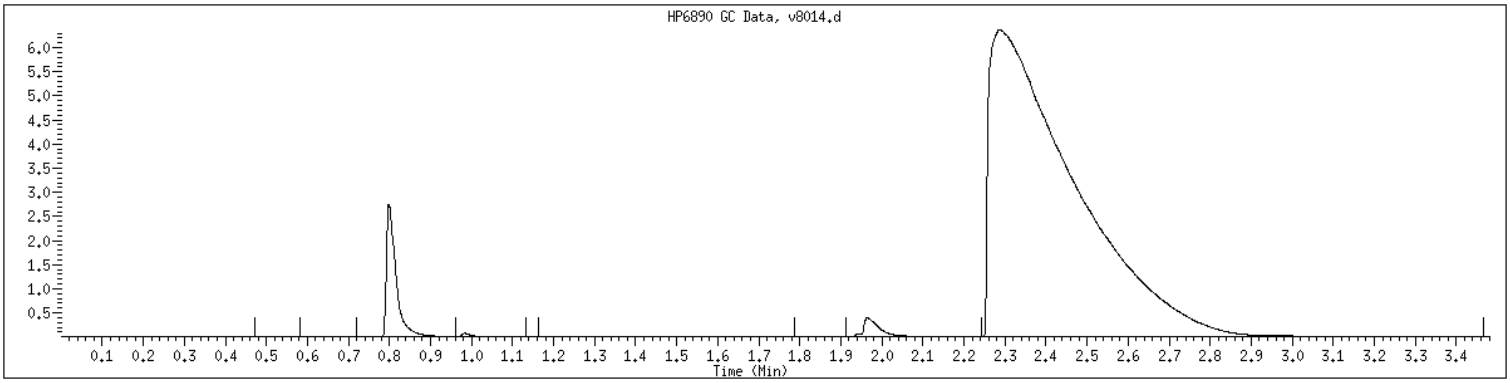
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8014.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2367944 SampleType : LCS
Injection Date: 07/07/2022 10:19 Instrument : gcv8b.i
Operator : BDP
Sample Info : LCS
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D

ORGANICS ANALYSIS DATA SHEET

Report No:	222062838	Client Sample ID:	LCSD2367945
Collect Date:	NA Time: NA	GCAL Sample ID:	2367945
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8015
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1024
Prep Batch:	NA	Analytical Batch:	744842
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	6380		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2220707.b/v8015.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8015.d
Lab Smp Id: 2367945
Inj Date : 07-JUL-2022 10:24
Operator : BDP Inst ID: gcv8b.i
Smp Info : LCSD
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.976	0.991	-0.015	27379022	6381.05	6380

Data File: /var/chem/gcv8b.i/2220707.b/v8015.d

Page 1

Date : 07-JUL-2022 10:24

Client ID:

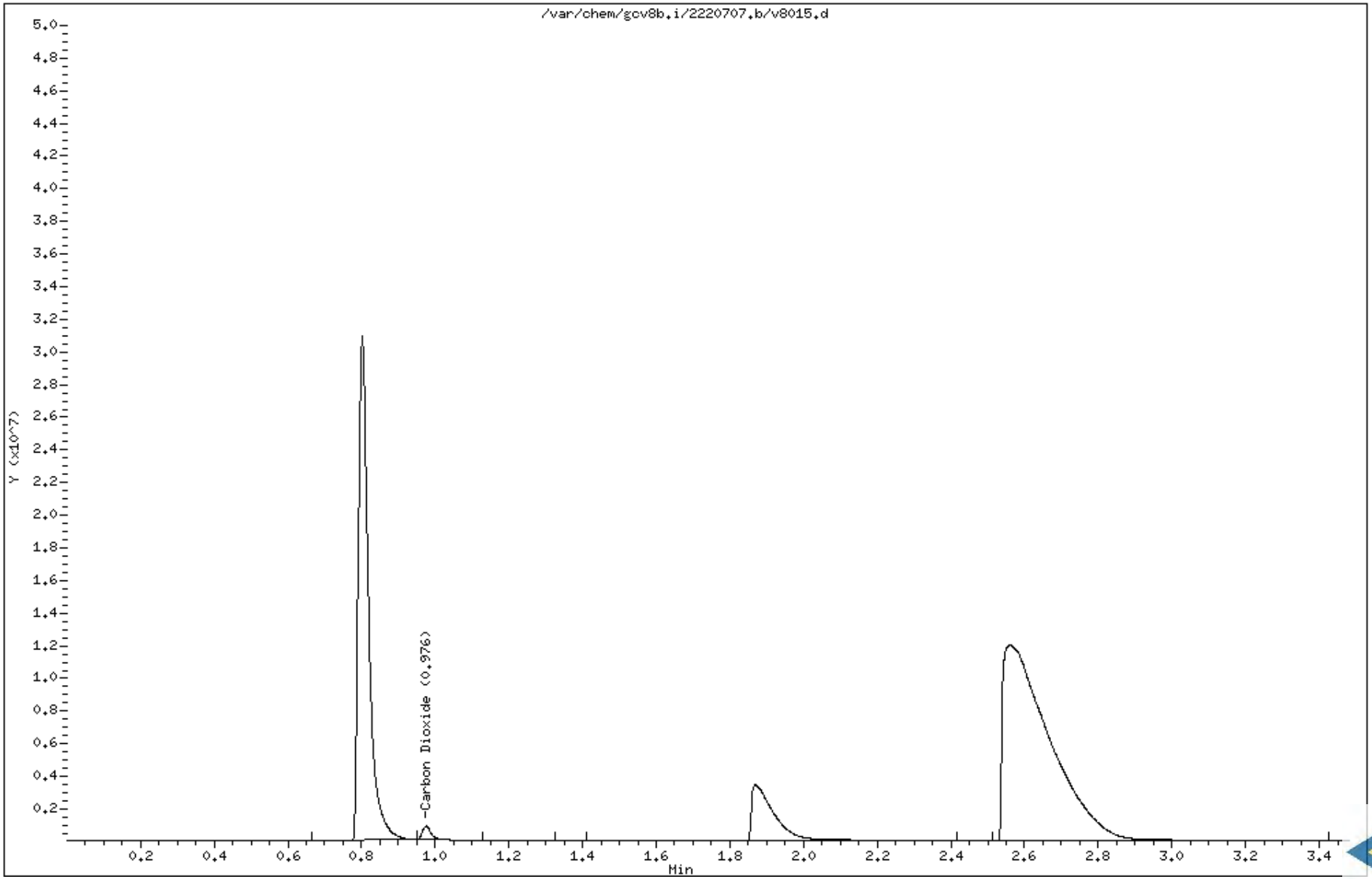
Instrument: gcv8b.i

Sample Info: LCSD

Operator: BDP

Column phase: GS-Q-30

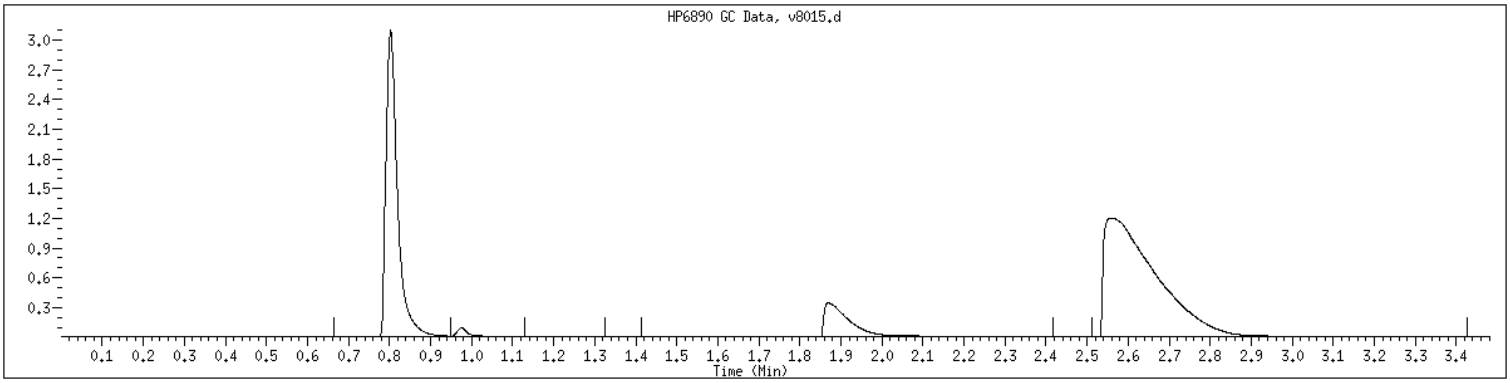
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8015.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 2367945	SampleType	: LCSD
Injection Date	: 07/07/2022 10:24	Instrument	: gcv8b.i
Operator	: BDP		
Sample Info	: LCSD		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220707.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 LCS/LCSD RECOVERY

Report No: 222062838

Prep Method: NA | Prep Batch: NA

Analytical Method: RSK-175 | Analytical Batch: 744842

GCAL QC ID: 2367944

ANALYTE	*UNITS*	*SPIKE ADDED*	*SAMPLE RESULT*	*LCS RESULT*	*LCS % REC*	#	*QC LIMITS*
Carbon Dioxide	ug/L	8700	0	4210	48		38 - 147

GCAL QC ID: 2367945

ANALYTE	*UNITS*	*SPIKE ADDED*	*LCSD RESULT*	*LCSD % REC*	#	*% RPD*	#	*QC LIMITS REC*	*QC LIMITS RPD*
Carbon Dioxide	ug/L	8700	6380	73		41	*	38 - 147	0 - 40

RPD : 1 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:	222062838	Method Blank ID:	2367943
Matrix:	Water	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2220707/v8016
Injection Vol.:	(µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: BDP
Prep Date:	NA	Analysis Date:	07/07/22 Time: 1029
Prep Batch:	NA	Analytical Batch:	744842
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.	LCS2367944	2367944	07/07/22	1019	GCV8B
2.	LCSD2367945	2367945	07/07/22	1024	GCV8B
3.	16WW58-220623	22206283801	07/07/22	1111	GCV8B
4.	16WW57-220623	22206283802	07/07/22	1128	GCV8B
5.	16IW10-220623	22206283803	07/07/22	1134	GCV8B
6.	16IW09-220623	22206283804	07/07/22	1141	GCV8B
7.	16IW20-220623	22206283805	07/07/22	1148	GCV8B
8.	16WW55-220623	22206283806	07/07/22	1200	GCV8B

EPA RSK-175

Form 6E

Calibrations

6E

ORGANICS INITIAL CALIBRATION DATA

						LabQC ID - FileID - Conc	1201 ~ 2220222p/v8006 ~ mix
Report No:	222062838			Instrument ID:	GCV8B	1202 ~ 2220222p/v8007 ~ mix	1203 ~ 2220222p/v8008 ~ mix
GC Column:	GS-Q-30	ID	.53 (mm)	Analyst:	AWE	1204 ~ 2220222p/v8009 ~ mix	1205 ~ 2220222p/v8010 ~ mix
Calib. Date 1:	02/22/22	Time 1:	1306	Analytical Batch:	734177		
Calib. Date 2:	02/22/22	Time 2:	1341	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	4254	3160	4842	4450	4748					4291			15.71	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/2220222p.b/v8006.d Page 1
Report Date: 23-Feb-2022 09:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220222p.b/v8006.d
Lab Smp Id: 1201
Inj Date : 22-FEB-2022 13:06
Operator : AWE Inst ID: gcv8b.i
Smp Info : 1201
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Meth Date : 23-Feb-2022 09:58 awe Quant Type: ESTD
Cal Date : 22-FEB-2022 13:06 Cal File: v8006.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.993	0.993	0.000	3675073	864.000	856(M1)

QC Flag Legend

M1- Compound response manually integrated because
Target system did not integrate.

Data File: /var/chem/gcv8b.i/2220222p.b/v8006.d

Page 1

Date : 22-FEB-2022 13:06

Client ID:

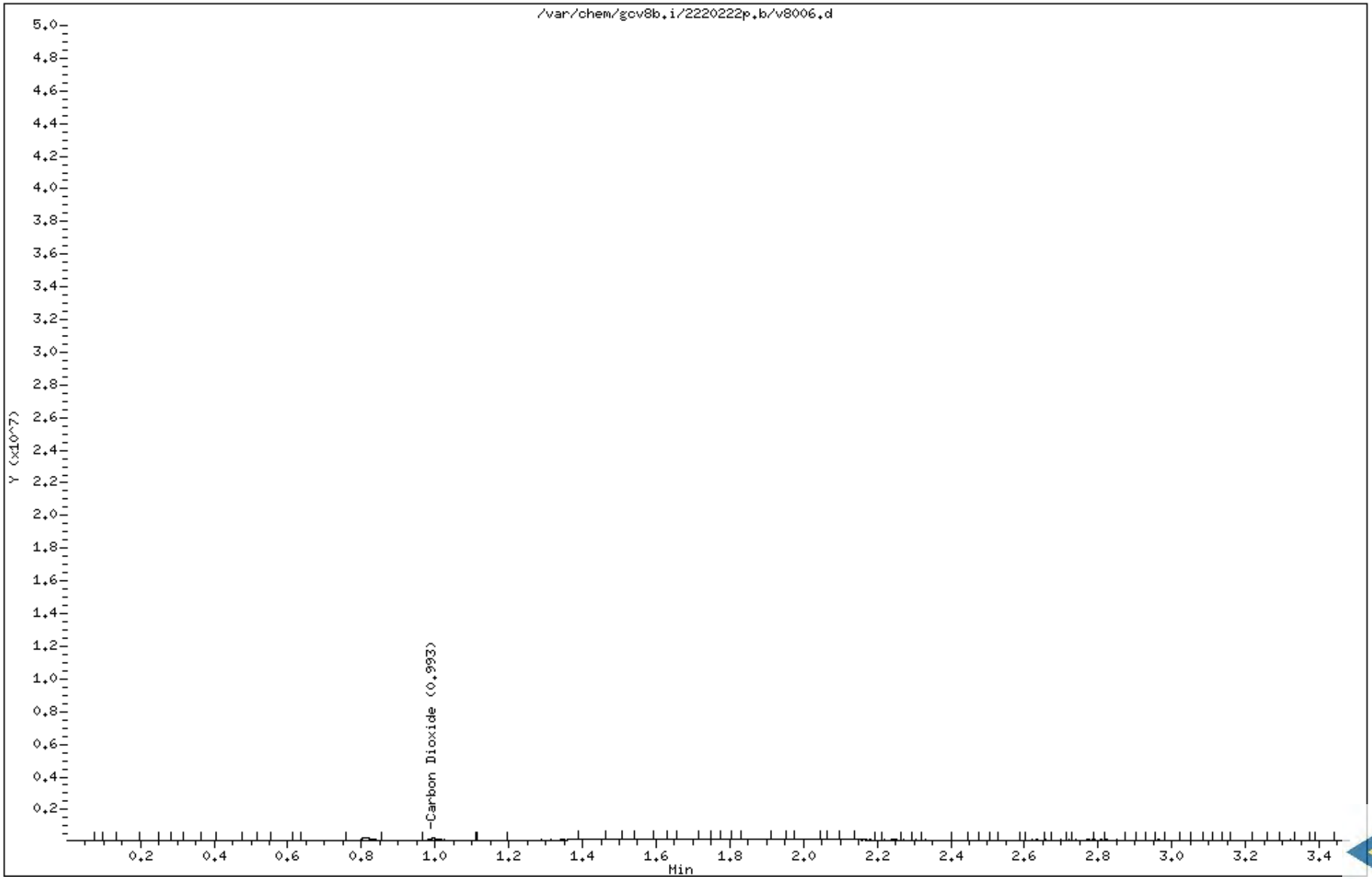
Instrument: gcv8b.i

Sample Info: 1201

Operator: AWE

Column phase: GS-Q-30

Column diameter: 0.53

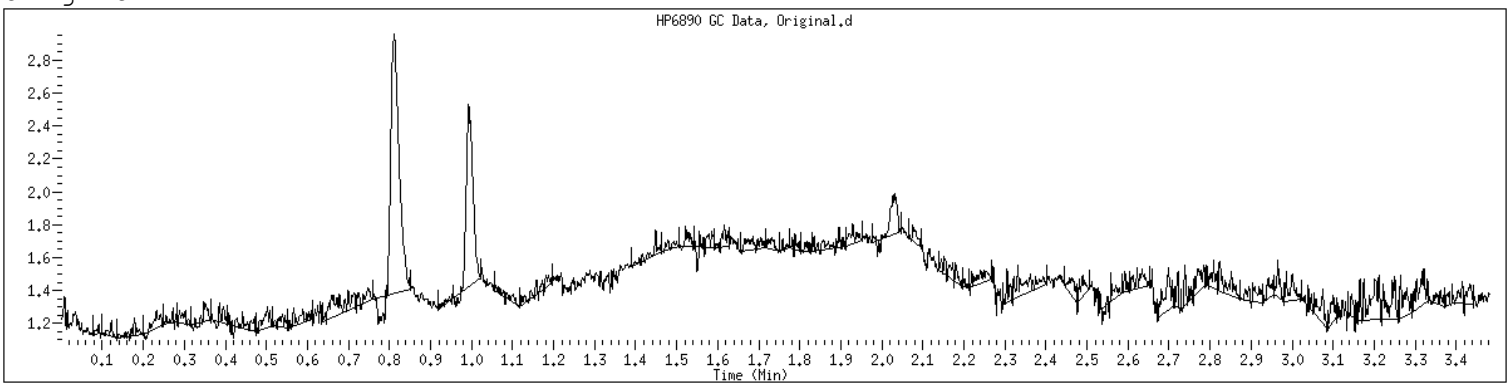


Data file : /var/chem/gcv8b.i/2220222p.b/v8006.d Page: 1
Report Date: 02/23/2022 09:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1201	SampleType	: CALIB_1
Injection Date	: 02/22/2022 13:06	Instrument	: gcv8b.i
Operator	: AWE		
Sample Info	: 1201		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220222p.b/CO2h.m		
Dilution	: 1.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2

Original



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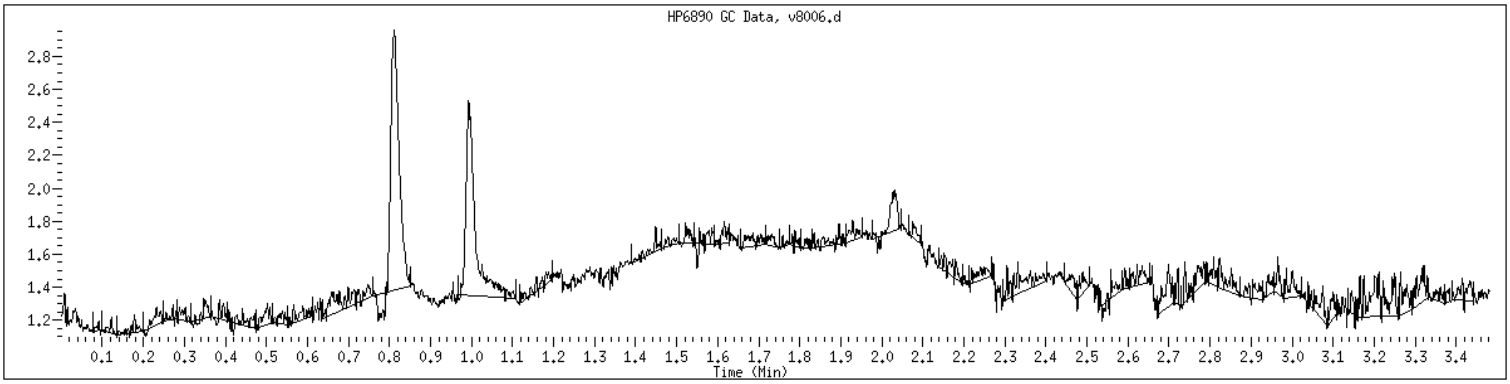


Data File: /var/chem/gcv8b.i/2220222p.b/v8007.d Page 1
Report Date: 23-Feb-2022 09:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220222p.b/v8007.d
Lab Smp Id: 1202
Inj Date : 22-FEB-2022 13:13
Operator : AWE Inst ID: gcv8b.i
Smp Info : 1202
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Meth Date : 23-Feb-2022 09:58 awe Quant Type: ESTD
Cal Date : 22-FEB-2022 13:13 Cal File: v8007.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	1.000	1.000	0.000	5466982	1730.00	1270

Data File: /var/chem/gcv8b.i/2220222p.b/v8007.d

Page 1

Date : 22-FEB-2022 13:13

Client ID:

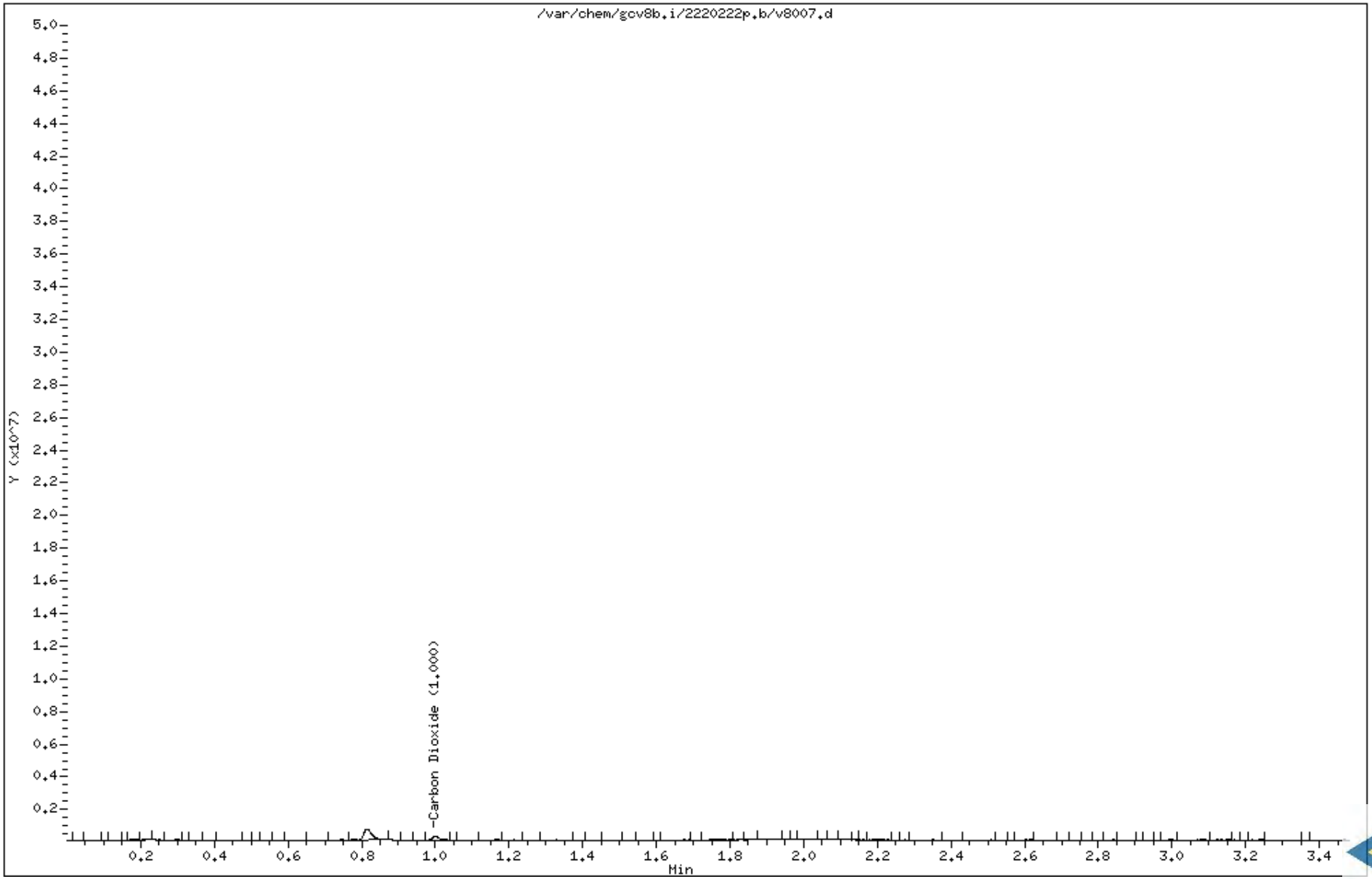
Instrument: gcv8b.i

Sample Info: 1202

Operator: AWE

Column phase: GS-Q-30

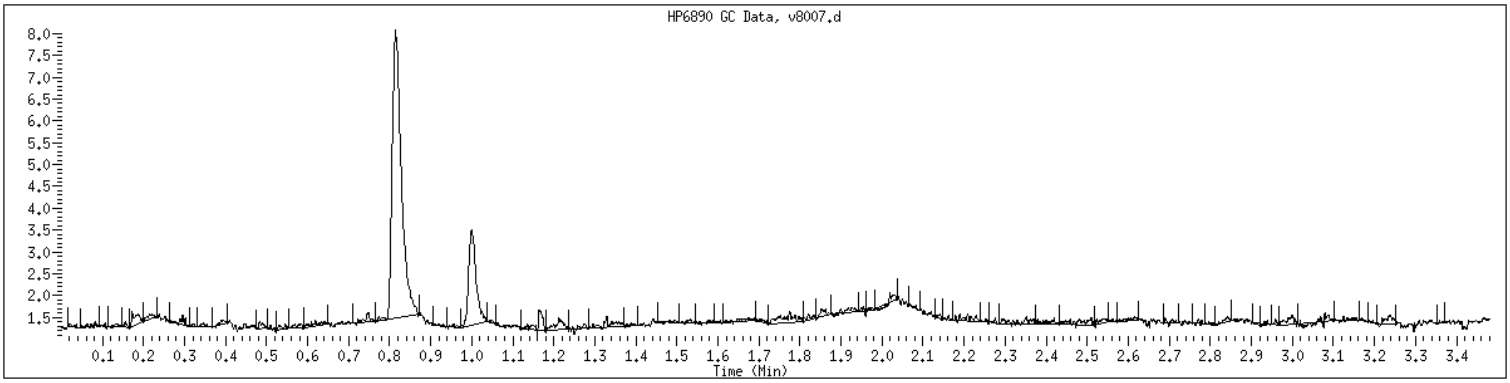
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220222p.b/v8007.d Page: 1
Report Date: 02/23/2022 09:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1202 SampleType : CALIB_2
Injection Date: 02/22/2022 13:13 Instrument : gcv8b.i
Operator : AWE
Sample Info : 1202
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

Data File: /var/chem/gcv8b.i/2220222p.b/v8008.d Page 1
Report Date: 23-Feb-2022 09:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220222p.b/v8008.d
Lab Smp Id: 1203
Inj Date : 22-FEB-2022 13:20
Operator : AWE Inst ID: gcv8b.i
Smp Info : 1203
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Meth Date : 23-Feb-2022 09:58 awe Quant Type: ESTD
Cal Date : 22-FEB-2022 13:20 Cal File: v8008.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.999	0.999	0.000	41833869	8640.00	9750

Data File: /var/chem/gcv8b.i/2220222p.b/v8008.d

Page 1

Date : 22-FEB-2022 13:20

Client ID:

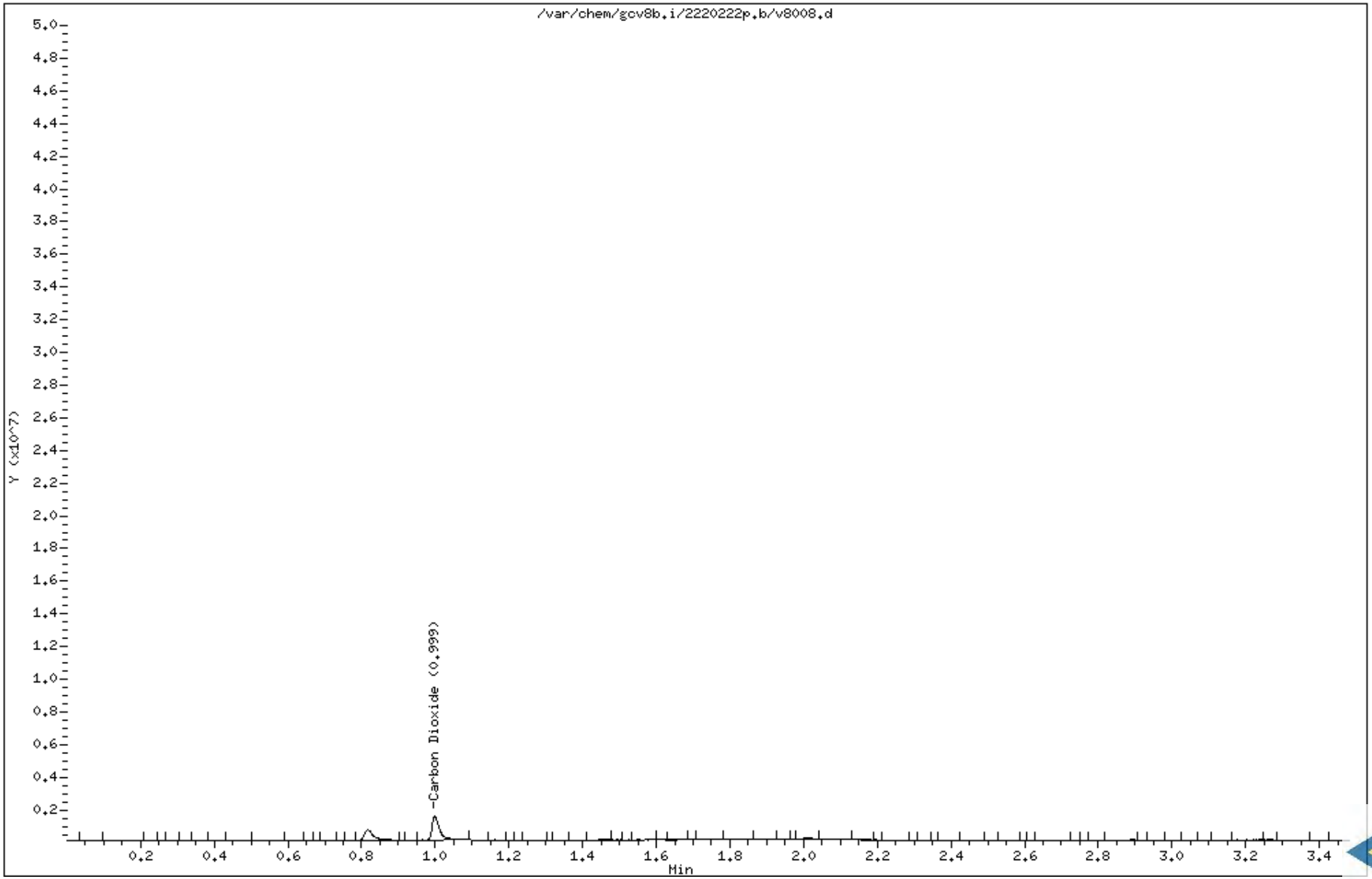
Instrument: gcv8b.i

Sample Info: 1203

Operator: AWE

Column phase: GS-Q-30

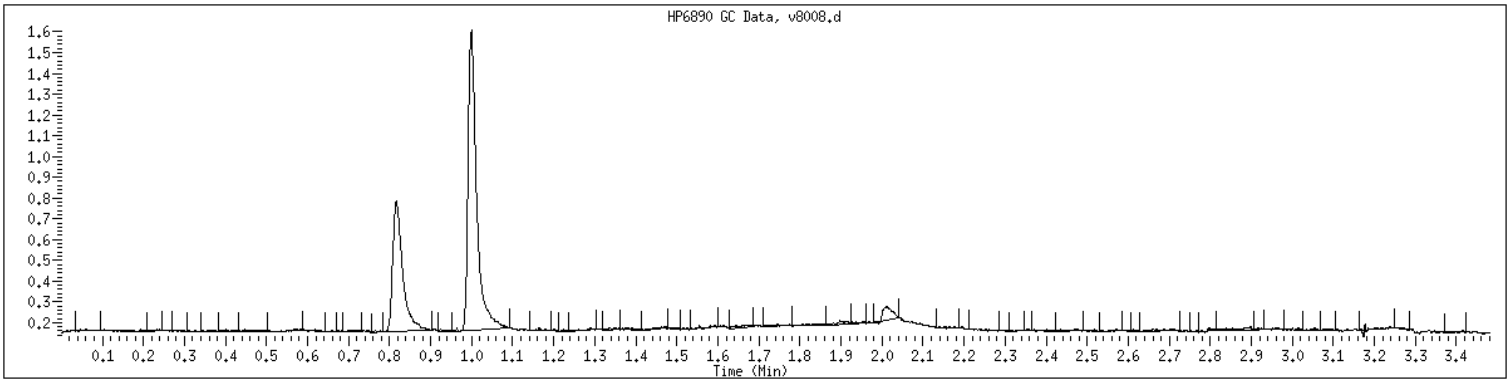
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220222p.b/v8008.d Page: 1
Report Date: 02/23/2022 09:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1203 SampleType : CALIB_3
Injection Date: 02/22/2022 13:20 Instrument : gcv8b.i
Operator : AWE
Sample Info : 1203
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

Data File: /var/chem/gcv8b.i/2220222p.b/v8009.d Page 1
Report Date: 23-Feb-2022 09:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220222p.b/v8009.d
Lab Smp Id: 1204
Inj Date : 22-FEB-2022 13:30
Operator : AWE Inst ID: gcv8b.i
Smp Info : 1204
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Meth Date : 23-Feb-2022 09:58 awe Quant Type: ESTD
Cal Date : 22-FEB-2022 13:30 Cal File: v8009.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
==========	==	======	======	========	=======	=======
1 Carbon Dioxide	0.996	0.996	0.000	61404735	13800.0	14300

Data File: /var/chem/gcv8b.i/2220222p.b/v8009.d

Date : 22-FEB-2022 13:30

Client ID:

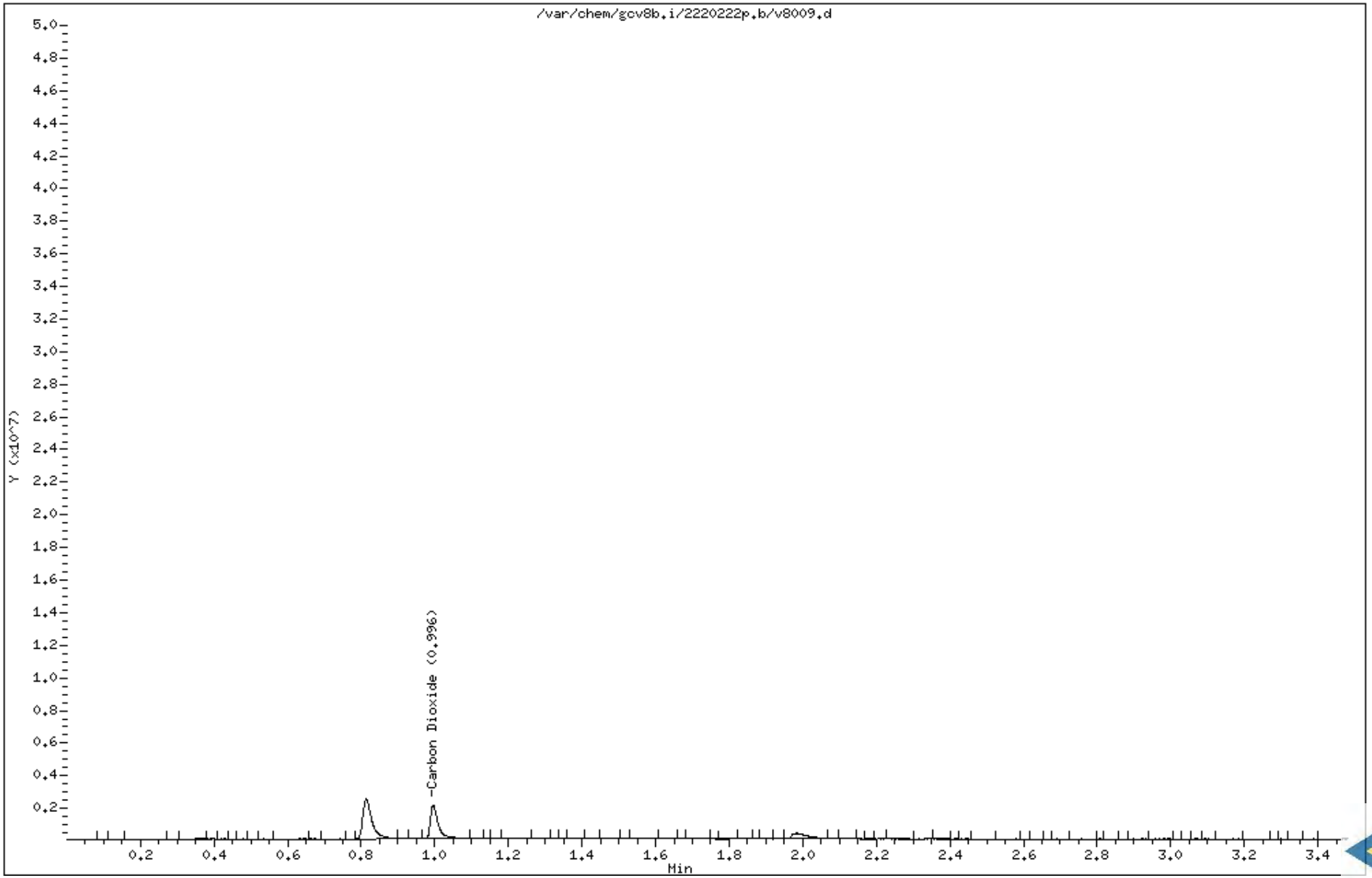
Instrument: gcv8b.i

Sample Info: 1204

Operator: AWE

Column phase: GS-Q-30

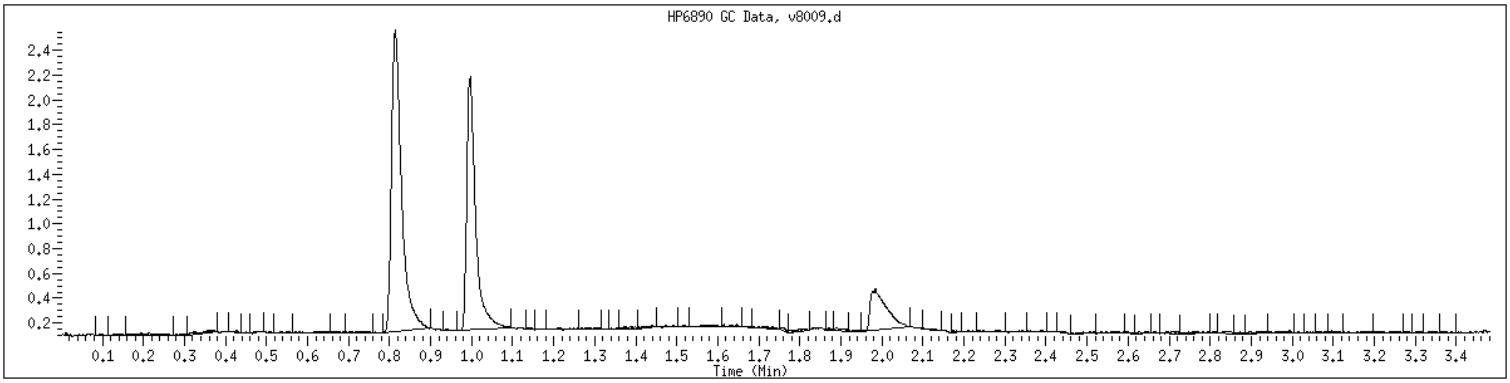
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220222p.b/v8009.d Page: 1
Report Date: 02/23/2022 09:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1204	SampleType	: CALIB_4
Injection Date	: 02/22/2022 13:30	Instrument	: gcv8b.i
Operator	: AWE		
Sample Info	: 1204		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220222p.b/CO2h.m		
Dilution	: 1.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2



NO MANUAL INTEGRATIONS

Data File: /var/chem/gcv8b.i/2220222p.b/v8010.d Page 1
Report Date: 23-Feb-2022 09:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220222p.b/v8010.d
Lab Smp Id: 1205
Inj Date : 22-FEB-2022 13:41
Operator : AWE Inst ID: gcv8b.i
Smp Info : 1205
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Meth Date : 23-Feb-2022 09:58 awe Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.992	0.992	0.000	82144349	17300.0	19100

Data File: /var/chem/gcv8b.i/2220222p.b/v8010.d

Page 1

Date : 22-FEB-2022 13:41

Client ID:

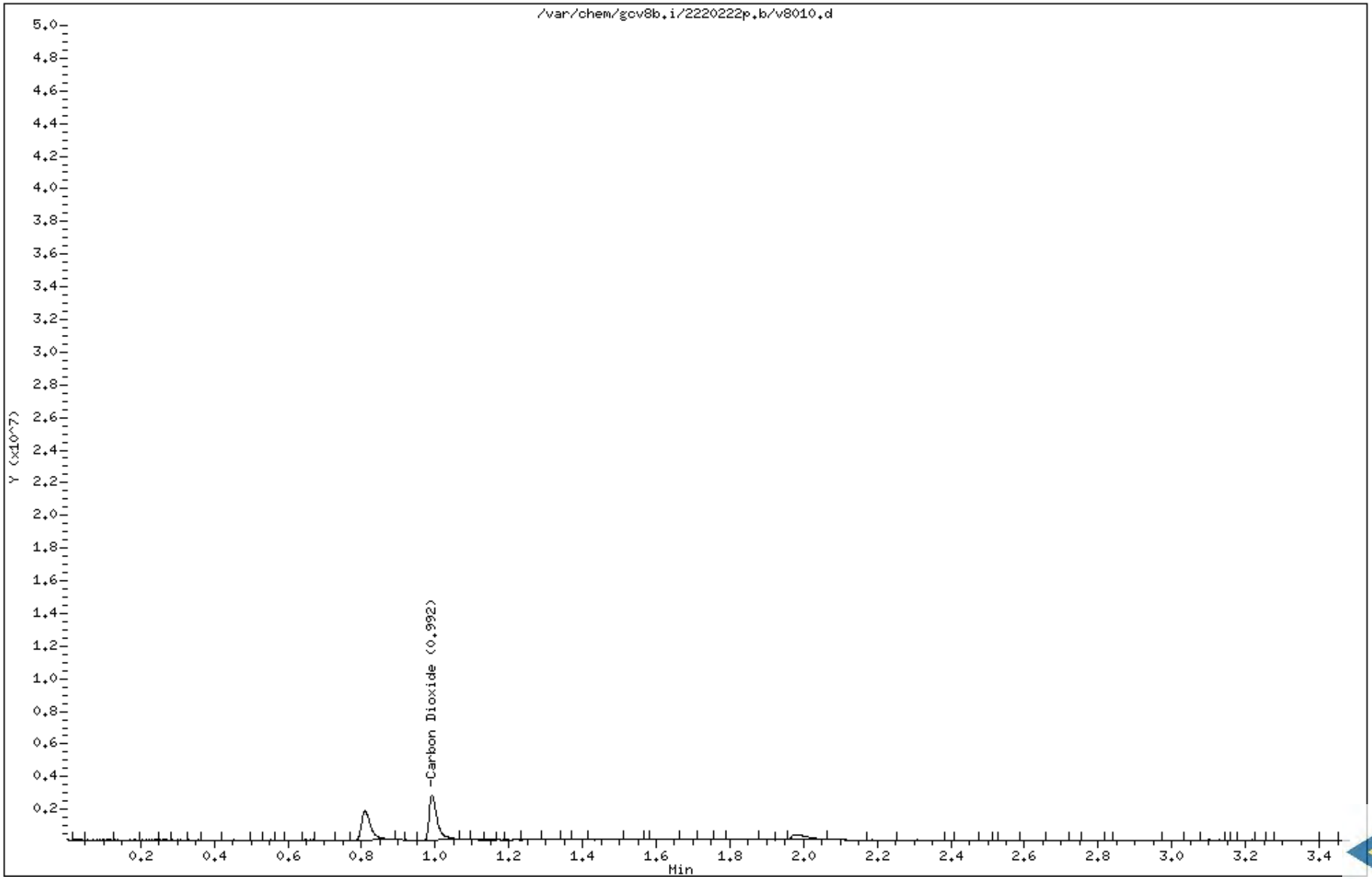
Instrument: gcv8b.i

Sample Info: 1205

Operator: AWE

Column phase: GS-Q-30

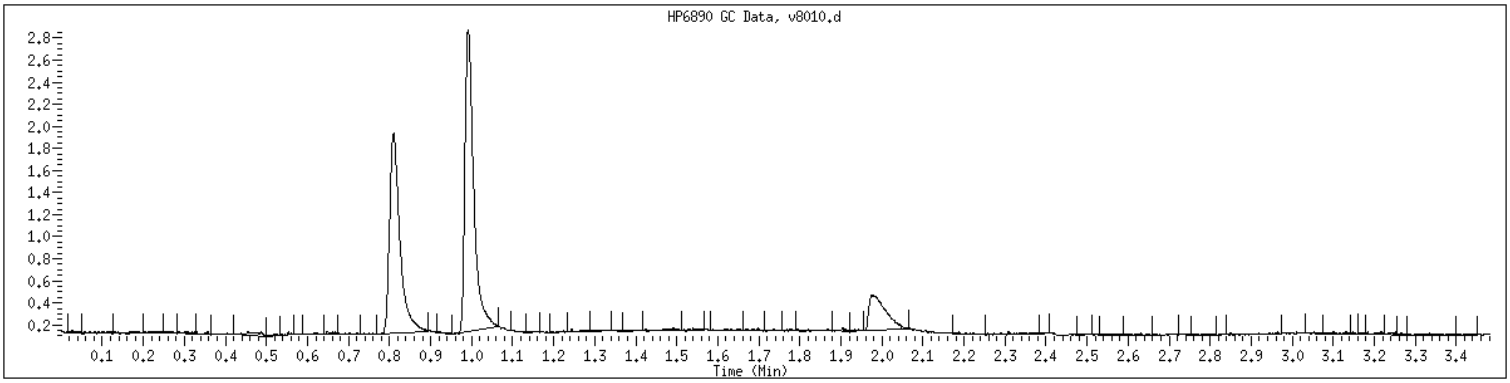
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220222p.b/v8010.d Page: 1
Report Date: 02/23/2022 09:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1205	SampleType	: CALIB_5
Injection Date	: 02/22/2022 13:41	Instrument	: gcv8b.i
Operator	: AWE		
Sample Info	: 1205		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220222p.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:	222062838	Instrument ID:	GCV8B
Analysis Date:	02/22/22 1436	Lab File ID:	2220222p/v8011
Analytical Method:	EPA RSK-175	Analytical Batch:	734177

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*%REC*	*LCL*	*UCL*	*Q*
Carbon Dioxide	ug/L	8700	9480	109	80	120	

Data File: /var/chem/gcv8b.i/2220222p.b/v8011.d Page 1
Report Date: 23-Feb-2022 09:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220222p.b/v8011.d
Lab Smp Id: 1600
Inj Date : 22-FEB-2022 14:36
Operator : AWE Inst ID: gcv8b.i
Smp Info : 1600
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220222p.b/CO2h.m
Meth Date : 23-Feb-2022 09:58 awe Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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	0.996	0.992	0.004	40668641	9478.37	9480

Data File: /var/chem/gcv8b.i/2220222p.b/v8011.d

Date : 22-FEB-2022 14:36

Client ID:

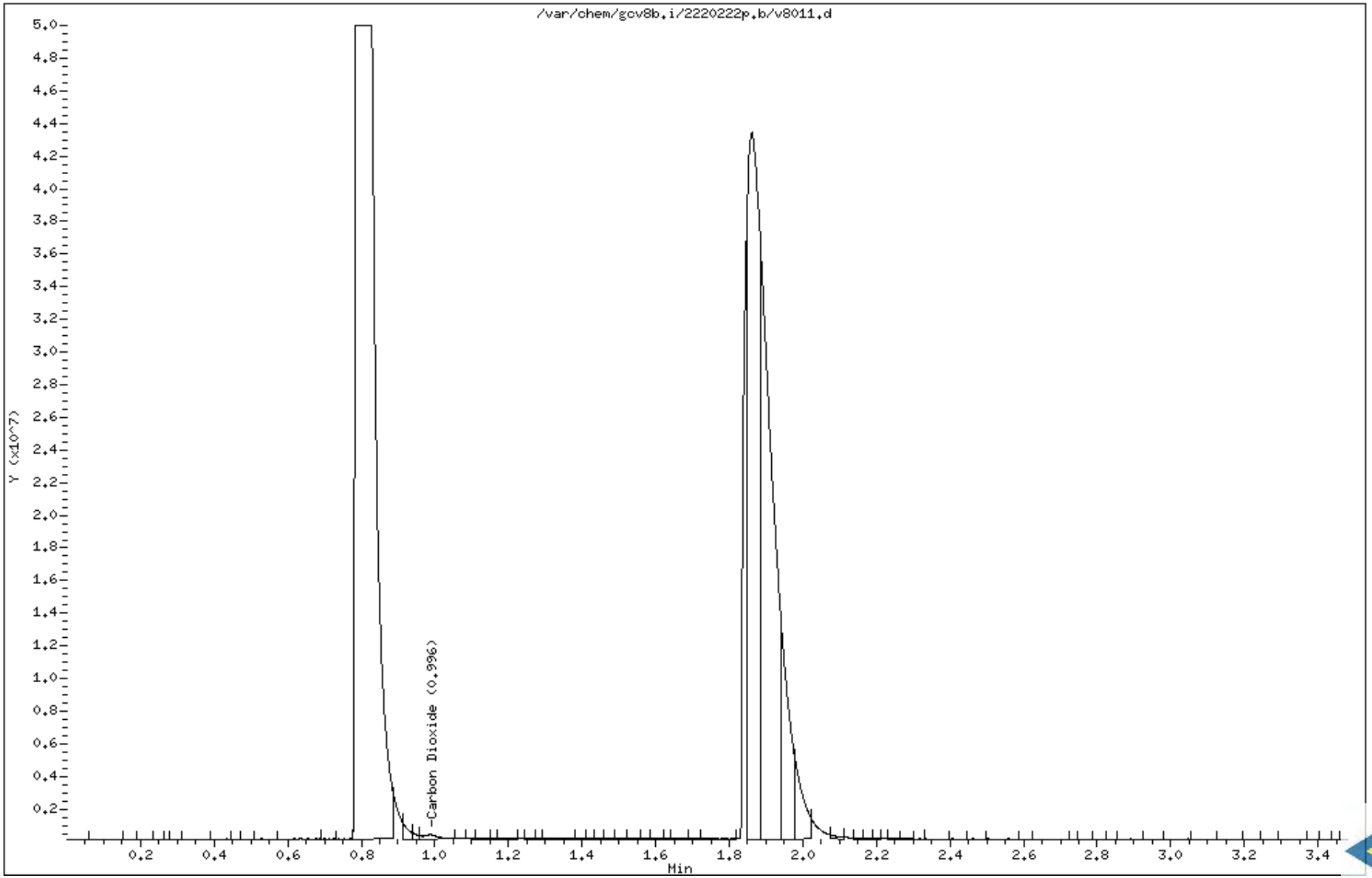
Sample Info: 1600

Instrument: gcv8b.i

Operator: AWE

Column phase: GS-Q-30

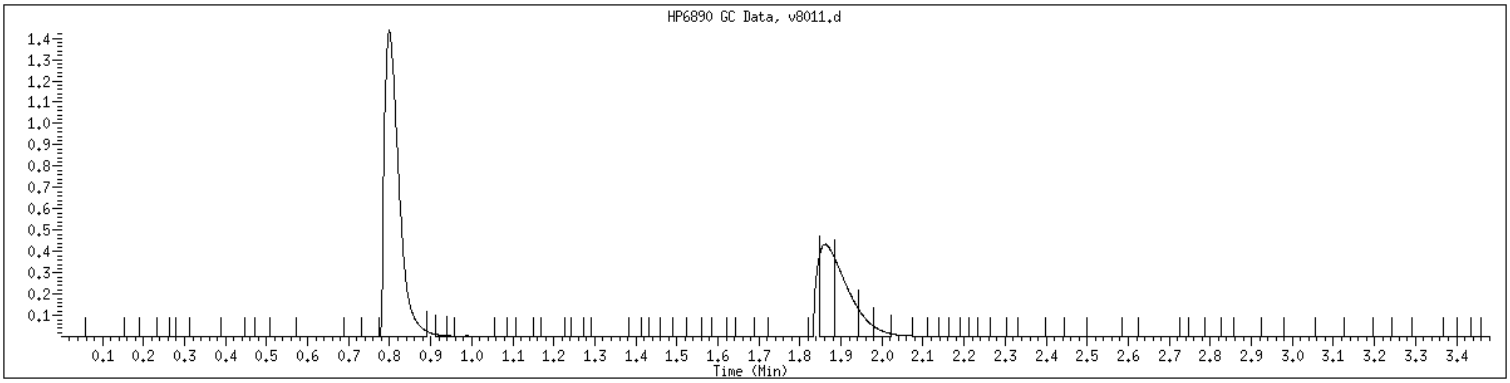
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220222p.b/v8011.d Page: 1
Report Date: 02/23/2022 09:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1600	SampleType	: LCS
Injection Date	: 02/22/2022 14:36	Instrument	: gcv8b.i
Operator	: AWE		
Sample Info	: 1600		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220222p.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:	222062838	CCAL ID:	1400
GC Column:	GS-Q-30 ID .53 (mm)	Instrument ID:	GCV8B
Injection Vol.:	1.0 (µL)	Lab File ID:	2220707/v8013
Init. Calib. Date 1:	02/22/22 Time 1: 1306	Analyst:	BDP
Init. Calib. Date 2:	02/22/22 Time 2: 1341	Analytical Batch:	744842
Analysis Date:	07/07/22 Time: 1010	Analytical Method:	RSK-175

ANALYTE	*RRF*	*RRF CCV*	*%D/%Drift*	*Max %D/ % Drift*	*TYPE*	*Q*
Carbon Dioxide	4291	3752	12.5	20	A	

FORM V II SV

Data File: /var/chem/gcv8b.i/2220707.b/v8013.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8013.d
Lab Smp Id: 1400
Inj Date : 07-JUL-2022 10:10
Operator : BDP Inst ID: gcv8b.i
Smp Info : 1400 CO2
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.991	0.991	0.000	32421142	8640.00	7560

Data File: /var/chem/gcv8b.i/2220707.b/v8013.d

Page 1

Date : 07-JUL-2022 10:10

Client ID:

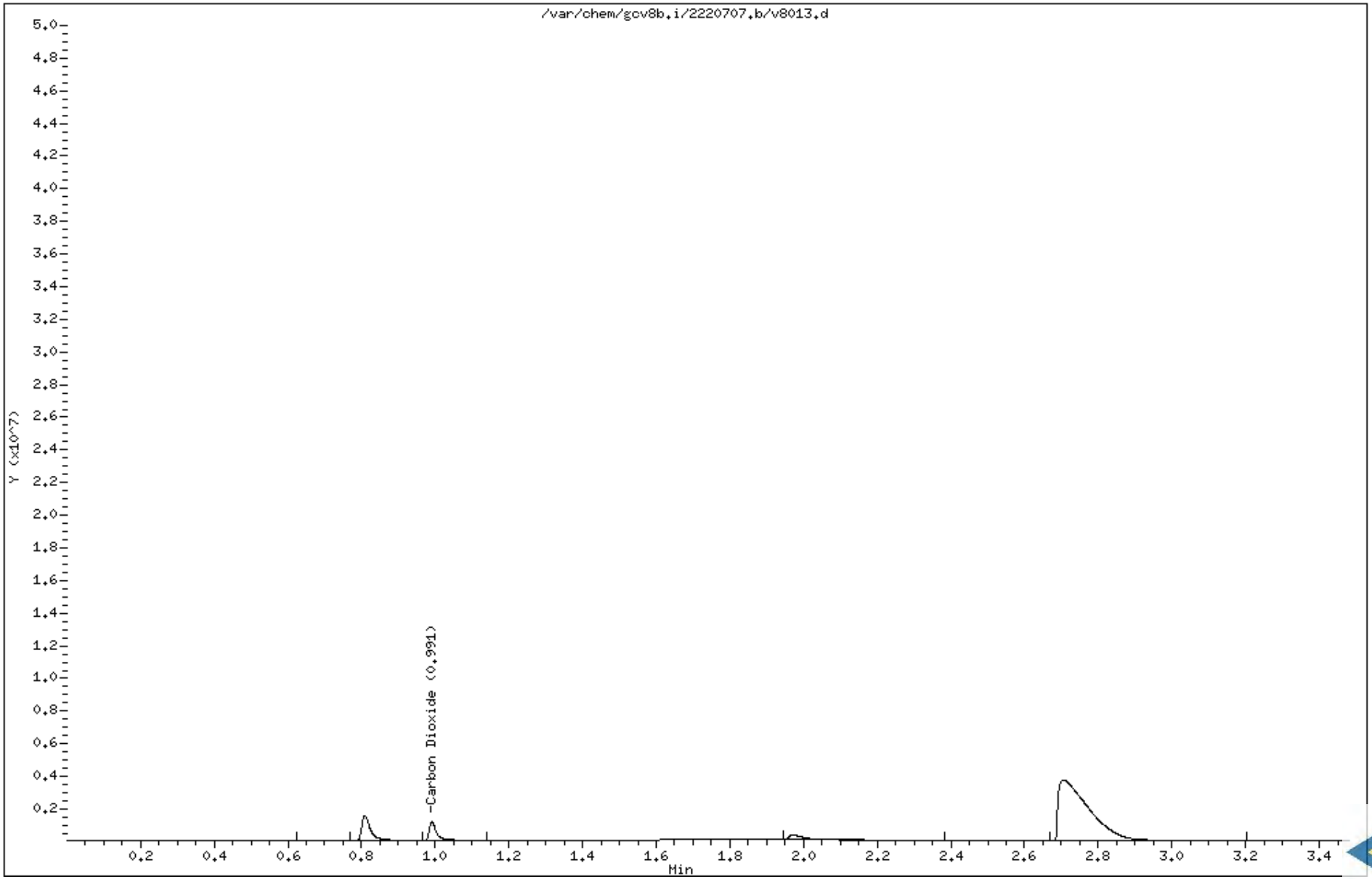
Instrument: gcv8b.i

Sample Info: 1400 CO2

Operator: BDP

Column phase: GS-Q-30

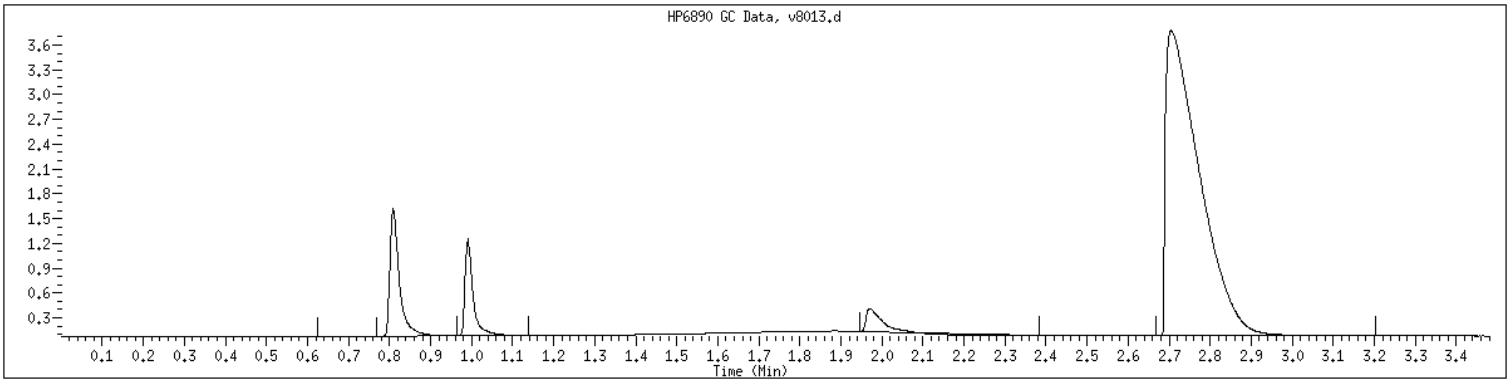
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8013.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1400	SampleType	: CCALIB_3
Injection Date	: 07/07/2022 10:10	Instrument	: gcv8b.i
Operator	: BDP		
Sample Info	: 1400 CO2		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220707.b/CO2h.m		
Dilution	: 1.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2



NO MANUAL INTEGRATIONS

7E

ORGANICS CONTINUING CALIBRATION CHECK

Report No:	222062838			CCAL ID:	1400
GC Column:	GS-Q-30	ID .53	(mm)	Instrument ID:	GCV8B
Injection Vol.:	1.0		(µL)	Lab File ID:	2220707/v8027
Init. Calib. Date 1:	02/22/22	Time 1: 1306		Analyst:	BDP
Init. Calib. Date 2:	02/22/22	Time 2: 1341		Analytical Batch:	744842
Analysis Date:	07/07/22	Time: 1153		Analytical Method:	RSK-175

ANALYTE	*RRF*	*RRF CCV*	*%D/%Drift*	*Max %D/ % Drift*	*TYPE*	*Q*
Carbon Dioxide	4291	3773	12.1	20	A	

FORM V II SV

Data File: /var/chem/gcv8b.i/2220707.b/v8027.d Page 1
Report Date: 07-Jul-2022 13:35

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8027.d
Lab Smp Id: 1400
Inj Date : 07-JUL-2022 11:53
Operator : BDP Inst ID: gcv8b.i
Smp Info : 1400
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 13:35 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	0.968	0.968	0.000	32601112	8640.00	7600

Data File: /var/chem/gcv8b.i/2220707.b/v8027.d

Page 1

Date : 07-JUL-2022 11:53

Client ID:

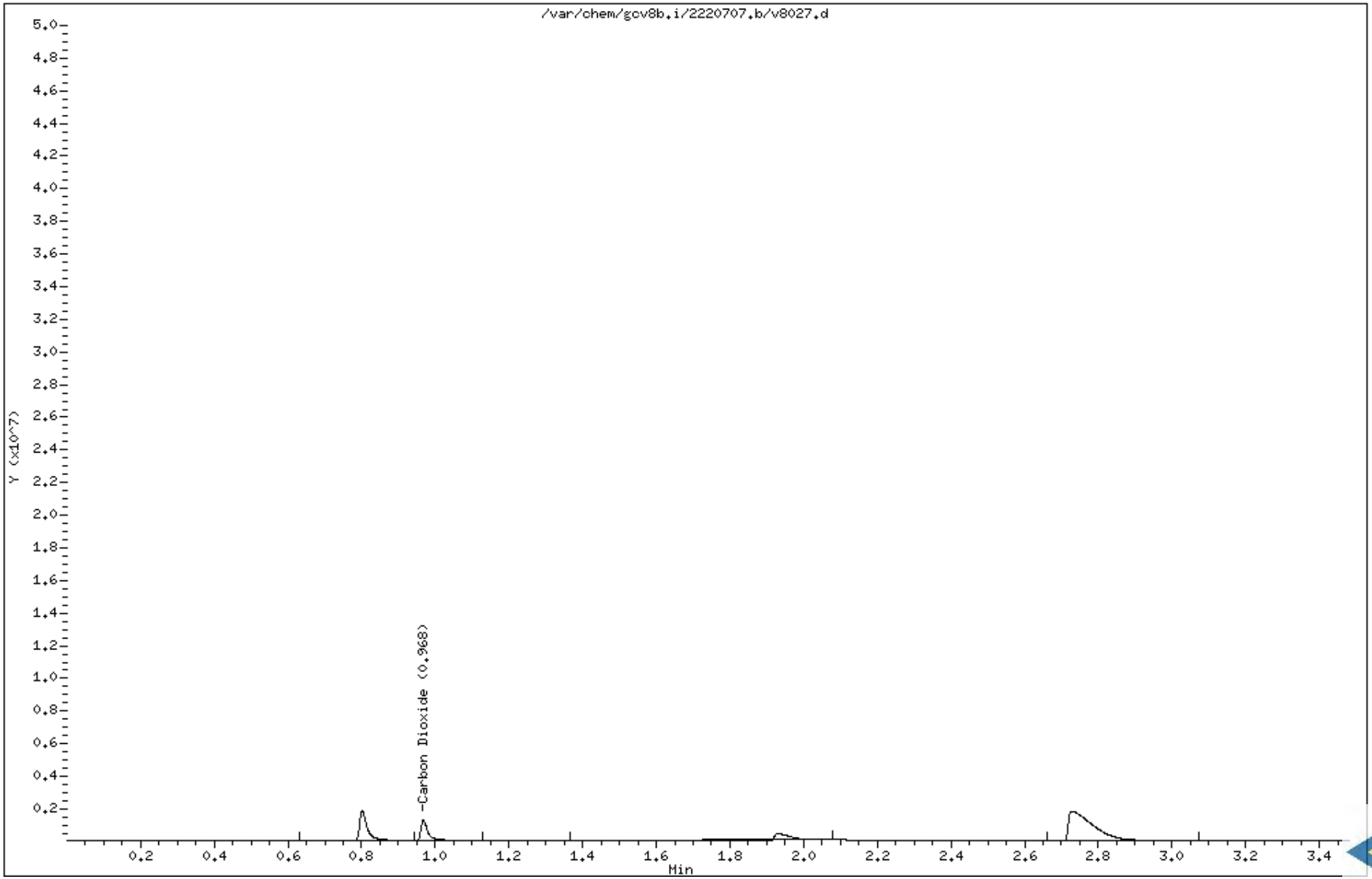
Instrument: gcv8b.i

Sample Info: 1400

Operator: BDP

Column phase: GS-Q-30

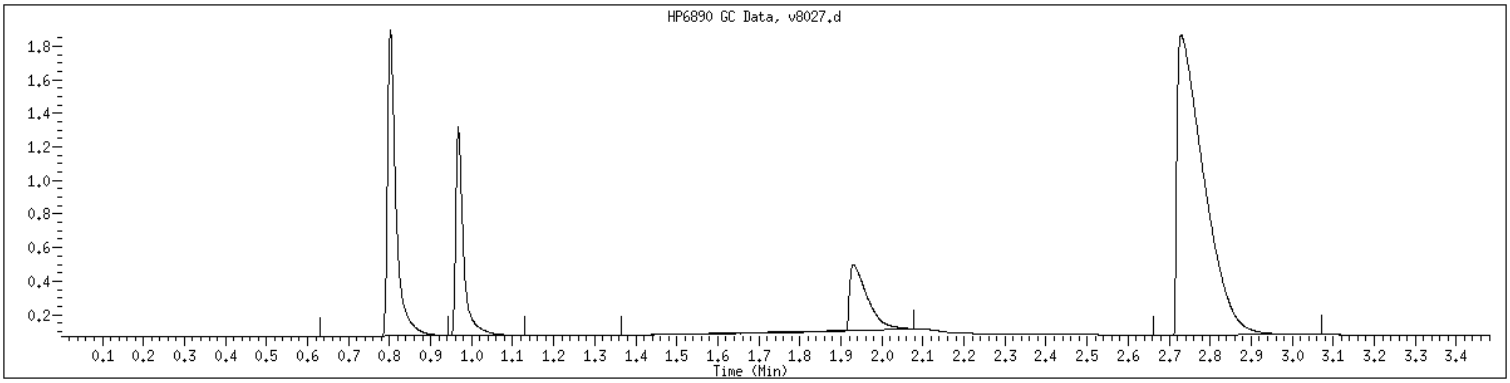
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2220707.b/v8027.d Page: 1
Report Date: 07/07/2022 13:35

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1400	SampleType	: CCALIB_3
Injection Date	: 07/07/2022 11:53	Instrument	: gcv8b.i
Operator	: BDP		
Sample Info	: 1400		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220707.b/CO2h.m		
Dilution	: 1.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2



NO MANUAL INTEGRATIONS

7E

ORGANICS CONTINUING CALIBRATION CHECK

Report No:	222062838			CCAL ID:	1400
GC Column:	GS-Q-30	ID .53	(mm)	Instrument ID:	GCV8B
Injection Vol.:	1.0		(µL)	Lab File ID:	2220707/v8038
Init. Calib. Date 1:	02/22/22	Time 1: 1306		Analyst:	BDP
Init. Calib. Date 2:	02/22/22	Time 2: 1341		Analytical Batch:	744842
Analysis Date:	07/07/22	Time: 1422		Analytical Method:	RSK-175

ANALYTE	*RRF*	*RRF CCV*	*%D/%Drift*	*Max %D/ % Drift*	*TYPE*	*Q*
Carbon Dioxide	4291	4221	1.63	20	A	

FORM V II SV

Data File: /var/chem/gcv8b.i/2220707.b/v8038.d Page 1
Report Date: 07-Jul-2022 14:31

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2220707.b/v8038.d
Lab Smp Id: 1400
Inj Date : 07-JUL-2022 14:22
Operator : BDP Inst ID: gcv8b.i
Smp Info : 1400
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2220707.b/CO2h.m
Meth Date : 07-Jul-2022 14:31 bdp Quant Type: ESTD
Cal Date : 22-FEB-2022 13:41 Cal File: v8010.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

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Carbon Dioxide	1.000	1.000	0.000	36465469	8640.00	8500(M1)

QC Flag Legend

M1- Compound response manually integrated because
Target system did not integrate.

Data File: /var/chem/gcv8b.i/2220707.b/v8038.d

Page 1

Date : 07-JUL-2022 14:22

Client ID:

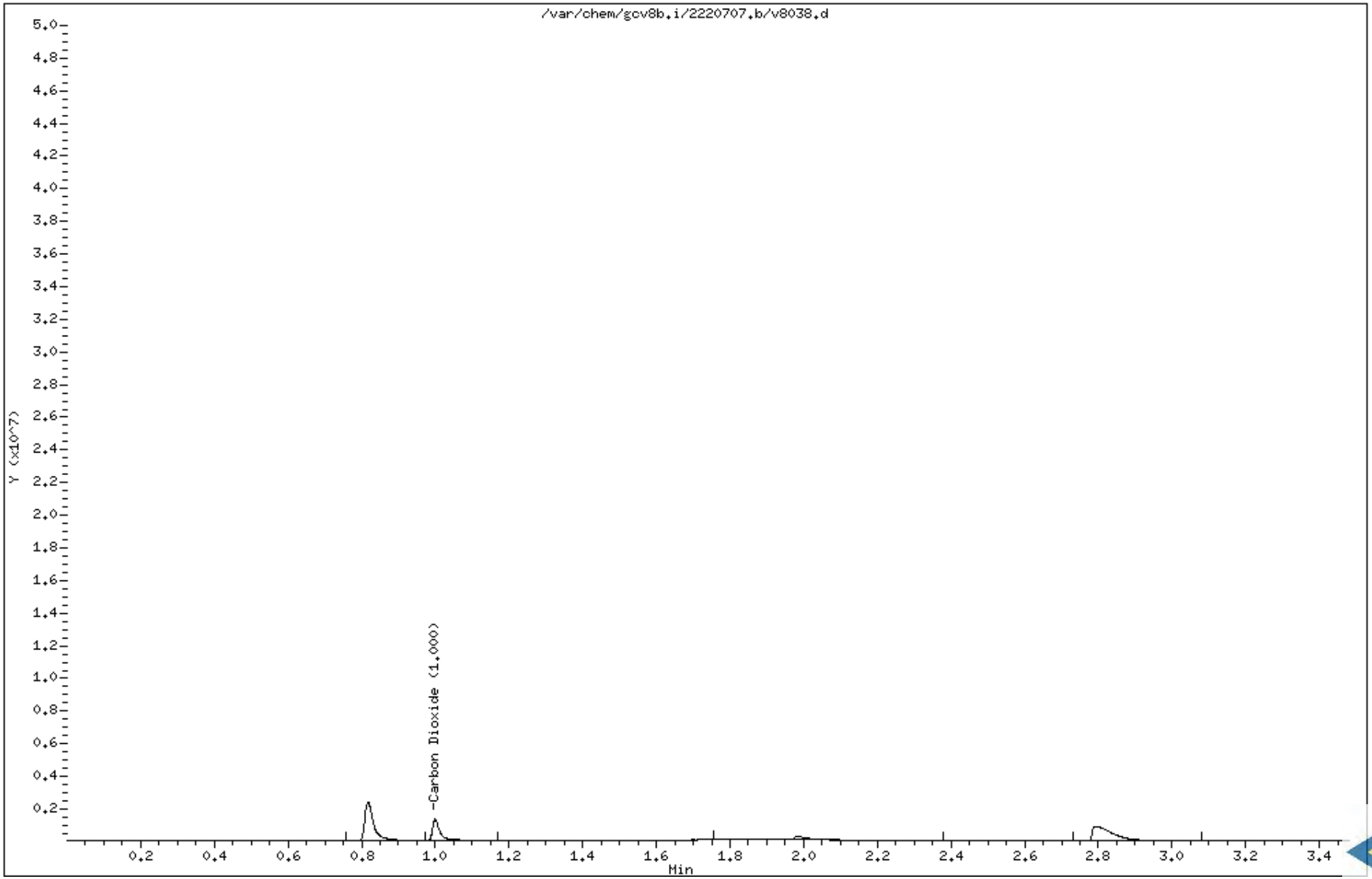
Instrument: gcv8b.i

Sample Info: 1400

Operator: BDP

Column phase: GS-Q-30

Column diameter: 0.53

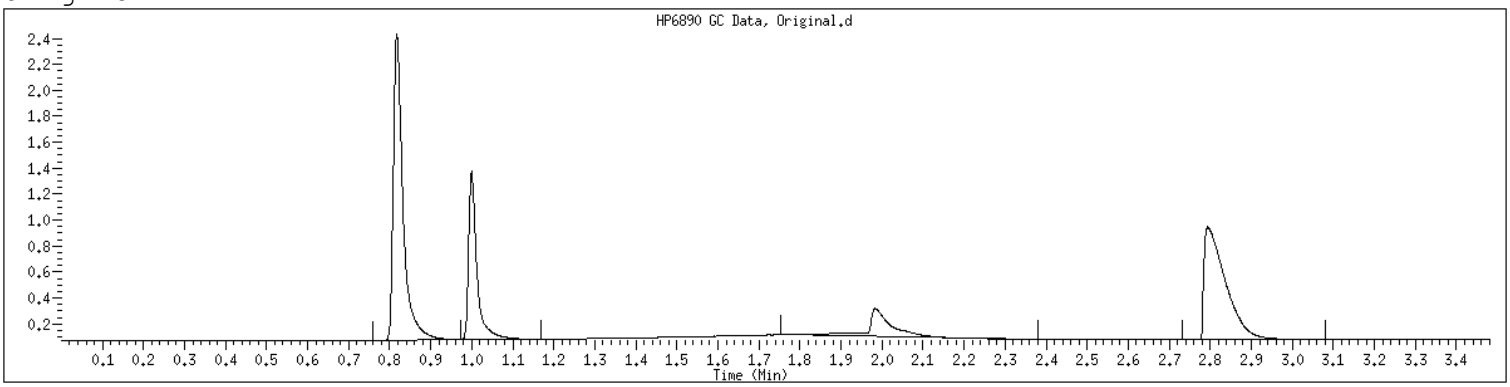


Data file : /var/chem/gcv8b.i/2220707.b/v8038.d Page: 1
Report Date: 07/07/2022 14:31

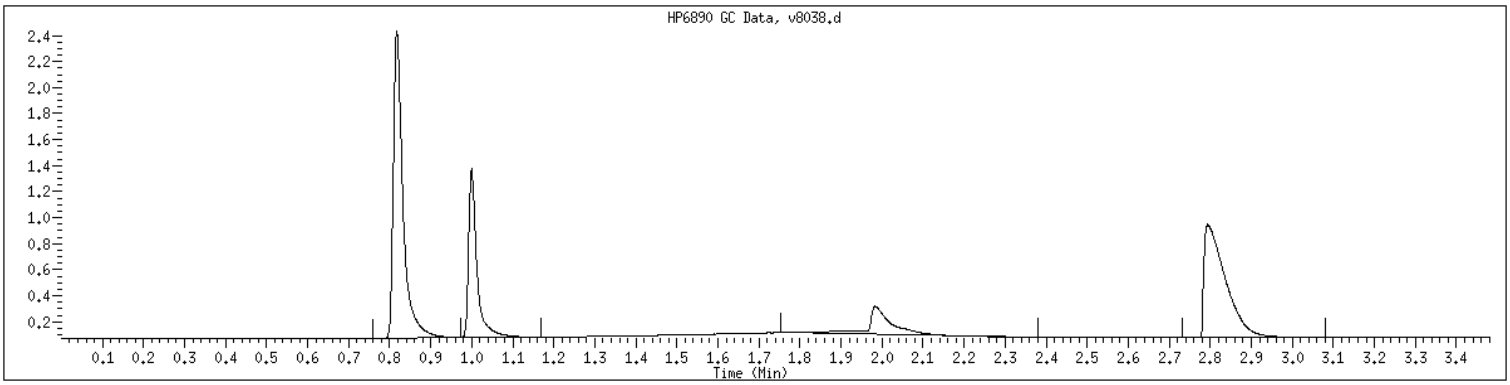
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID	: 1400	SampleType	: CCALIB_3
Injection Date	: 07/07/2022 14:22	Instrument	: gcv8b.i
Operator	: BDP		
Sample Info	: 1400		
Misc Info	: 2125155		
Method	: /var/chem/gcv8b.i/2220707.b/CO2h.m		
Dilution	: 1.0		
Matrix	: WATER		
Integrator	: HP Genie	Compound Sublist	: co2

Original



Final



EPA RSK-175

RunLogs

LABORATORY CHRONICLE: GCV DEPARTMENT

Date: 02/23/2022
Instrument: gcv8b.i
Method File: /var/chem/gcv8b.i/2220222p.b/CO2h.m
Batch: /var/chem/gcv8b.i/2220222p.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	22-FEB-2022 12:03	1.0	AWE	1	co2
1202	CO2h.m	v8002.d	0.00 ml	22-FEB-2022 12:17	1.0	AWE	1	co2
1203	CO2h.m	v8003.d	0.00 ml	22-FEB-2022 12:30	1.0	AWE	1	co2
1204	CO2h.m	v8004.d	0.00 ml	22-FEB-2022 12:37	1.0	AWE	1	co2
1205	CO2h.m	v8005.d	0.00 ml	22-FEB-2022 12:45	1.0	AWE	1	co2
1201	CO2h.m	v8006.d	0.00 ml	22-FEB-2022 13:06	1.0	AWE	1	co2
1202	CO2h.m	v8007.d	0.00 ml	22-FEB-2022 13:13	1.0	AWE	1	co2
1203	CO2h.m	v8008.d	0.00 ml	22-FEB-2022 13:20	1.0	AWE	1	co2
1204	CO2h.m	v8009.d	0.00 ml	22-FEB-2022 13:30	1.0	AWE	1	co2
1205	CO2h.m	v8010.d	0.00 ml	22-FEB-2022 13:41	1.0	AWE	1	co2
1600	CO2h.m	v8011.d	0.00 ml	22-FEB-2022 14:36	1.0	AWE	1	co2
LCS	CO2h.m	v8012.d	0.00 ml	22-FEB-2022 15:37	1.0	AWE	1	co2
LCSD	CO2h.m	v8013.d	0.00 ml	22-FEB-2022 15:47	1.0	AWE	1	co2
LCS	CO2h.m	v8014.d	0.00 ml	22-FEB-2022 16:04	1.0	AWE	1	co2
LCS	CO2h.m	v8015.d	0.00 ml	22-FEB-2022 16:25	1.0	AWE	1	co2
BLANK	CO2h.m	v8016.d	0.00 ml	22-FEB-2022 16:32	1.0	AWE	1	co2
22202093601	CO2h.m	v8017.d	0.00 ml	22-FEB-2022 17:13	10.0	AWE	1	co2
22202093602	CO2h.m	v8018.d	0.00 ml	22-FEB-2022 17:22	10.0	AWE	1	co2
22202093603	CO2h.m	v8019.d	0.00 ml	22-FEB-2022 17:30	10.0	AWE	1	co2
22202093604	CO2h.m	v8020.d	0.00 ml	22-FEB-2022 17:37	10.0	AWE	1	co2
22202093605	CO2h.m	v8021.d	0.00 ml	22-FEB-2022 17:43	10.0	AWE	1	co2
22202093606	CO2h.m	v8022.d	0.00 ml	22-FEB-2022 18:09	1.0	AWE	1	co2
22202093607	CO2h.m	v8023.d	0.00 ml	22-FEB-2022 18:15	1.0	AWE	1	co2
22202106101	CO2h.m	v8024.d	0.00 ml	22-FEB-2022 18:24	50.0	AWE	1	co2
22202106102	CO2h.m	v8025.d	0.00 ml	22-FEB-2022 18:33	50.0	AWE	1	co2
22202106103	CO2h.m	v8026.d	0.00 ml	22-FEB-2022 18:43	50.0	AWE	1	co2
22202106104	CO2h.m	v8027.d	0.00 ml	22-FEB-2022 18:50	50.0	AWE	1	co2
22202106301	CO2h.m	v8028.d	0.00 ml	22-FEB-2022 18:57	50.0	AWE	1	co2
22202106302	CO2h.m	v8029.d	0.00 ml	22-FEB-2022 19:05	50.0	AWE	1	co2
22202106303	CO2h.m	v8030.d	0.00 ml	22-FEB-2022 19:12	1.0	AWE	1	co2
22202106304	CO2h.m	v8031.d	0.00 ml	22-FEB-2022 19:19	1.0	AWE	1	co2
22202106305	CO2h.m	v8032.d	0.00 ml	22-FEB-2022 19:30	1.0	AWE	1	co2
22202106306	CO2h.m	v8033.d	0.00 ml	22-FEB-2022 19:39	1.0	AWE	1	co2
22202106307	CO2h.m	v8034.d	0.00 ml	22-FEB-2022 19:47	1.0	AWE	1	co2
1400	CO2h.m	v8035.d	0.00 ml	22-FEB-2022 19:54	1.0	AWE	1	co2

LABORATORY CHRONICLE: GCV DEPARTMENT

Date: 07/07/2022
Instrument: gcv8b.i
Method File: /var/chem/gcv8b.i/2220707.b/CO2h.m
Batch: /var/chem/gcv8b.i/2220707.b
Column-Detector: GS-Q-30

Sample ID	Method	DataFile	Wgt/Vol	Injection Time	Dil	Anal	ALS	Comments
1400	CO2h.m	v8011.d	0.00 ml	07-JUL-2022 09:55	1.0	BDP	1	co2
1400	CO2h.m	v8012.d	0.00 ml	07-JUL-2022 10:03	1.0	BDP	1	co2
1400	CO2h.m	v8013.d	0.00 ml	07-JUL-2022 10:10	1.0	BDP	1	co2
2367944	CO2h.m	v8014.d	0.00 ml	07-JUL-2022 10:19	1.0	BDP	1	co2
2367945	CO2h.m	v8015.d	0.00 ml	07-JUL-2022 10:24	1.0	BDP	1	co2
2367943	CO2h.m	v8016.d	0.00 ml	07-JUL-2022 10:29	1.0	BDP	1	co2
22206283501	CO2h.m	v8017.d	0.00 ml	07-JUL-2022 10:38	1.0	BDP	1	co2
22206283501	CO2h.m	v8018.d	0.00 ml	07-JUL-2022 10:43	10.0	BDP	1	co2
22206283502	CO2h.m	v8019.d	0.00 ml	07-JUL-2022 10:52	10.0	BDP	1	co2
22206283503	CO2h.m	v8020.d	0.00 ml	07-JUL-2022 11:06	10.0	BDP	1	co2
22206283801	CO2h.m	v8021.d	0.00 ml	07-JUL-2022 11:11	10.0	BDP	1	co2
22206283802	CO2h.m	v8022.d	0.00 ml	07-JUL-2022 11:21	10.0	BDP	1	co2
22206283802	CO2h.m	v8023.d	0.00 ml	07-JUL-2022 11:28	30.0	BDP	1	co2
22206283803	CO2h.m	v8024.d	0.00 ml	07-JUL-2022 11:34	30.0	BDP	1	co2
22206283804	CO2h.m	v8025.d	0.00 ml	07-JUL-2022 11:41	30.0	BDP	1	co2
22206283805	CO2h.m	v8026.d	0.00 ml	07-JUL-2022 11:48	30.0	BDP	1	co2
1400	CO2h.m	v8027.d	0.00 ml	07-JUL-2022 11:53	1.0	BDP	1	co2
22206283806	CO2h.m	v8028.d	0.00 ml	07-JUL-2022 12:00	30.0	BDP	1	co2
22206251701	CO2h.m	v8029.d	0.00 ml	07-JUL-2022 12:11	30.0	BDP	1	co2
22206251702	CO2h.m	v8030.d	0.00 ml	07-JUL-2022 12:19	30.0	BDP	1	co2
22206251703	CO2h.m	v8031.d	0.00 ml	07-JUL-2022 13:14	30.0	BDP	1	co2
22206251704	CO2h.m	v8032.d	0.00 ml	07-JUL-2022 13:21	30.0	BDP	1	co2
22206251705	CO2h.m	v8033.d	0.00 ml	07-JUL-2022 13:28	30.0	BDP	1	co2
22206251706	CO2h.m	v8034.d	0.00 ml	07-JUL-2022 13:35	30.0	BDP	1	co2
22206283601	CO2h.m	v8035.d	0.00 ml	07-JUL-2022 13:47	30.0	BDP	1	co2
22206283601	CO2h.m	v8036.d	0.00 ml	07-JUL-2022 13:53	10.0	BDP	1	co2
22206283602	CO2h.m	v8037.d	0.00 ml	07-JUL-2022 14:08	10.0	BDP	1	co2
1400	CO2h.m	v8038C.d	0.00 ml	07-JUL-2022 14:22	1.0	BDP	1	co2
1400	CO2h.m	v8038.d	0.00 ml	07-JUL-2022 14:22	1.0	BDP	1	co2
2368099	CO2h.m	v8039.d	0.00 ml	07-JUL-2022 14:27	1.0	BDP	1	co2
2368100	CO2h.m	v8040.d	0.00 ml	07-JUL-2022 14:35	1.0	BDP	1	co2
2368098	CO2h.m	v8041.d	0.00 ml	07-JUL-2022 14:42	1.0	BDP	1	co2
22206283603	CO2h.m	v8042.d	0.00 ml	07-JUL-2022 14:48	10.0	BDP	1	co2
22206283603	CO2h.m	v8043.d	0.00 ml	07-JUL-2022 14:54	1.0	BDP	1	co2
22206283604	CO2h.m	v8044.d	0.00 ml	07-JUL-2022 14:59	1.0	BDP	1	co2
22206283604	CO2h.m	v8045.d	0.00 ml	07-JUL-2022 15:07	10.0	BDP	1	co2

LABORATORY CHRONICLE: GCV DEPARTMENT

Date: 07/07/2022
Instrument: gcv8b.i
Method File: /var/chem/gcv8b.i/2220707.b/CO2h.m
Batch: /var/chem/gcv8b.i/2220707.b
Column-Detector: GS-Q-30

Sample ID	Method	DataFile	Wgt/Vol	Injection Time	Dil	Anal	ALS	Comments
22206251301	CO2h.m	v8046.d	0.00 ml	07-JUL-2022 15:13	10.0	BDP	1	co2
22206251301	CO2h.m	v8047.d	0.00 ml	07-JUL-2022 15:20	1.0	BDP	1	co2
22206251302	CO2h.m	v8048.d	0.00 ml	07-JUL-2022 15:26	1.0	BDP	1	co2
22206251302	CO2h.m	v8049.d	0.00 ml	07-JUL-2022 15:34	10.0	BDP	1	co2
22206251303	CO2h.m	v8050.d	0.00 ml	07-JUL-2022 15:40	1.0	BDP	1	co2
1400	CO2h.m	v8051.d	0.00 ml	07-JUL-2022 15:45	1.0	BDP	1	co2
22206251304	CO2h.m	v8052.d	0.00 ml	07-JUL-2022 15:51	10.0	BDP	1	co2
22206307201	CO2h.m	v8053.d	0.00 ml	07-JUL-2022 15:58	10.0	BDP	1	co2
1400	CO2h.m	v8054.d	0.00 ml	07-JUL-2022 16:03	1.0	BDP	1	co2

Client ID: ALS Houston - ALS Environmental - Houston, TX

SDG: 222062838

PM: RWe

F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Dept of Defense **COC ID:** 19036

SUBCONTRACT TO:

Pace Analytical
7979 Innovation Park Drive
Baton Rouge, LA 70820

Phone: +1 225 769 4900

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Dane J. Wacasey
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Dane.Wacasey@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS22061313
TSR:	Ron Martino

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE	
1.	HS22061313-01	16WW58-220623	Groundwater	23 Jun 2022 07:00	1
	SUB_RSK			11 Jul 2022	
2.	HS22061313-02	16WW57-220623	Groundwater	23 Jun 2022 07:45	2
	SUB_RSK			11 Jul 2022	
3.	HS22061313-03	16IW10-220623	Groundwater	23 Jun 2022 08:40	3
	SUB_RSK			11 Jul 2022	
4.	HS22061313-04	16IW09-220623	Groundwater	23 Jun 2022 09:30	4
	SUB_RSK			11 Jul 2022	
5.	HS22061313-05	16IW20-220623	Groundwater	23 Jun 2022 10:25	5
	SUB_RSK			11 Jul 2022	
6.	HS22061313-06	16WW55-220623	Groundwater	23 Jun 2022 11:15	6
	SUB_RSK			11 Jul 2022	

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19036**

Relinquished By: _____ Date/Time: 6.27.22 1800

Received By: Fedex Date/Time: _____

Fedex 4/28/22 0.8 Cooler ID(s): Tyleen Smith 4/28/22 #42 0.8 Temperature(s): _____

5789 1994 8805

Client ID: ALS Houston - ALS Environmental - Houston, TX

SDG: 222062838

PM: RWe

Pace Analytical®

SAMPLE RECEIVING CHECKLIST

222062838

SAMPLE DELIVERY GROUP 222062838	
Client **PM** RWe ALS Houston - ALS Environmental - Houston, TX	**Transport Method** FEDEX
Profile Number 296429	**Received By** Perkins, Brennan
Line Item(s) 1 - CO2	**Receive Date(s)** 06/28/22

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: E42	Temp °C
		0.8

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Page 1 of 1

HS22061313 - Sub Perch IV Report (E2200604)

ALS WO# HS22061313

July 14, 2022 Service Request No:E2200604

Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS22061313

Dear Dane,

Enclosed are the results of the sample(s) submitted to our laboratory June 24, 2022
For your reference, these analyses have been assigned our service request number **E2200604.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS	**Service Request No.:**	E2200604
Project:	HS22061313	**Date Received:**	06/24/22
Sample Matrix:	GW		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 06/24/22.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2200262: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS-DLCS recoveries met acceptance criteria. The

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2200604
Project: HS22061313

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2200604-001	16WW58-220623	6/23/2022	0700
E2200604-002	16WW57-220623	6/23/2022	0745
E2200604-003	16IW10-220623	6/23/2022	0840
E2200604-004	16IW09-220623	6/23/2022	0930
E2200604-005	16IW20-220623	6/23/2022	1025
E2200604-006	16WW55-220623	6/23/2022	1115
E2200604-007	16EW04-220623	6/23/2022	1205
E2200604-008	16EW08-220623	6/23/2022	1245

Service Request Summary

Folder #: **E2200604**
Client Name: ALS Environmental - US
Project Name: HS22061313
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/24/22
Internal Due Date: 7/11/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061313
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2200604-001	16WW58-220623	Ground Water	06/23/22 0700	**IV**
E2200604-002	16WW57-220623	Ground Water	06/23/22 0745	**IV**
E2200604-003	16IW10-220623	Ground Water	06/23/22 0840	**IV**
E2200604-004	16IW09-220623	Ground Water	06/23/22 0930	**IV**
E2200604-005	16IW20-220623	Ground Water	06/23/22 1025	**IV**
E2200604-006	16WW55-220623	Ground Water	06/23/22 1115	**IV**
E2200604-007	16EW04-220623	Ground Water	06/23/22 1205	**IV**
E2200604-008	16EW08-220623	Ground Water	06/23/22 1245	**IV**

Service Request Summary

Folder #: **E2200604**
Client Name: ALS Environmental - US
Project Name: HS22061313
Project Number:

Report To: Dane Wacasey
ALS Group USA, Corp.
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-575-2190
Cell Number:
Fax Number: 281-530-5887
E-mail: dane.wacasey@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 06/24/22
Internal Due Date: 7/11/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS22061313
EDD: EQUIS
EFWEDD_LHAAP

8 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	8	IV due 7/18

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	(Auto) The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.

Data Qualifiers

Lab Standard

N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2023
California Department of Health Services	2919-2023	4/30/2023
Department of Defense	L22-90	3/31/2024
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Florida Department of Health	E87611-35	6/30/2023
Hawaii Department of Health	2022	4/30/2023
Illinois Environmental Protection Agency	2000322022-9	5/9/2023
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2022	6/30/2023
Louisiana Department of Health and Hospitals	LA028	12/31/2022
Maine Department of Health and Human Services	2022017	6/5/2024
Maryland Department of the Environment	343	6/30/2023
Michigan Depratment of Environmental Quality	9971-2022	4/30/2023
Minnesota Department of Health	2228443	12/31/2022
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2023
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209422	4/24/2023
New Jersey Department of Environmental Protection	TX008-2023	6/30/2023
New York Department of Health	11707	3/31/2023
Oklahoma Department of Environmental Quality	2021-080	8/31/2022
Oregon Environmental Laboratory Accreditation Program	TX200002	5/15/2023
Pennsylvania Department of Environmental Protection	68-03441-016	6/30/2023
Perry Johnson Laboratory Accreditation	L22-91	3/31/2024
Tennessee Department of Environment and Concervation	04016-2022	4/30/2023
Texas Commision on Environmental Quality	T104704231-22-29	4/30/2023
United States Department of Agriculture	P330-19-00299	10/10/2022
Utah Department of Health Environmental Laboratory Certification	TX026932021-12	7/31/2022
Washington Department of Health	C819-2022	11/14/2022

Chain of Custody

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19037**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Dane J. Wacasey
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	Dane.Wacasey@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS22061313
TSR:	Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS22061313-01**	**16WW58-220623**	**Groundwater**	**23 Jun 2022 07:00**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
2.	**HS22061313-02**	**16WW57-220623**	**Groundwater**	**23 Jun 2022 07:45**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
3.	**HS22061313-03**	**16IW10-220623**	**Groundwater**	**23 Jun 2022 08:40**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
4.	**HS22061313-04**	**16IW09-220623**	**Groundwater**	**23 Jun 2022 09:30**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
5.	**HS22061313-05**	**16IW20-220623**	**Groundwater**	**23 Jun 2022 10:25**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
6.	**HS22061313-06**	**16WW55-220623**	**Groundwater**	**23 Jun 2022 11:15**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
7.	**HS22061313-07**	**16EW04-220623**	**Groundwater**	**23 Jun 2022 12:05**
	Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022
8.	**HS22061313-08**	**16EW08-220623**	**Groundwater**	**23 Jun 2022 12:45**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **19037**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
Level II and Level IV reports on a seperate pdf. Send WOA to Vicki Graves.			11 Jul 2022

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 6.24.22 1720

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist CG

Client/Project ALS-H

Thermometer ID IR41

Date/Time Received: 6-4-22 Initials: CG Date/Time Logged in: 6-4-22 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ◉ Courier (ALS) ○ Client

2. Samples received in: ◉ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ◉ No — If yes, how many and where?
   Were they intact? ○ Yes ○ No ◉ N/A
   Were they signed and dated? ○ Yes ○ No ◉ N/A

4. Packing Material: ○ Inserts ◉ Baggies ○ Bubble Wrap ○ Gel Packs ◉ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		6-4-22	1720	CG	2.1°C	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ◉ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ◉ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ◉ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ◉ Yes ○ No
10. Did sample labels and tags agree with custody documents? ◉ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

HS-HRMSCoolerReceipt R1.0

ALS Environmental - Houston HRMS

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Preparation Information Benchsheet

Prep Run#: 401984 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 6/28/22 11:30

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2200604-001	16WW58-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2200604-002	16WW57-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2200604-003	16IW10-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2200604-004	16IW09-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2200604-005	16IW20-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2200604-006	16WW55-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2200604-007	16EW04-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2200604-008	16EW08-220623	.01	6850/ClO4 DOD			Ground Water	10mL	
9	EQ2200262-01	MB		6850/ClO4 DOD			Liquid	10mL	
10	EQ2200262-02	LCS		6850/ClO4 DOD			Liquid	10mL	
11	EQ2200262-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 222798 Logbook Ref: Perchlorate (1st Source) Expires On: 10/29/2022

EQ2200262-02 1.00µL EQ2200262-03 1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 223118 Logbook Ref: Perchlorate Internal Standard Expires On: 10/31/2022

E2200604-001 100.00µL E2200604-002 100.00µL E2200604-003 100.00µL E2200604-004 100.00µL E2200604-005 100.00µL E2200604-006 100.00µL
E2200604-007 100.00µL E2200604-008 100.00µL EQ2200262-01 100.00µL EQ2200262-02 100.00µL EQ2200262-03 100.00µL

Preparation Materials

Water HPLC Grade	5/12/2022 Water (223055)	6850 Amber Glass screw vial	2mL Screw Top Vial (221894)	537M Glass Culture Tubes	537M Glass Tubes (218064)
6850 0.45um syringe filters	6850 Syringe Filters (219639)	6850 Pipette Tips 50-1000 uL	6850 Pipette Tips (221929)	6850 Luer-Lok Syringes	Luer-Lok Syringes (221305)

Preparation Steps

Step: Preparation
Started: 6/28/22 11:30
Finished: 6/28/22 11:45
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 6/28/22

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0700
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16WW58-220623	**Units:**	µg/L
Lab Code:	E2200604-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/5/22 15:17	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0745
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16WW57-220623	**Units:**	µg/L
Lab Code:	E2200604-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.138**		0.100	0.0500	0.0250	1	6/28/22	7/5/22 15:56	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0840
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16IW10-220623	**Units:**	µg/L
Lab Code:	E2200604-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.108**		0.100	0.0500	0.0250	1	6/28/22	7/6/22 13:52	401984	769646	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 0930
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16IW09-220623	**Units:**	µg/L
Lab Code:	E2200604-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.124**		0.100	0.0500	0.0250	1	6/28/22	7/5/22 16:39	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1025
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16IW20-220623	**Units:**	µg/L
Lab Code:	E2200604-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0415**	J	0.100	0.0500	0.0250	1	6/28/22	7/6/22 14:18	401984	769646	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1115
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16WW55-220623	**Units:**	µg/L
Lab Code:	E2200604-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**147**		1.00	0.500	0.250	10	6/28/22	7/5/22 17:03	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1205
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16EW04-220623	**Units:**	µg/L
Lab Code:	E2200604-007	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/6/22 12:56	401984	769646	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	6/23/22 1245
Sample Matrix:	Ground Water	**Date Received:**	6/24/22
Sample Name:	16EW08-220623	**Units:**	µg/L
Lab Code:	E2200604-008	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/5/22 17:19	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2200262-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	6/28/22	7/5/22 14:22	401984	769552	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313
Sample Matrix: Ground Water

Service Request: E2200604
Date Analyzed: 7/ 5/22

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 401984

	Lab Control Sample EQ2200262-02			Duplicate Lab Control Sample EQ2200262-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.101	0.100	101	0.0980	0.100	98	84 - 119	3	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200262-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.101**		0.100	0.0500	0.0250	1	6/28/22	7/5/22 14:37	401984	769552	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2200262-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0980**	J	0.100	0.0500	0.0250	1	6/28/22	7/5/22 15:09	401984	769552	

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20220601

1st Review: GRivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 6/1/2022
Cal. Std. xp: 9/4/2022
ICAL ID: **EC2200008**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100819-09 **B:** MeOH 217304

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE2		20220601_016	Perchlorate6850c.lcm	1x	☒	222804	6/1/2022 14:02
2	PERCHLORATE3		20220601_017	Perchlorate6850c.lcm	1x	☒	222806	6/1/2022 14:09
3	PERCHLORATE4		20220601_018	Perchlorate6850c.lcm	1x	☒	222807	6/1/2022 14:17
4	PERCHLORATE5		20220601_019	Perchlorate6850c.lcm	1x	☒	222808	6/1/2022 14:25
5	PERCHLORATE6		20220601_020	Perchlorate6850c.lcm	1x	☒	222809	6/1/2022 14:33
6	PERCHLORATE7		20220601_021	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 14:41
7	PERCHLORATE8		20220601_022	Perchlorate6850c.lcm	1x	☒	222811	6/1/2022 14:49
8	PERCHLORATE9		20220601_023	Perchlorate6850c.lcm	1x	☒	222812	6/1/2022 14:57
9	PERCHLORATE10		20220601_024	Perchlorate6850c.lcm	1x	☒	222813	6/1/2022 15:05
10	PERCHLORATE1		20220601_026	Perchlorate6850c.lcm	1x	☒	222805	6/1/2022 15:39
11	PERCHLORATEICV		20220601_028	Perchlorate6850c.lcm	1x	☒	222814	6/1/2022 15:55
12	IB		20220601_029	Perchlorate6850c.lcm	1x	☒		6/1/2022 16:03
13	ICS		20220601_030	Perchlorate6850c.lcm	1x	☒		6/1/2022 16:11
14	PERCHLORATE7		20220601_031	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 16:58
15	LODV		20220601_032	Perchlorate6850c.lcm	1x	☒	222817	6/1/2022 17:22
16	E2200484-001X5		20220601_033	Perchlorate6850c.lcm	5x	☒	DNU-analyze 1x	6/1/2022 17:30
17	E2200454-002X500		20220601_034	Perchlorate6850c.lcm	500x	☒		6/1/2022 17:38
18	E2200484-001		20220601_035	Perchlorate6850c.lcm	1x	☒	DNU-bad injection	6/1/2022 17:46
19	E2200454-003		20220601_036	Perchlorate6850c.lcm	1x	☒		6/1/2022 17:54
20	E2200454-004		20220601_037	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:01
21	E2200454-005		20220601_038	Perchlorate6850c.lcm	1x	☒	Reanalyze- IR	6/1/2022 18:09
22	E2200454-006		20220601_039	Perchlorate6850c.lcm	1x	☒	Reanalyze- IR	6/1/2022 18:17
23	E2200454-007		20220601_040	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:25
24	E2200454-008		20220601_041	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:33
25	PERCHLORATE7		20220601_042	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 18:41
26	E2200470-001		20220601_043	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:49
27	R2204439-003		20220601_044	Perchlorate6850c.lcm	1x	☒		6/1/2022 18:57
28	R2204439-007		20220601_045	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:04
29	R2204439-009		20220601_046	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:12
30	R2204582-011		20220601_047	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:20
31	R2204582-030		20220601_048	Perchlorate6850c.lcm	1x	☒	Reanalyze- IR	6/1/2022 19:28
32	R2204582-035		20220601_049	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:36
33	R2204616-004		20220601_050	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:44
34	R2204616-011		20220601_051	Perchlorate6850c.lcm	1x	☒		6/1/2022 19:52
35	PERCHLORATE7		20220601_052	Perchlorate6850c.lcm	1x	☒	222810	6/1/2022 20:00
36	IB		20220601_053	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:08
37	IB		20220601_054	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:15
38	null		20220601_055	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:20
39	null		20220601_056	Perchlorate6850c.lcm	1x	☒		6/1/2022 20:25

Initial Calibration - Detailed Report

Calibration ID: EC2200008 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2200008-01	PERCHLORATE2	20220601_016	06/01/2022 14:02
02	EC2200008-02	PERCHLORATE3	20220601_017	06/01/2022 14:09
03	EC2200008-03	PERCHLORATE4	20220601_018	06/01/2022 14:17
04	EC2200008-04	PERCHLORATE5	20220601_019	06/01/2022 14:25
05	EC2200008-05	PERCHLORATE6	20220601_020	06/01/2022 14:33
06	EC2200008-06	PERCHLORATE7	20220601_021	06/01/2022 14:41
07	EC2200008-07	PERCHLORATE8	20220601_022	06/01/2022 14:49
08	EC2200008-08	PERCHLORATE9	20220601_023	06/01/2022 14:57
09	EC2200008-09	PERCHLORATE10	20220601_024	06/01/2022 15:05
10	EC2200008-10	PERCHLORATE1	20220601_026	06/01/2022 15:39

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 10.81** **Average RF = 0.1511**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5000	0.1553	02	0.7000	0.1519	03	1.0000	0.1465	04	2.0000	0.1514
05	5.0000	0.1444	06	10.0000	0.1425	07	20.0000	0.1496	08	30.0000	0.1358
09	50.0000	0.1396	10	0.1000	0.1944						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.5000	0.514	2.7	02	0.7000	0.703	0.5	03	1.0000	0.969	-3.1
04	2.0000	2.00	0.2	05	5.0000	4.78	-4.4	06	10.0000	9.43	-5.7
07	20.0000	19.8	-1.0	08	30.0000	27.0	-10.2	09	50.0000	46.2	-7.7
10	0.1000	0.129	28.6								

Initial Calibration Verification Summary Report

Calibration ID:	EC2200008	**Instrument ID:**	E-LCMS-01
Datafile ID:	20220601_028	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2200008-11	T	Average RF	10	9.710	ng/mL	-2.9	<= 15

Insight Report

Printed at 6/2/2022 10:42:59 AM

Method File: I:\LCMS01\DATA\20220601\20220601.lcm
Project File: I:\LCMS01\DATA\20220601\20220601.damlp

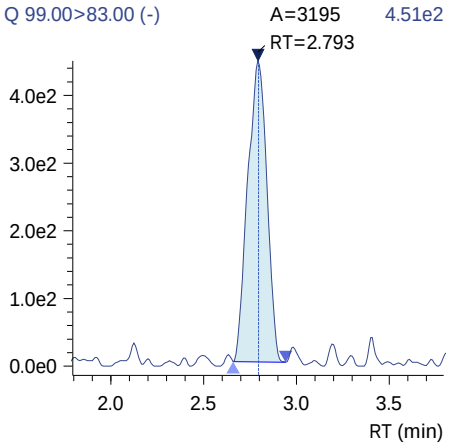
PERCHLORATE2

Sample ID: PERCHLORATE2
Date Acquired: 6/1/2022 2:02:03 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_016.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.793	3195	41158	0.5136	ng/mL	27.57	18.52-34.39
Perchlorate 2	Auto	2.781	881	41158	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.777	41158	41158	1.0000	ng/mL	----	

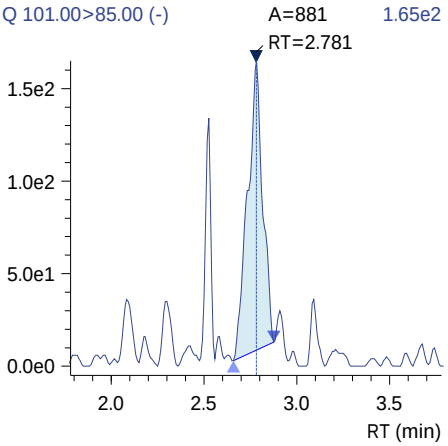
Perchlorate

Conc 0.5136



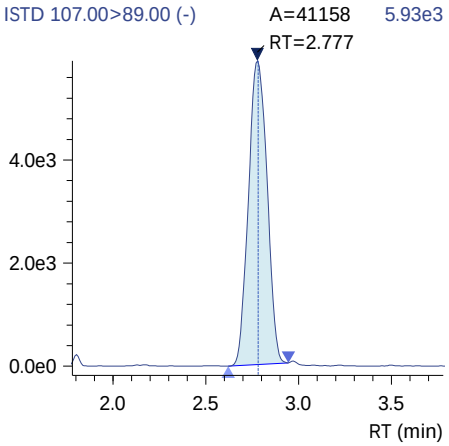
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

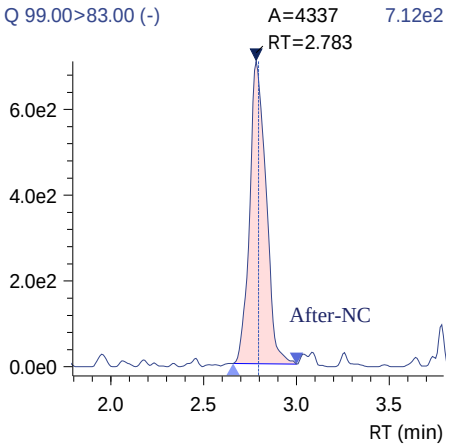
PERCHLORATE3

Sample ID: PERCHLORATE3
Date Acquired: 6/1/2022 2:09:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_017.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI	2.783	4337	40792	0.7035	ng/mL	24.99	18.52-34.39
Perchlorate 2	M	2.843	1084	40792	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.787	40792	40792	1.0000	ng/mL	----	

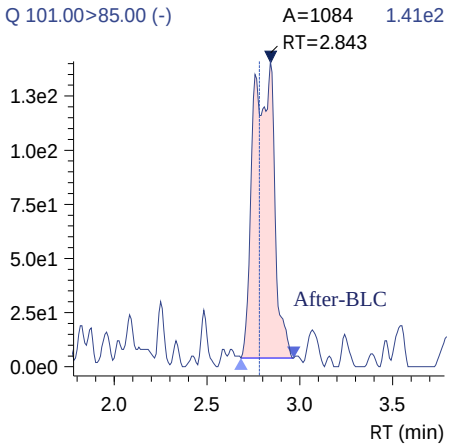
Perchlorate

Conc 0.7035



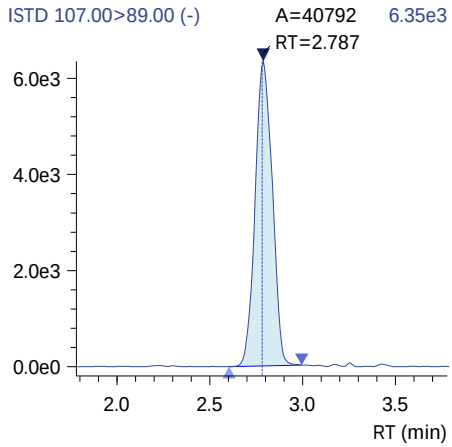
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 9:46:32 AM

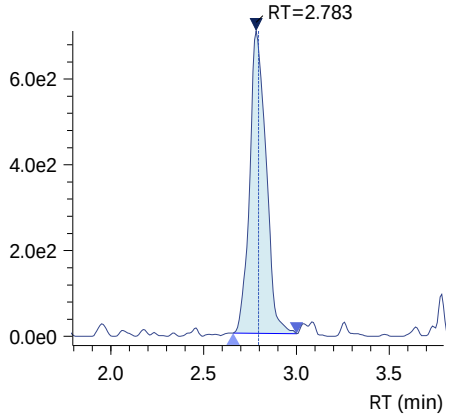
PERCHLORATE3

Sample ID: PERCHLORATE3
Date Acquired: 6/1/2022 2:09:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_017.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Perchlorate

Conc 0.7205

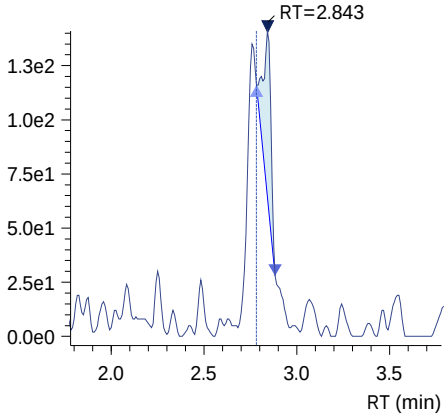
Q 99.00>83.00 (-) A=4337 7.12e2



Perchlorate 2

Conc 0.0000

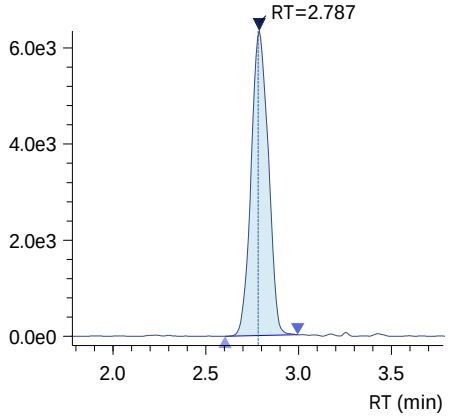
Q 101.00>85.00 (-) A=213 1.41e2



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=40792 6.35e3



Insight Report

Printed at 6/2/2022 10:42:59 AM

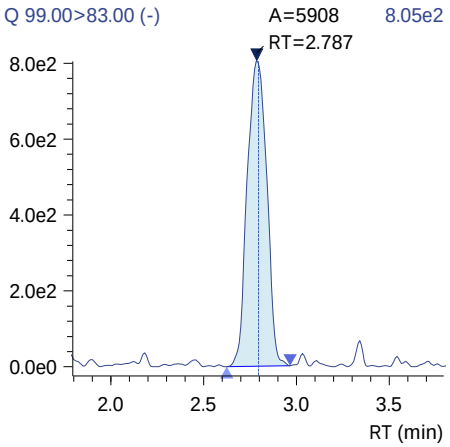
PERCHLORATE4

Sample ID: PERCHLORATE4
Date Acquired: 6/1/2022 2:17:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_018.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.787	5908	40337	0.9691	ng/mL	25.81	18.52-34.39
Perchlorate 2	Auto	2.776	1525	40337	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.787	40337	40337	1.0000	ng/mL	----	

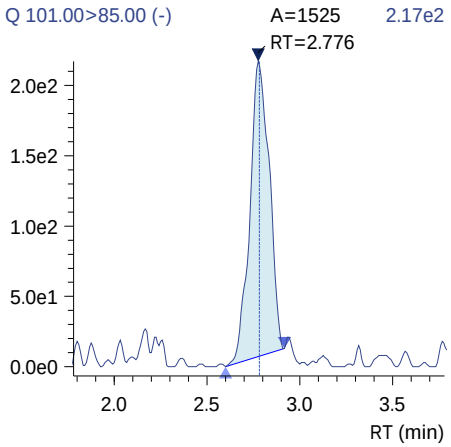
Perchlorate

Conc 0.9691



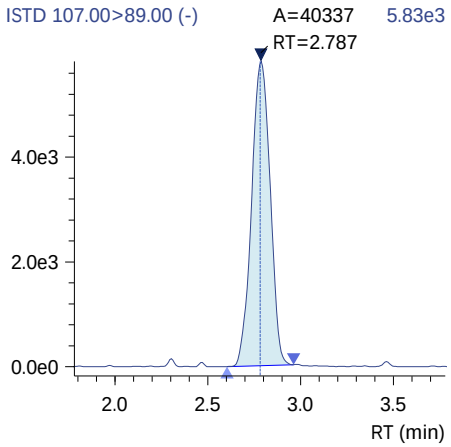
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

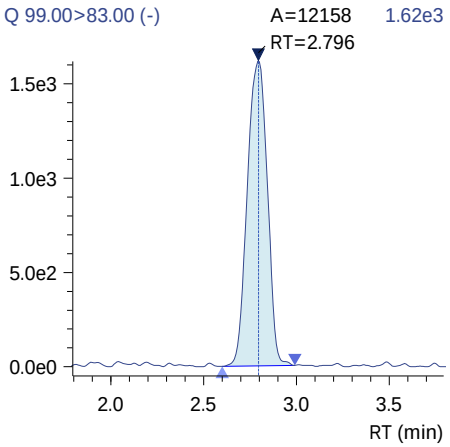
PERCHLORATE5

Sample ID: PERCHLORATE5
Date Acquired: 6/1/2022 2:25:47 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_019.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.796	12158	40141	2.0041	ng/mL	27.57	18.52-34.39
Perchlorate 2	Auto	2.785	3352	40141	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.784	40141	40141	1.0000	ng/mL	----	

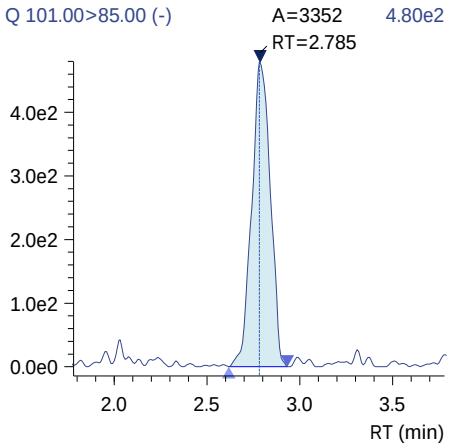
Perchlorate

Conc 2.0041



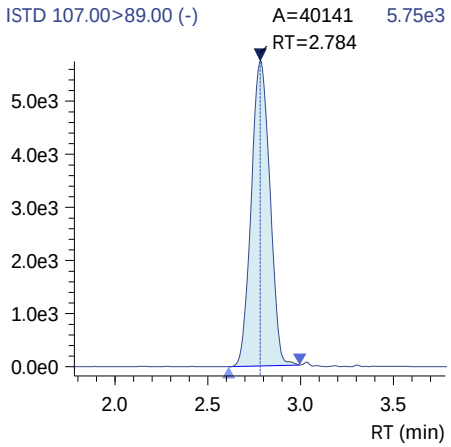
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

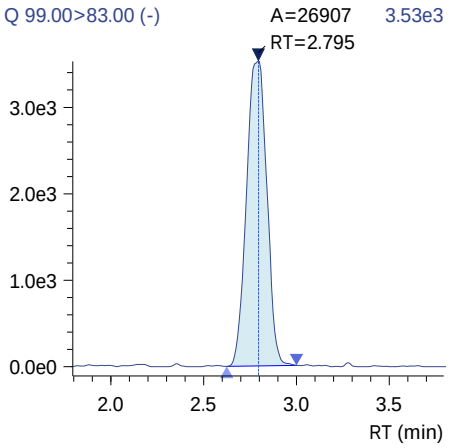
PERCHLORATE6

Sample ID: PERCHLORATE6
Date Acquired: 6/1/2022 2:33:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_020.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.795	26907	37256	4.7788	ng/mL	24.81	18.52-34.39
Perchlorate 2	Auto	2.781	6676	37256	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.781	37256	37256	1.0000	ng/mL	----	

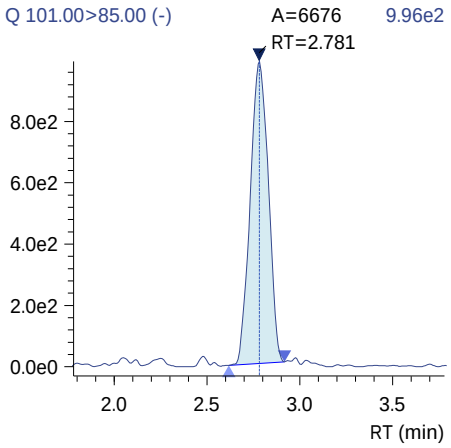
Perchlorate

Conc 4.7788



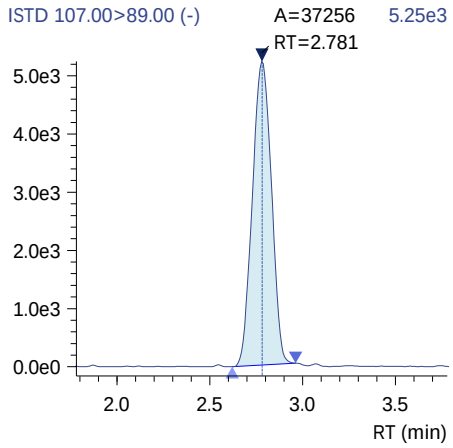
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

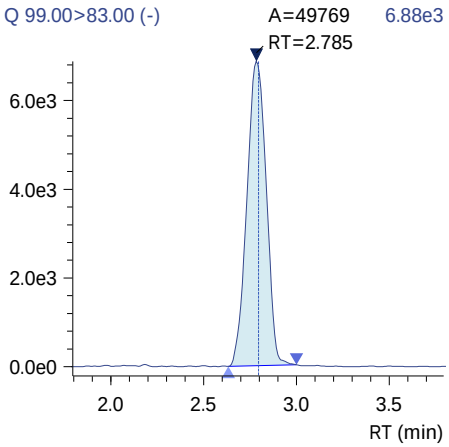
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 6/1/2022 2:41:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_021.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.785	49769	34931	9.4274	ng/mL	26.27	18.52-34.39
Perchlorate 2	Auto	2.789	13072	34931	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.782	34931	34931	1.0000	ng/mL	----	

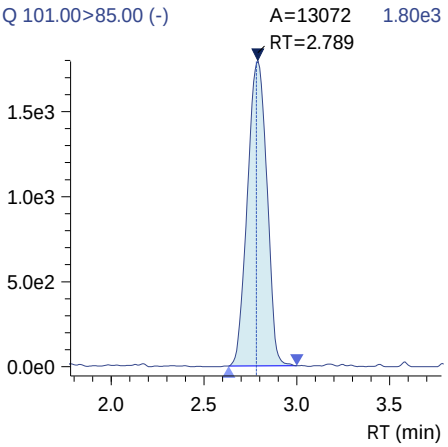
Perchlorate

Conc 9.4274



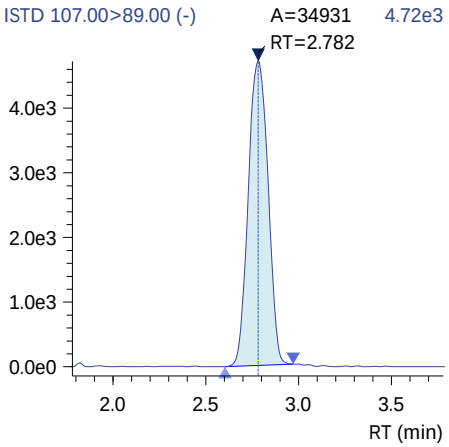
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

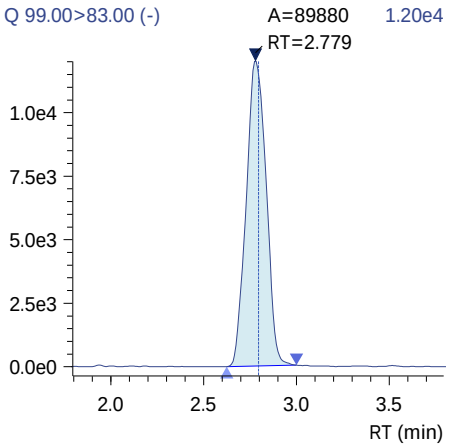
PERCHLORATE8

Sample ID: PERCHLORATE8
Date Acquired: 6/1/2022 2:49:32 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_022.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.779	89880	30033	19.8021	ng/mL	26.40	18.52-34.39
Perchlorate 2	Auto	2.789	23731	30033	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.774	30033	30033	1.0000	ng/mL	----	

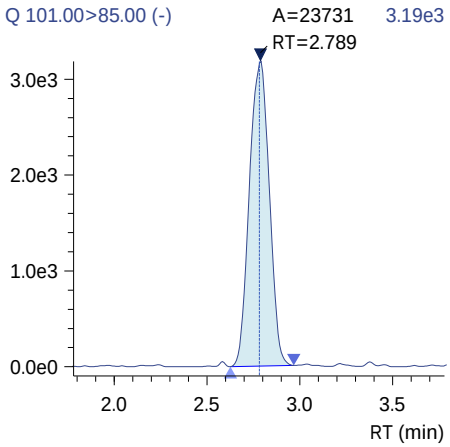
Perchlorate

Conc 19.8021



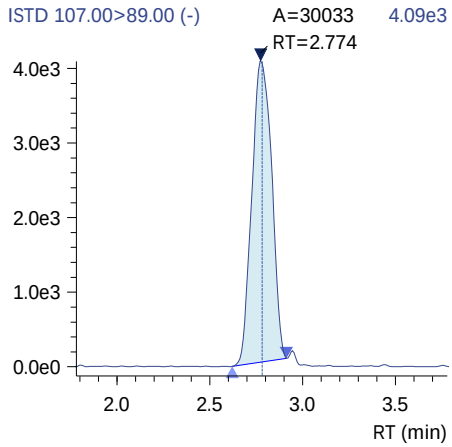
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

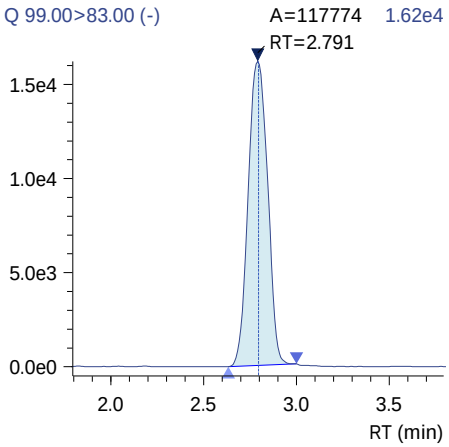
PERCHLORATE9

Sample ID: PERCHLORATE9
Date Acquired: 6/1/2022 2:57:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_023.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.791	117774	28915	26.9509	ng/mL	26.79	18.52-34.39
Perchlorate 2	Auto	2.786	31550	28915	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.793	28915	28915	1.0000	ng/mL	----	

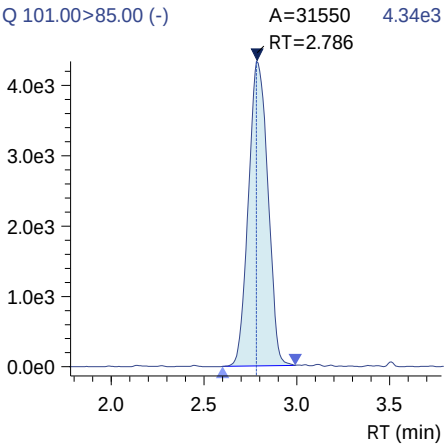
Perchlorate

Conc 26.9509



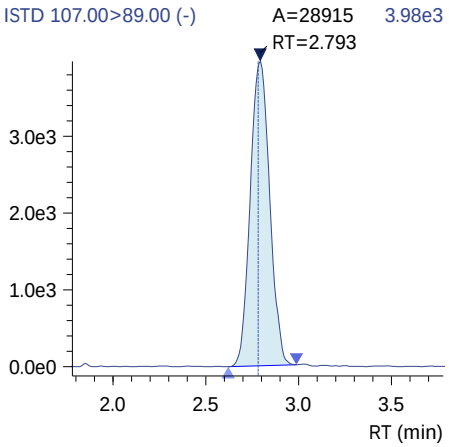
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

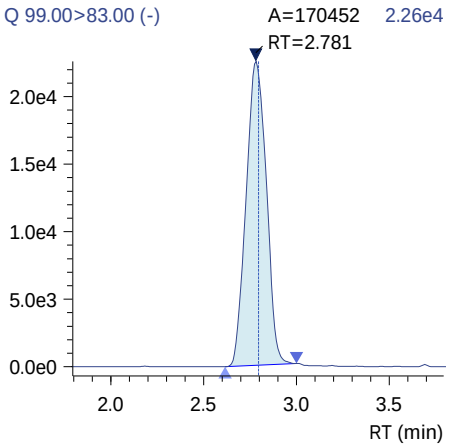
PERCHLORATE10

Sample ID: PERCHLORATE10
Date Acquired: 6/1/2022 3:05:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_024.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.781	170452	24428	46.1701	ng/mL	25.87	18.52-34.39
Perchlorate 2	Auto	2.774	44101	24428	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.780	24428	24428	1.0000	ng/mL	----	

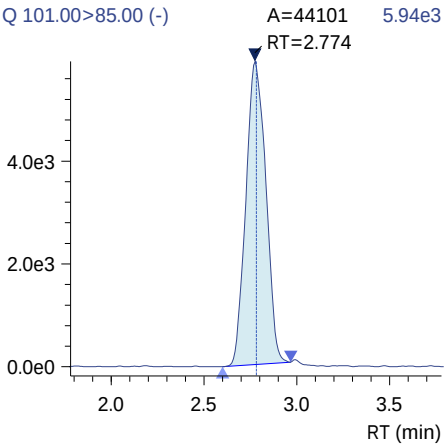
Perchlorate

Conc 46.1701



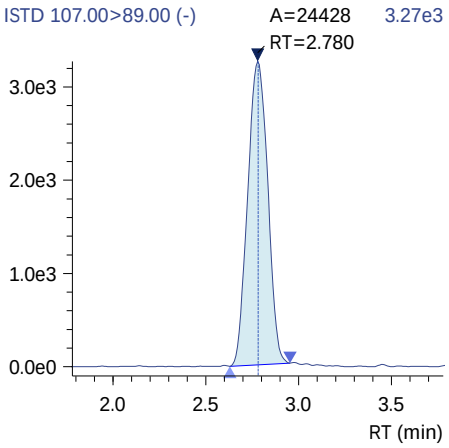
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 10:42:59 AM

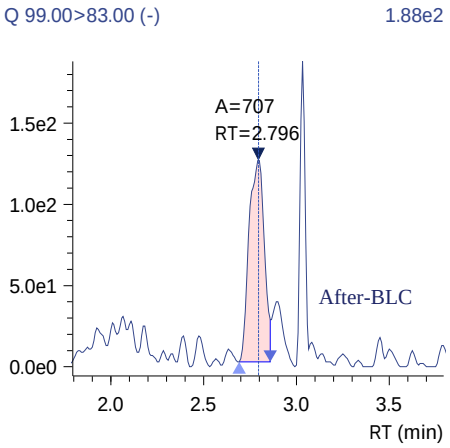
PERCHLORATE1

Sample ID: PERCHLORATE1
Date Acquired: 6/1/2022 3:39:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_026.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.796	707	36372	0.1286	ng/mL	28.15	18.52-34.39
Perchlorate 2	M	2.750	199	36372	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.772	36372	36372	1.0000	ng/mL	----	

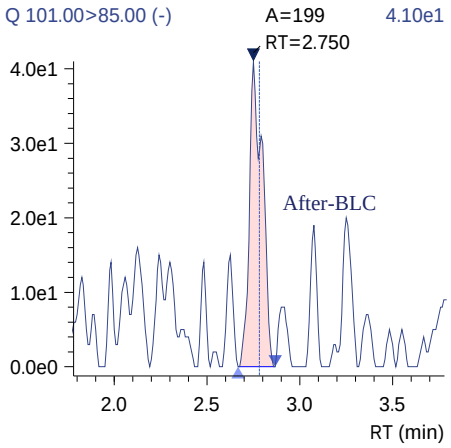
Perchlorate

Conc 0.1286



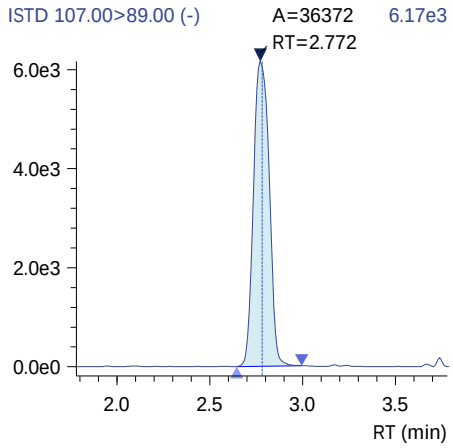
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 6/2/2022 9:46:32 AM

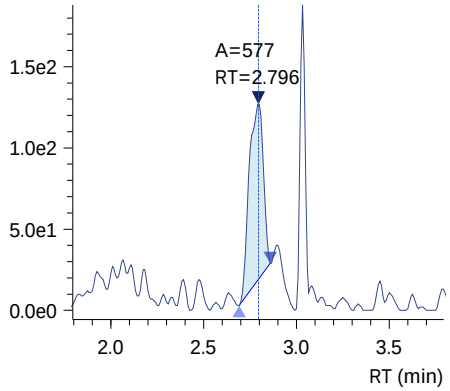
PERCHLORATE1

Sample ID: PERCHLORATE1
Date Acquired: 6/1/2022 3:39:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_026.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Perchlorate

Conc 0.1075

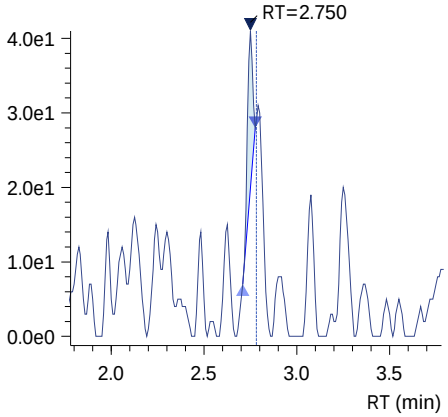
Q 99.00>83.00 (-) 1.88e2



Perchlorate 2

Conc 0.0000

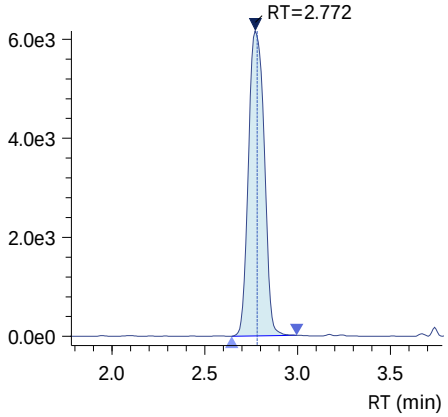
Q 101.00>85.00 (-) A=39 4.10e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=36372 6.17e3



Insight Report

Printed at 6/2/2022 10:42:59 AM

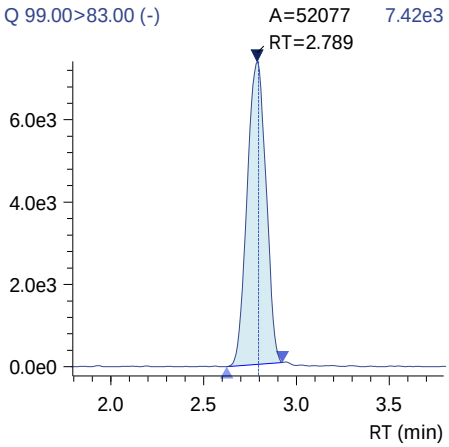
PERCHLORATEICV

Sample ID: PERCHLORATEICV
Date Acquired: 6/1/2022 3:55:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220601\20220601_028.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.789	52077	35488	9.7098	ng/mL	26.93	18.52-34.39
Perchlorate 2	Auto	2.782	14023	35488	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.780	35488	35488	1.0000	ng/mL	----	

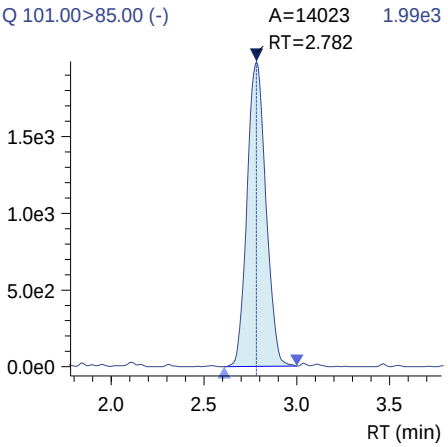
Perchlorate

Conc 9.7098



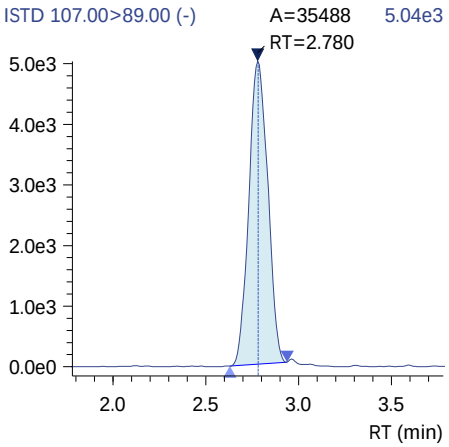
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20220705

1st Review: GRivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 6/1/2022
Cal. Std. xp: 9/4/2022
ICAL ID: **EC2200008**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100820-02 **B:** MeOH 218535

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20220705_001	Perchlorate6850c.lcm	1x	☒		7/5/2022 11:57
2	null		20220705_002	Perchlorate6850c.lcm	1x	☒		7/5/2022 12:02
3	IB		20220705_003	Perchlorate6850c.lcm	1x	☒		7/5/2022 12:08
4	IB		20220705_004	Perchlorate6850c.lcm	1x	☒		7/5/2022 12:15
5	IB		20220705_005	Perchlorate6850c.lcm	1x	☒		7/5/2022 12:23
6	IB		20220705_006	Perchlorate6850c.lcm	1x	☒		7/5/2022 12:31
7	ICS		20220705_008	Perchlorate6850c.lcm	1x	☒		7/5/2022 12:39
8	PERCHLORATE7		20220705_009	Perchlorate6850c.lcm	1x	☒	222810	7/5/2022 12:55
9	LODV		20220705_010	Perchlorate6850c.lcm	1x	☒	222817	7/5/2022 13:03
10	E2200607-001		20220705_011	Perchlorate6850c.lcm	1x	☒		7/5/2022 13:19
11	E2200598-008		20220705_012	Perchlorate6850c.lcm	1x	☒		7/5/2022 13:27
12	E2200607-002		20220705_013	Perchlorate6850c.lcm	1x	☒		7/5/2022 13:34
13	E2200607-003		20220705_014	Perchlorate6850c.lcm	1x	☒		7/5/2022 13:42
14	E2200607-004		20220705_015	Perchlorate6850c.lcm	1x	☒		7/5/2022 13:50
15	E2200618-001		20220705_016	Perchlorate6850c.lcm	1x	☒		7/5/2022 13:58
16	E2200619-001		20220705_017	Perchlorate6850c.lcm	1x	☒		7/5/2022 14:06
17	E2200619-002		20220705_018	Perchlorate6850c.lcm	1x	☒		7/5/2022 14:14
18	EQ2200262-01		20220705_019	Perchlorate6850c.lcm	1x	☒		7/5/2022 14:22
19	PERCHLORATE7		20220705_020	Perchlorate6850c.lcm	1x	☒	222810	7/5/2022 14:30
20	EQ2200262-02		20220705_021	Perchlorate6850c.lcm	1x	☒		7/5/2022 14:37
21	EQ2200262-03		20220705_022	Perchlorate6850c.lcm	1x	☒		7/5/2022 15:09
22	E2200604-001		20220705_023	Perchlorate6850c.lcm	1x	☒		7/5/2022 15:17
23	E2200604-002		20220705_024	Perchlorate6850c.lcm	1x	☒		7/5/2022 15:56
24	E2200604-003		20220705_025	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/5/2022 16:31
25	E2200604-004		20220705_026	Perchlorate6850c.lcm	1x	☒		7/5/2022 16:39
26	E2200604-005		20220705_027	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/5/2022 16:55
27	E2200604-006		20220705_028	Perchlorate6850c.lcm	10x	☒		7/5/2022 17:03
28	E2200604-007		20220705_029	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/5/2022 17:11
29	E2200604-008		20220705_030	Perchlorate6850c.lcm	1x	☒		7/5/2022 17:19
30	PERCHLORATE7		20220705_031	Perchlorate6850c.lcm	1x	☒	222810	7/5/2022 17:27
31	EQ2200264-01		20220705_032	Perchlorate6850c.lcm	1x	☒		7/5/2022 17:35
32	EQ2200264-02		20220705_033	Perchlorate6850c.lcm	1x	☒		7/5/2022 17:43
33	EQ2200264-03		20220705_034	Perchlorate6850c.lcm	1x	☒		7/5/2022 17:50
34	E2200599-001		20220705_035	Perchlorate6850c.lcm	1x	☒		7/5/2022 17:58
35	E2200599-006		20220705_036	Perchlorate6850c.lcm	1x	☒		7/5/2022 18:06
36	E2200599-010		20220705_037	Perchlorate6850c.lcm	1x	☒		7/5/2022 18:14
37	E2200599-013		20220705_038	Perchlorate6850c.lcm	1x	☒		7/5/2022 18:22
38	E2200599-015		20220705_039	Perchlorate6850c.lcm	1x	☒		7/5/2022 18:30
39	E2200599-016		20220705_040	Perchlorate6850c.lcm	1x	☒		7/5/2022 18:38
40	E2200599-017		20220705_041	Perchlorate6850c.lcm	1x	☒		7/5/2022 18:46
41	PERCHLORATE7		20220705_042	Perchlorate6850c.lcm	1x	☒	222810	7/5/2022 18:54
42	E2200599-019		20220705_043	Perchlorate6850c.lcm	1x	☒		7/5/2022 19:02
43	E2200599-002		20220705_044	Perchlorate6850c.lcm	100x	☒		7/5/2022 19:09
44	E2200599-005		20220705_045	Perchlorate6850c.lcm	10x	☒		7/5/2022 19:17
45	E2200599-009		20220705_046	Perchlorate6850c.lcm	5x	☒	DNU-run 1x	7/5/2022 19:25
46	E2200599-011		20220705_047	Perchlorate6850c.lcm	200x	☒		7/5/2022 19:33
47	E2200599-020		20220705_048	Perchlorate6850c.lcm	20x	☒		7/5/2022 19:41
48	PERCHLORATE7		20220705_049	Perchlorate6850c.lcm	1x	☒	222810	7/5/2022 19:49
49	E2200599-003		20220705_050	Perchlorate6850c.lcm	1000x	☒		7/5/2022 19:57
50	E2200599-004		20220705_051	Perchlorate6850c.lcm	1000x	☒		7/5/2022 20:05
51	E2200599-007		20220705_052	Perchlorate6850c.lcm	10000x	☒		7/5/2022 20:13
52	E2200599-008		20220705_053	Perchlorate6850c.lcm	5000x	☒		7/5/2022 20:20
53	E2200599-012		20220705_054	Perchlorate6850c.lcm	2000x	☒		7/5/2022 20:28
54	E2200599-014		20220705_055	Perchlorate6850c.lcm	1000x	☒		7/5/2022 20:36
55	E2200599-018		20220705_056	Perchlorate6850c.lcm	5000x	☒		7/5/2022 20:44
56	PERCHLORATE7		20220705_057	Perchlorate6850c.lcm	1x	☒	222810	7/5/2022 20:52
57	IB		20220705_058	Perchlorate6850c.lcm	1x	☒		7/5/2022 21:00
58	IB		20220705_059	Perchlorate6850c.lcm	1x	☒		7/5/2022 21:08
59	null		20220705_060	Perchlorate6850c.lcm	1x	☒		7/5/2022 21:13
60	null		20220705_061	Perchlorate6850c.lcm	1x	☒		7/5/2022 21:18

20220706

1st Review: GRivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 6/1/2022
Cal. Std. xp: 9/4/2022
ICAL ID: **EC2200008**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100820-02 **B:** MeOH 218535

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20220706_001	Perchlorate6850c.lcm	1x	☒		7/6/2022 10:39
2	null		20220706_002	Perchlorate6850c.lcm	1x	☒		7/6/2022 10:44
3	IB		20220706_003	Perchlorate6850c.lcm	1x	☒		7/6/2022 10:49
4	IB		20220706_004	Perchlorate6850c.lcm	1x	☒		7/6/2022 10:57
5	IB		20220706_005	Perchlorate6850c.lcm	1x	☒		7/6/2022 11:05
6	IB		20220706_006	Perchlorate6850c.lcm	1x	☒		7/6/2022 11:13
7	ICS		20220706_007	Perchlorate6850c.lcm	1x	☒		7/6/2022 11:21
8	LODV		20220706_008	Perchlorate6850c.lcm	1x	☒	222817	7/6/2022 12:00
9	PERCHLORATE7		20220706_009	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 12:08
10	E2200599-009		20220706_010	Perchlorate6850c.lcm	1x	☒		7/6/2022 12:16
11	E2200599-019		20220706_011	Perchlorate6850c.lcm	1x	☒	DNU-Confirmation Only	7/6/2022 12:24
12	E2200598-004		20220706_012	Perchlorate6850c.lcm	1x	☒	DNU-Confirmation Only	7/6/2022 12:32
13	E2200604-007		20220706_013	Perchlorate6850c.lcm	1x	☒		7/6/2022 12:56
14	E2200604-003		20220706_014	Perchlorate6850c.lcm	1x	☒		7/6/2022 13:52
15	E2200604-005		20220706_015	Perchlorate6850c.lcm	1x	☒		7/6/2022 14:18
16	PERCHLORATE7		20220706_016	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 14:40
17	EQ2200276-01		20220706_017	Perchlorate6850c.lcm	1x	☒		7/6/2022 15:18
18	EQ2200276-02		20220706_018	Perchlorate6850c.lcm	1x	☒		7/6/2022 15:51
19	EQ2200276-03		20220706_019	Perchlorate6850c.lcm	1x	☒		7/6/2022 15:59
20	EQ2200276-04		20220706_020	Perchlorate6850c.lcm	1x	☒		7/6/2022 16:07
21	EQ2200276-05		20220706_021	Perchlorate6850c.lcm	1x	☒		7/6/2022 16:15
22	E2200635-001		20220706_022	Perchlorate6850c.lcm	1x	☒		7/6/2022 16:23
23	PERCHLORATE7		20220706_023	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 16:31
24	EQ2200279-01		20220706_024	Perchlorate6850c.lcm	1x	☒		7/6/2022 16:38
25	EQ2200279-02		20220706_025	Perchlorate6850c.lcm	1x	☒		7/6/2022 16:46
26	EQ2200279-03		20220706_026	Perchlorate6850c.lcm	1x	☒		7/6/2022 16:54
27	E2200652-001		20220706_027	Perchlorate6850c.lcm	1x	☒		7/6/2022 17:02
28	E2200652-002		20220706_028	Perchlorate6850c.lcm	1x	☒		7/6/2022 17:10
29	E2200652-003		20220706_029	Perchlorate6850c.lcm	1x	☒		7/6/2022 17:18
30	E2200652-004		20220706_030	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/6/2022 17:26
31	E2200652-005		20220706_031	Perchlorate6850c.lcm	1x	☒		7/6/2022 17:33
32	E2200652-006		20220706_032	Perchlorate6850c.lcm	1x	☒		7/6/2022 17:41
33	PERCHLORATE7		20220706_033	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 17:49
34	E2200652-007		20220706_034	Perchlorate6850c.lcm	1x	☒		7/6/2022 17:57
35	E2200652-008		20220706_035	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/6/2022 18:05
36	PERCHLORATE7		20220706_036	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 18:13
37	E2200636-001		20220706_037	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/6/2022 18:21
38	E2200636-002		20220706_038	Perchlorate6850c.lcm	1x	☒		7/6/2022 18:29
39	E2200636-003		20220706_039	Perchlorate6850c.lcm	1x	☒		7/6/2022 18:36
40	E2200636-004		20220706_040	Perchlorate6850c.lcm	1x	☒		7/6/2022 18:44
41	PERCHLORATE7		20220706_041	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 18:52
42	E2200636-005		20220706_042	Perchlorate6850c.lcm	1x	☒		7/6/2022 19:00
43	E2200636-006		20220706_043	Perchlorate6850c.lcm	1x	☒		7/6/2022 19:08
44	E2200636-007		20220706_044	Perchlorate6850c.lcm	1x	☒		7/6/2022 19:16
45	E2200636-008		20220706_045	Perchlorate6850c.lcm	1x	☒		7/6/2022 19:24
46	E2200638-001		20220706_046	Perchlorate6850c.lcm	1x	☒	DNU-IS out of range	7/6/2022 19:32
47	E2200638-002		20220706_047	Perchlorate6850c.lcm	1x	☒		7/6/2022 19:40
48	E2200638-003		20220706_048	Perchlorate6850c.lcm	1x	☒		7/6/2022 19:47
49	E2200638-004		20220706_049	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/6/2022 19:55
50	E2200638-005		20220706_050	Perchlorate6850c.lcm	1x	☒	DNU-over ICAL range	7/6/2022 20:03
51	E2200638-006		20220706_051	Perchlorate6850c.lcm	1x	☒	DNU-over ICAL range	7/6/2022 20:11
52	PERCHLORATE7		20220706_052	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 20:19
53	E2200638-007		20220706_053	Perchlorate6850c.lcm	1x	☒	DNU-IR	7/6/2022 20:27
54	E2200638-008		20220706_054	Perchlorate6850c.lcm	1x	☒		7/6/2022 20:34
55	E2200638-009		20220706_055	Perchlorate6850c.lcm	1x	☒		7/6/2022 20:42
56	E2200638-010		20220706_056	Perchlorate6850c.lcm	1x	☒	DNU-IS out of range	7/6/2022 20:50
57	PERCHLORATE7		20220706_057	Perchlorate6850c.lcm	1x	☒	222810	7/6/2022 20:58
58	IB		20220706_058	Perchlorate6850c.lcm	1x	☒		7/6/2022 21:06
59	IB		20220706_059	Perchlorate6850c.lcm	1x	☒		7/6/2022 21:14
60	null		20220706_060	Perchlorate6850c.lcm	1x	☒		7/6/2022 21:19
61	null		20220706_061	Perchlorate6850c.lcm	1x	☒		7/6/2022 21:23

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 5/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220705\20220705_009

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769552
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	0.1511	0.1517	0.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 5/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220705\20220705_020

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769552
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.91	0.1511	0.1498	-0.9	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 5/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220705\20220705_031

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769552
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.79	0.1511	0.1479	-2.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_009

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	0.1511	0.1511	0.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_016

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.59	0.1511	0.1450	-4.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_023

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	0.1511	0.1518	0.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_033

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.95	0.1511	0.1503	-0.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_036

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.97	0.1511	0.1506	-0.3	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_041

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.98	0.1511	0.1508	-0.2	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_052

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.94	0.1511	0.1503	-0.6	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/ 6/22

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20220706\20220706_057

Calibration Date: 6/1/22
Calibration ID: EC2200008
Analysis Lot: 769646
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.90	0.1511	0.1496	-1.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/5/22 12:55

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20220705\20220705_009
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2200274-01
Analysis Lot: 769552
Signal ID: 1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200274-01	38,417	2.84
Method Blank	EQ2200262-01	45,939	2.84

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Analyzed:**	7/5/22 14:30

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220705\20220705_020	**Lab Code:**	EQ2200274-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769552
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200274-02	35,957	2.84
Lab Control Sample	EQ2200262-02	46,369	2.86
Duplicate Lab Control Sample	EQ2200262-03	44,023	2.84
16WW58-220623	E2200604-001	26,337	2.82
16WW57-220623	E2200604-002	32,252	2.81
16IW09-220623	E2200604-004	31,138	2.84
16WW55-220623	E2200604-006	22,174	2.85
16EW08-220623	E2200604-008	30,567	2.85

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/5/22 17:27

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20220705\20220705_031
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2200274-03
Analysis Lot: 769552
Signal ID: 1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200274-03	34,258	2.85

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/6/22 12:08

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20220706\20220706_009
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2200280-01
Analysis Lot: 769646
Signal ID: 1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-01	34,430	2.84
16EW04-220623	E2200604-007	29,493	2.83
16IW10-220623	E2200604-003	17,759	2.86
16IW20-220623	E2200604-005	19,433	2.84

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Analyzed:**	7/6/22 14:40

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220706\20220706_016	**Lab Code:**	EQ2200280-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769646
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-02	35,076	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/6/22 16:31

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20220706\20220706_023
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2200280-03
Analysis Lot: 769646
Signal ID: 1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-03	34,878	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Analyzed:**	7/6/22 17:49

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220706\20220706_033	**Lab Code:**	EQ2200280-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769646
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-04	37,828	2.87

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Analyzed:**	7/6/22 18:13

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220706\20220706_036	**Lab Code:**	EQ2200280-05
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769646
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-05	37,865	2.87

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Analyzed:**	7/6/22 18:52

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220706\20220706_041	**Lab Code:**	EQ2200280-06
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769646
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-06	32,152	2.85

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS22061313

Service Request: E2200604
Date Analyzed: 7/6/22 20:19

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20220706\20220706_052
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2200280-07
Analysis Lot: 769646
Signal ID: 1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-07	29,415	2.86

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2200604
Project:	HS22061313	**Date Analyzed:**	7/6/22 20:58

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20220706\20220706_057	**Lab Code:**	EQ2200280-08
Instrument ID:	E-LCMS-01	**Analysis Lot:**	769646
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	35,436	2.78
	Upper Limit ==>	53,154	4.78
	Lower Limit ==>	17,718	0.78
Associated Analyses			
Continuing Calibration Verification	EQ2200280-08	30,844	2.87

Results flagged with an asterisk (*) indicate values outside control criteria.

Insight Report

Printed at 7/6/2022 10:07:16 AM

Method File: I:\LCMS01\DATA\20220705\20220601.lcm
Project File: I:\LCMS01\DATA\20220705\20220705.damlp

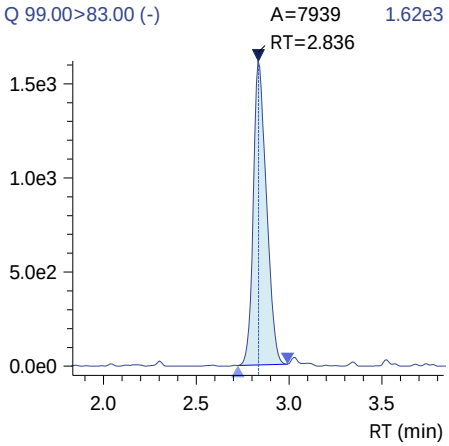
ICS

Sample ID: ICS
Date Acquired: 7/5/2022 12:39:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_008.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.836	7939	48106	1.0920	ng/mL	24.80	17.74-32.95
Perchlorate 2	Auto	2.848	1969	48106	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.835	48106	48106	1.0000	ng/mL	----	

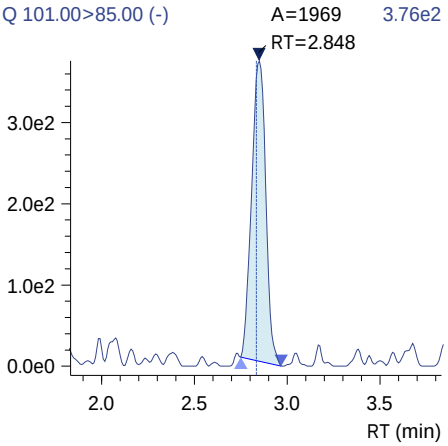
Perchlorate

Conc 1.0920



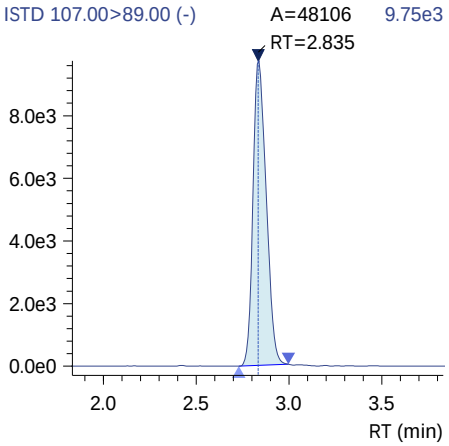
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:21:04 AM

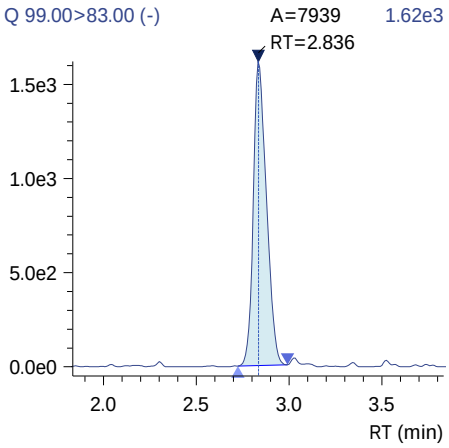
Method File: I:\LCMS01\DATA\20220705\20220601.lcm
Project File: I:\LCMS01\DATA\20220705\20220705.damlp

ICS

Sample ID: ICS
Date Acquired: 7/5/2022 12:39:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_008.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

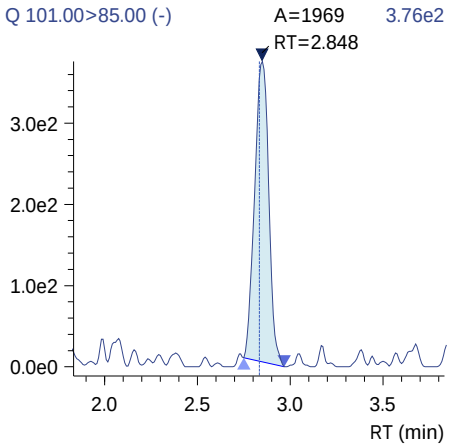
Perchlorate

Conc 1.1184



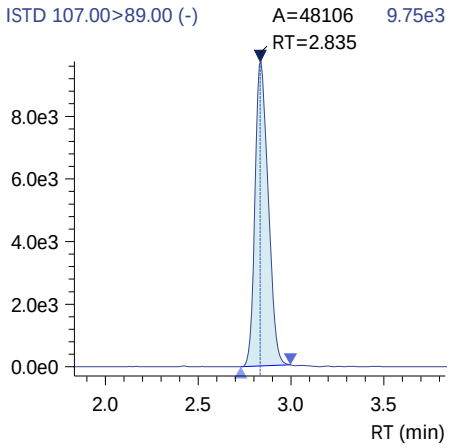
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

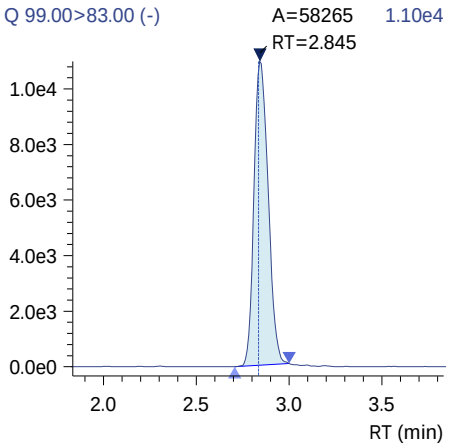
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/5/2022 12:55:30 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.845	58265	38417	10.0353	ng/mL	24.23	17.74-32.95
Perchlorate 2	Auto	2.841	14118	38417	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.843	38417	38417	1.0000	ng/mL	----	

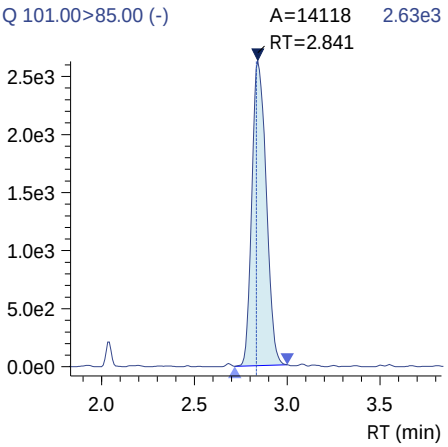
Perchlorate

Conc 10.0353



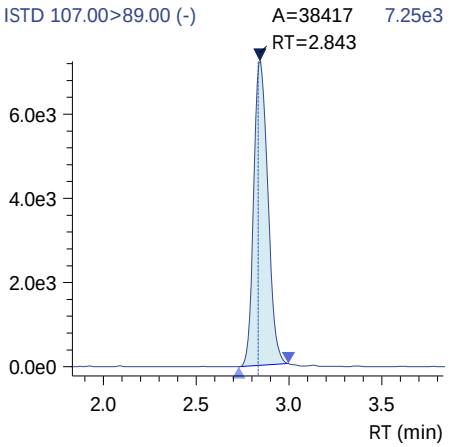
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

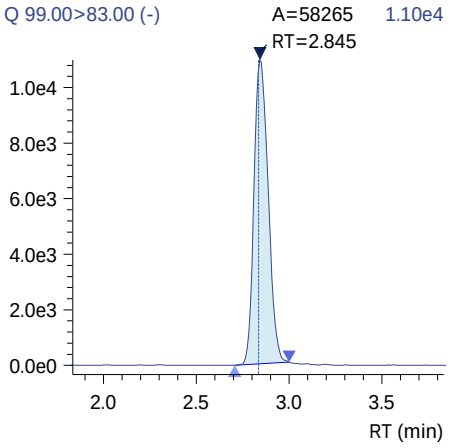
Printed at 7/6/2022 10:21:04 AM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/5/2022 12:55:30 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

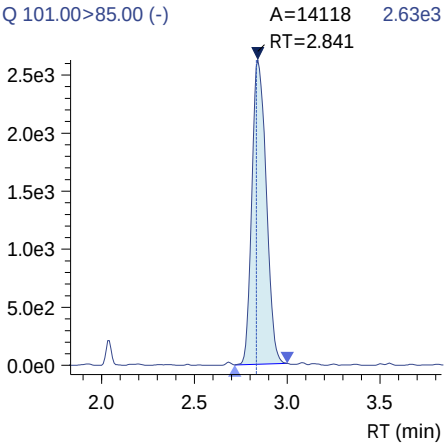
Perchlorate

Conc 10.2784



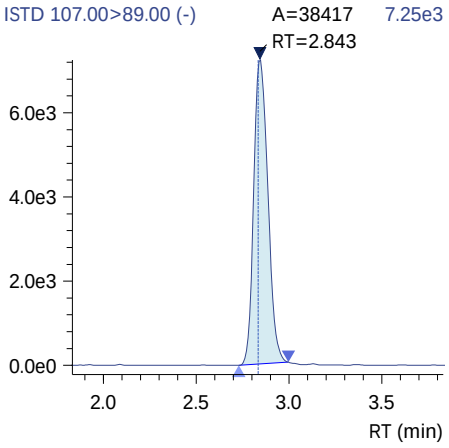
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

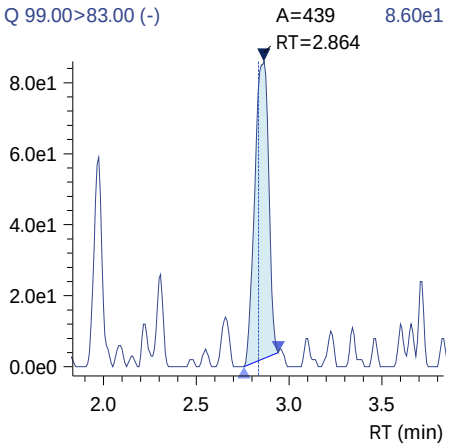
LODV

Sample ID: LODV
Date Acquired: 7/5/2022 1:03:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_010.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI R1	2.864	439	46528	0.0624	ng/mL	25.51	17.74-32.95
Perchlorate 2	M	2.838	112	46528	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.845	46528	46528	1.0000	ng/mL	----	

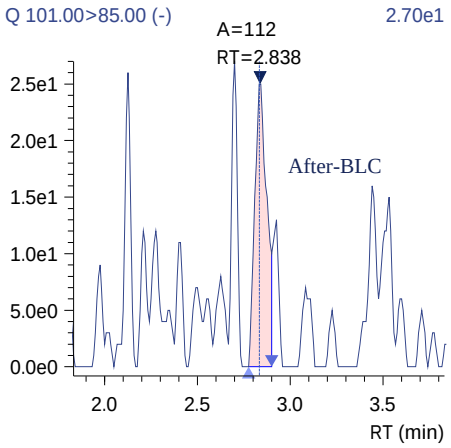
Perchlorate

Conc 0.0624



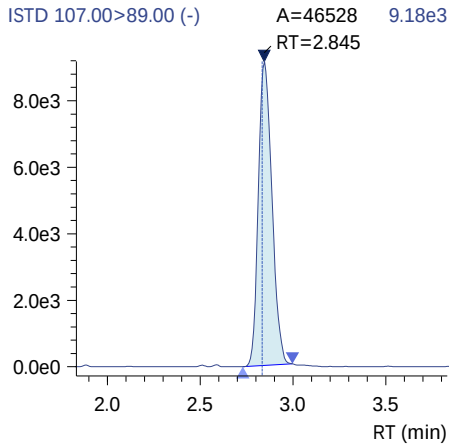
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

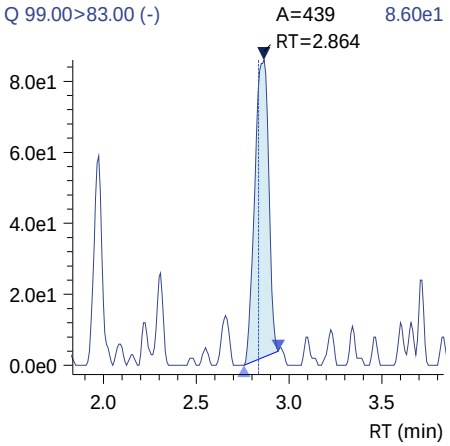
Printed at 7/6/2022 10:21:04 AM

LODV

Sample ID: LODV
Date Acquired: 7/5/2022 1:03:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_010.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

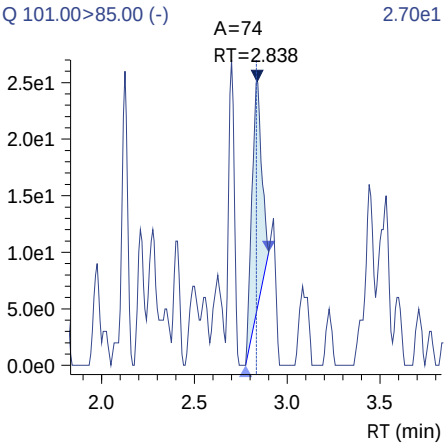
Perchlorate

Conc 0.0639



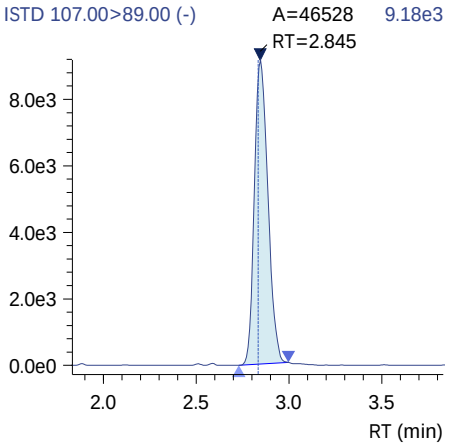
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

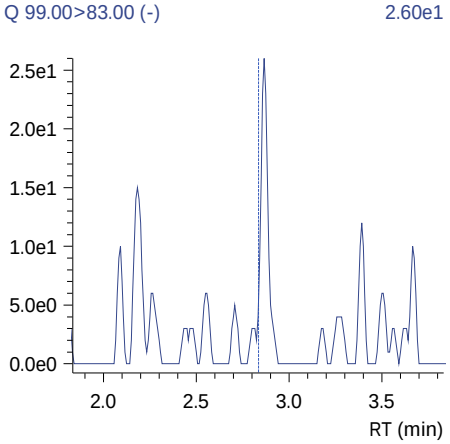
EQ2200262-01

Sample ID: EQ2200262-01
Date Acquired: 7/5/2022 2:22:12 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_019.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	ND(W/B)	----	----	45939	----	ng/mL	0.00	17.74-32.95
Perchlorate 2	ND(W/B)	----	----	45939	----	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.835	45939	45939	1.0000	ng/mL	----	

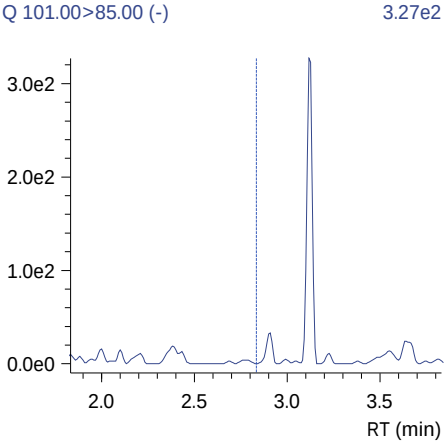
Perchlorate

Conc ----



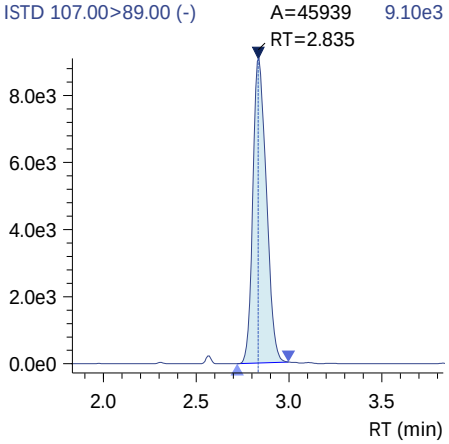
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:21:04 AM

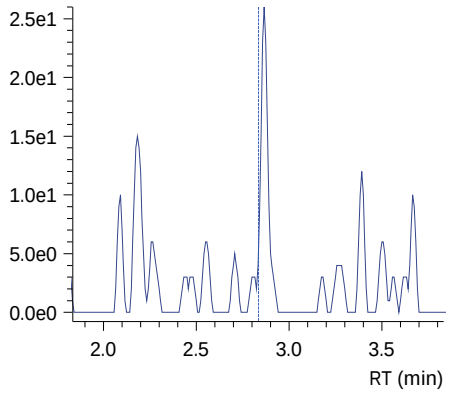
EQ2200262-01

Sample ID: EQ2200262-01
Date Acquired: 7/5/2022 2:22:12 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_019.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 5

Perchlorate

Conc ----

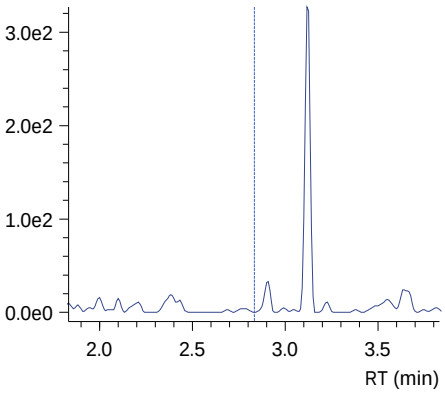
Q 99.00>83.00 (-) 2.60e1



Perchlorate 2

Conc ----

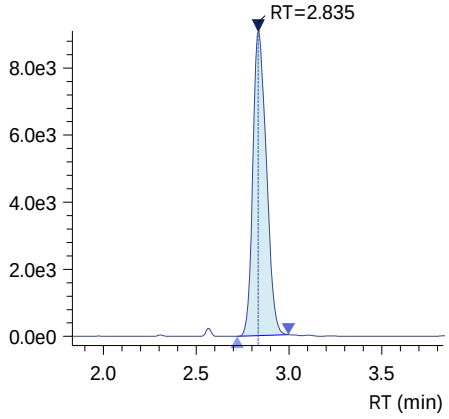
Q 101.00>85.00 (-) 3.27e2



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=45939 9.10e3



Insight Report

Printed at 7/6/2022 10:07:16 AM

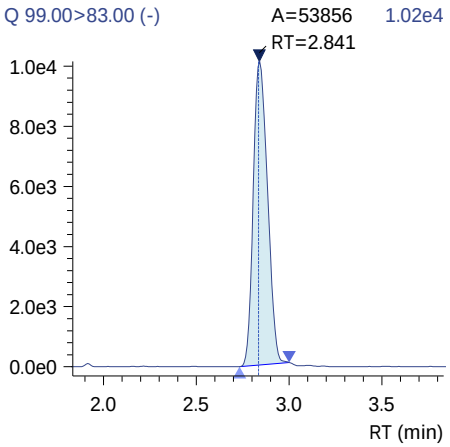
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/5/2022 2:30:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_020.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.841	53856	35957	9.9105	ng/mL	25.35	17.74-32.95
Perchlorate 2	Auto	2.842	13654	35957	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.838	35957	35957	1.0000	ng/mL	----	

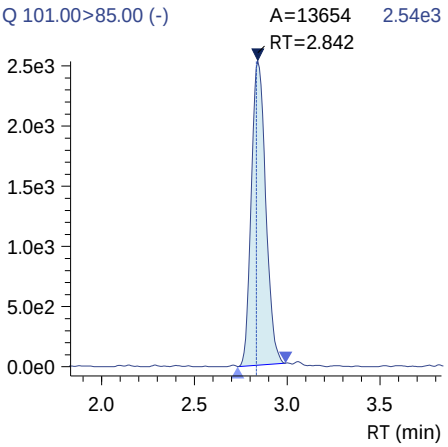
Perchlorate

Conc 9.9105



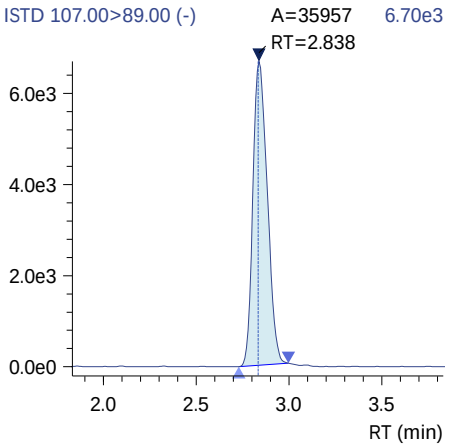
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

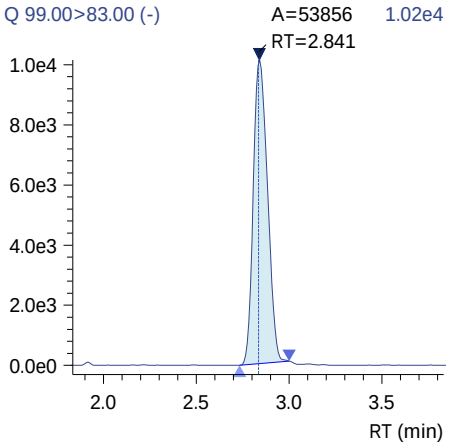
Printed at 7/6/2022 10:21:04 AM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/5/2022 2:30:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_020.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

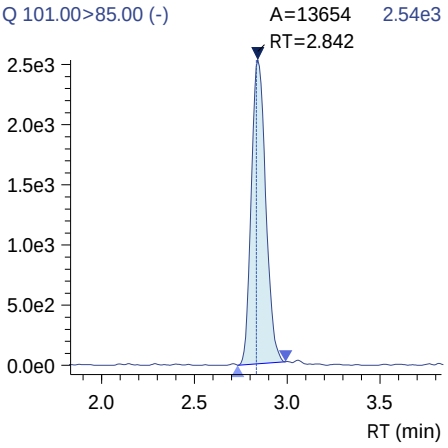
Perchlorate

Conc 10.1506



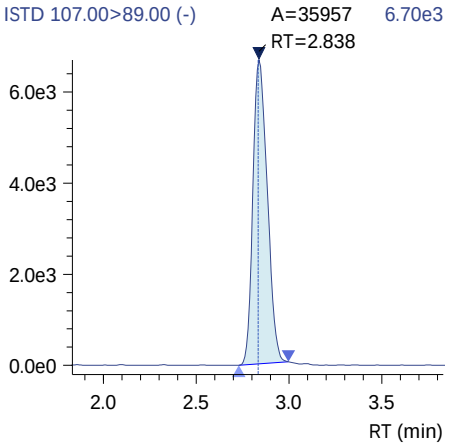
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

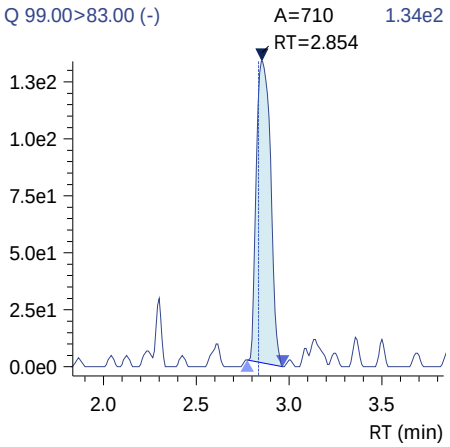
EQ2200262-02

Sample ID: EQ2200262-02
Date Acquired: 7/5/2022 2:37:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_021.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI R1	2.854	710	46369	0.1013	ng/mL	28.31	17.74-32.95
Perchlorate 2	M	2.839	201	46369	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.856	46369	46369	1.0000	ng/mL	----	

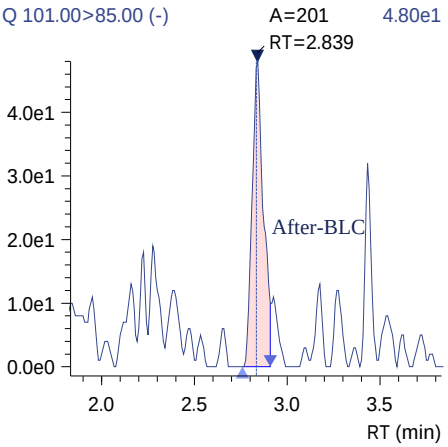
Perchlorate

Conc 0.1013



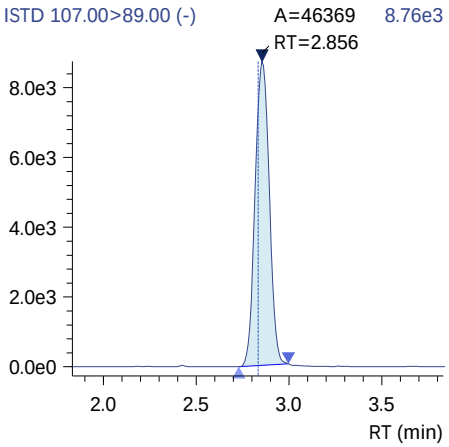
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

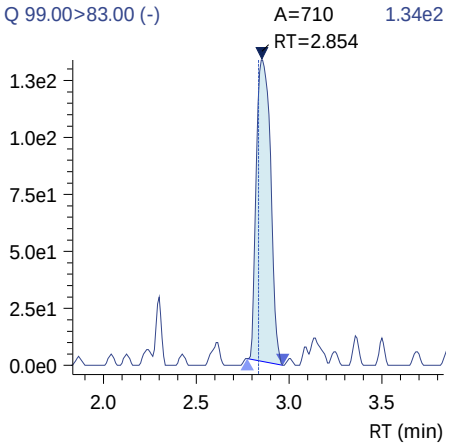
Printed at 7/6/2022 10:21:04 AM

EQ2200262-02

Sample ID: EQ2200262-02
Date Acquired: 7/5/2022 2:37:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_021.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 5

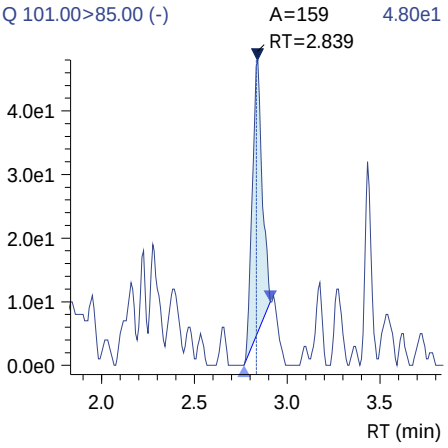
Perchlorate

Conc 0.1038



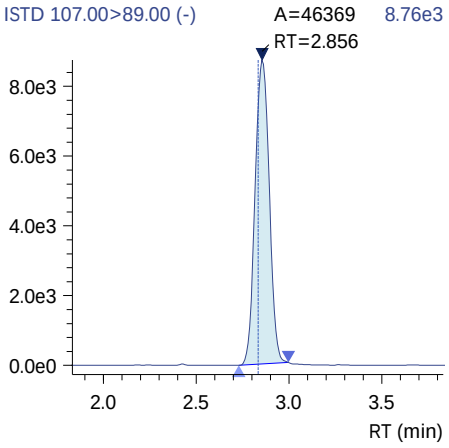
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

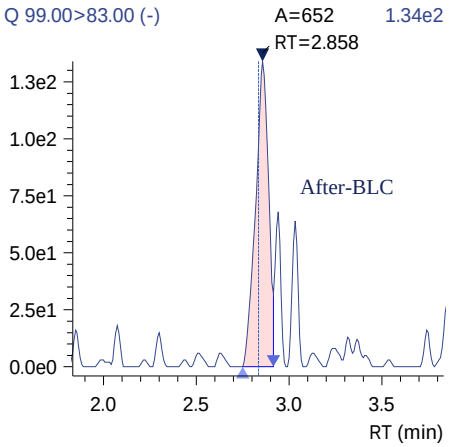
EQ2200262-03

Sample ID: EQ2200262-03
Date Acquired: 7/5/2022 3:09:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_022.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.858	652	44023	0.0980	ng/mL	24.08	17.74-32.95
Perchlorate 2	M	2.835	157	44023	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.840	44023	44023	1.0000	ng/mL	----	

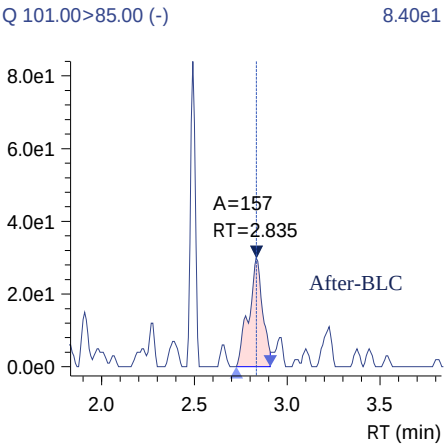
Perchlorate

Conc 0.0980



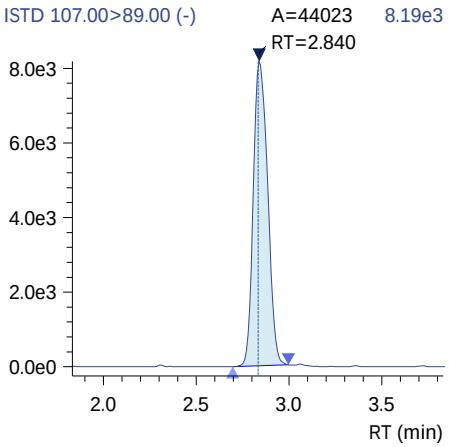
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

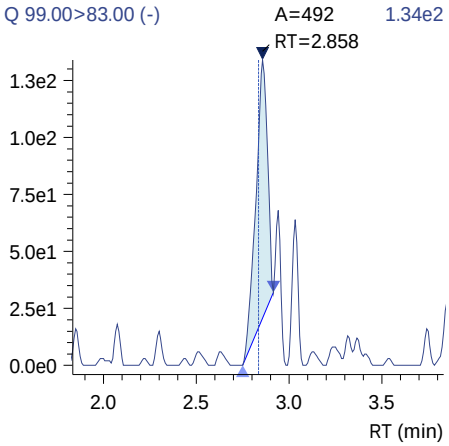
Printed at 7/6/2022 10:21:04 AM

EQ2200262-03

Sample ID: EQ2200262-03
Date Acquired: 7/5/2022 3:09:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_022.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 5

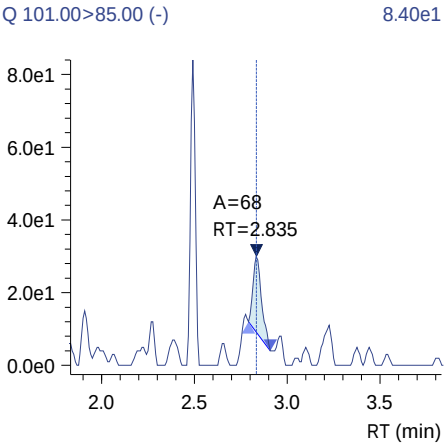
Perchlorate

Conc 0.0757



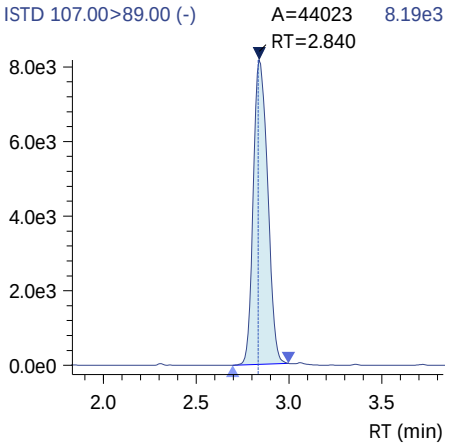
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

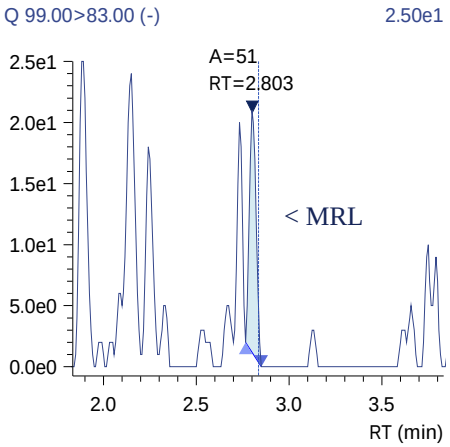
E2200604-001

Sample ID: E2200604-001
Date Acquired: 7/5/2022 3:17:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_023.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI R1	2.803	51	26337	0.0128	ng/mL	158.82	17.74-32.95
Perchlorate 2	M	2.837	81	26337	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.824	26337	26337	1.0000	ng/mL	----	

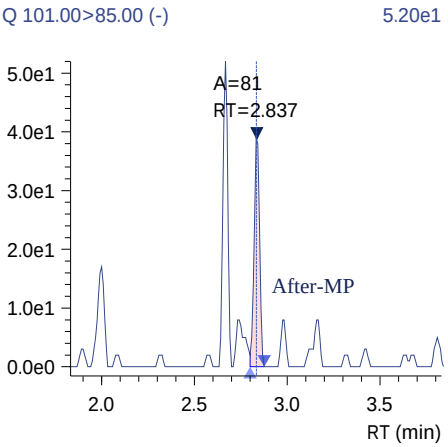
Perchlorate

Conc 0.0128



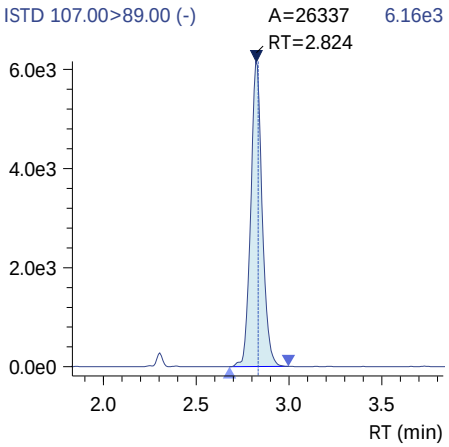
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

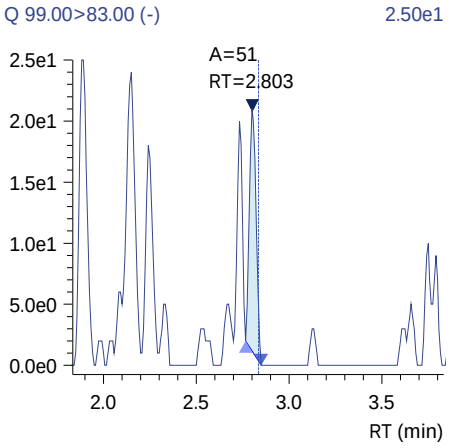
Printed at 7/6/2022 10:21:04 AM

E2200604-001

Sample ID: E2200604-001
Date Acquired: 7/5/2022 3:17:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_023.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 5

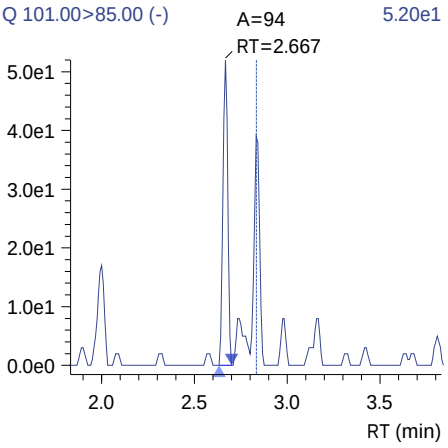
Perchlorate

Conc 0.0131



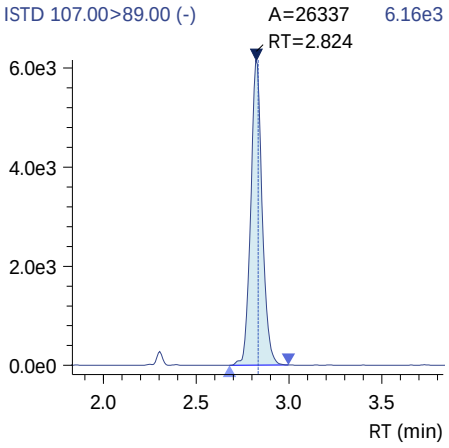
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

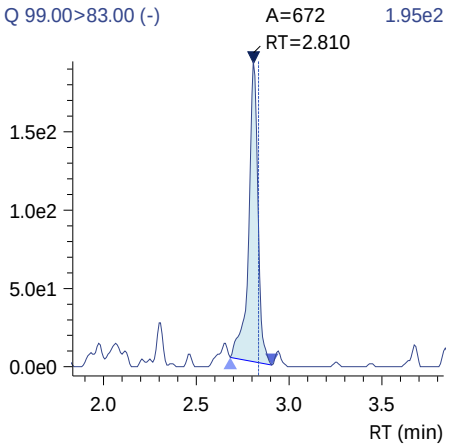
E2200604-002

Sample ID: E2200604-002
Date Acquired: 7/5/2022 3:56:36 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_024.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.810	672	32252	0.1379	ng/mL	22.92	17.74-32.95
Perchlorate 2	Auto	2.808	154	32252	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.813	32252	32252	1.0000	ng/mL	----	

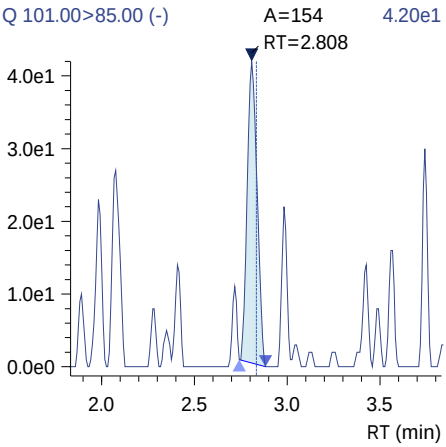
Perchlorate

Conc 0.1379



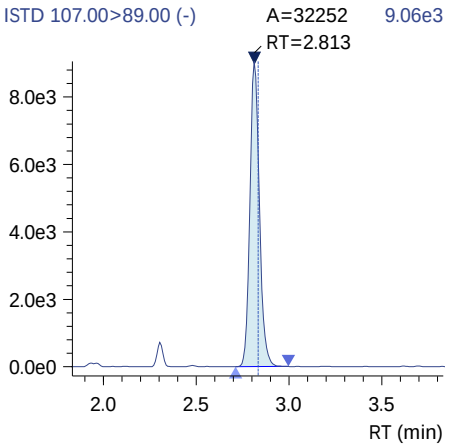
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

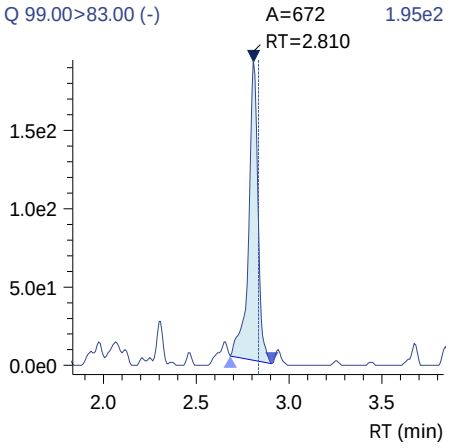
Printed at 7/6/2022 10:21:04 AM

E2200604-002

Sample ID: E2200604-002
Date Acquired: 7/5/2022 3:56:36 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_024.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 5

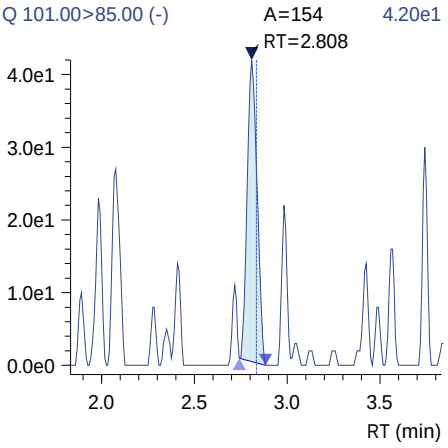
Perchlorate

Conc 0.1412



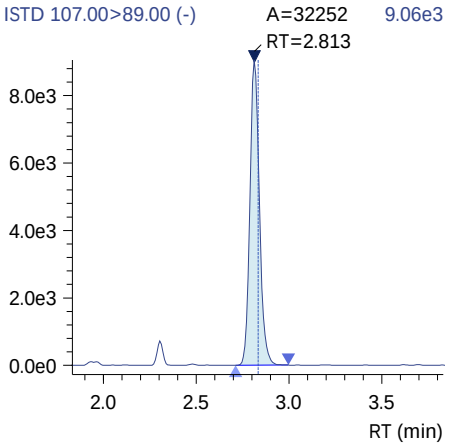
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

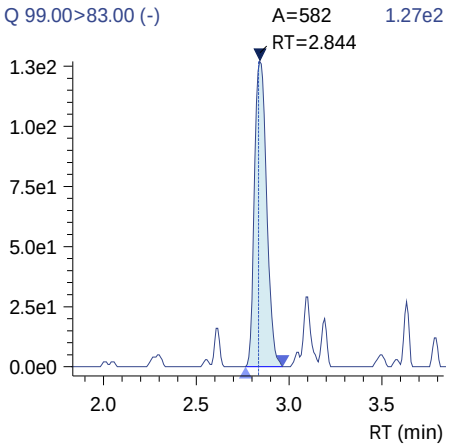
E2200604-004

Sample ID: E2200604-004
Date Acquired: 7/5/2022 4:39:47 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_026.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI R1	2.844	582	31138	0.1237	ng/mL	28.18	17.74-32.95
Perchlorate 2	M	2.850	164	31138	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.835	31138	31138	1.0000	ng/mL	----	

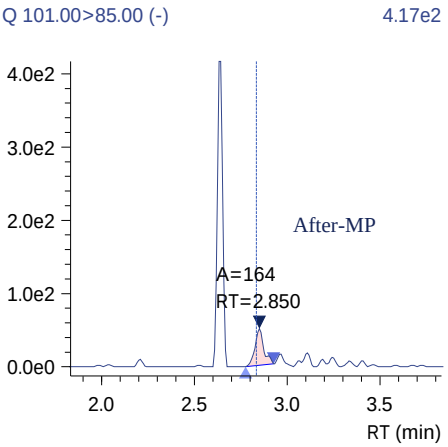
Perchlorate

Conc 0.1237



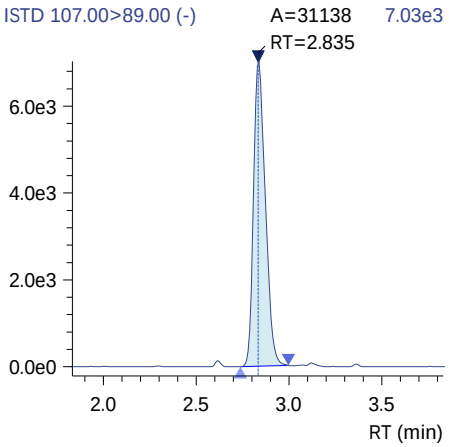
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

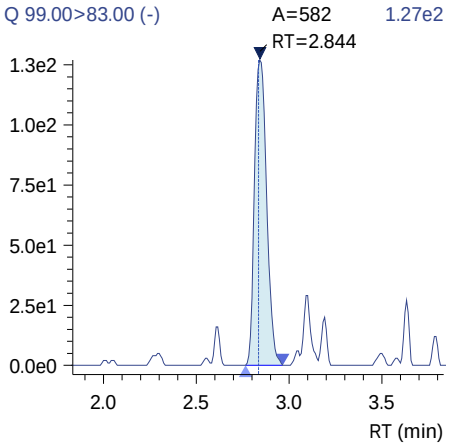
Printed at 7/6/2022 10:21:04 AM

E2200604-004

Sample ID: E2200604-004
Date Acquired: 7/5/2022 4:39:47 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_026.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 5

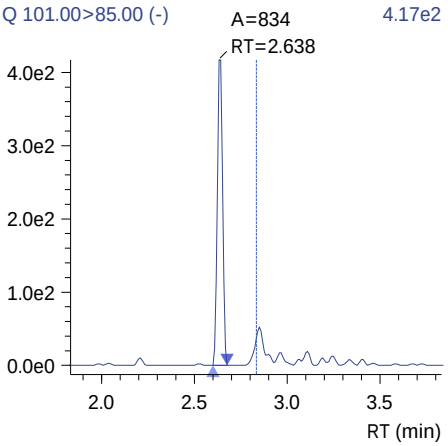
Perchlorate

Conc 0.1267



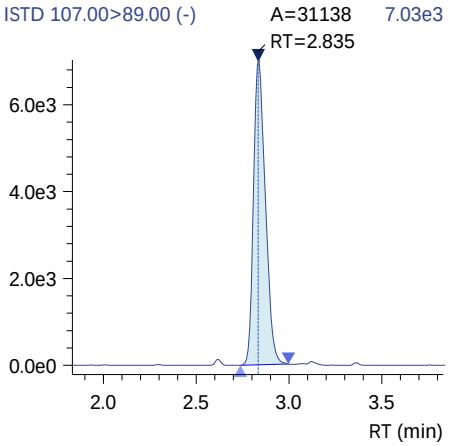
Perchlorate 2

Conc ----



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

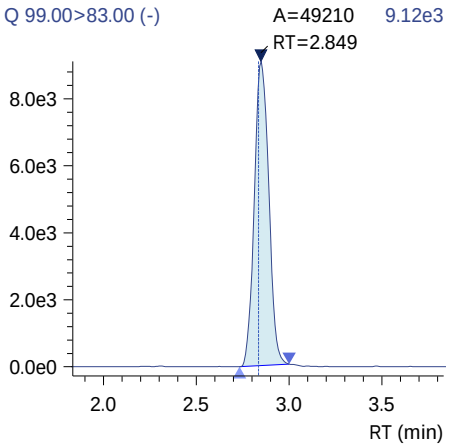
E2200604-006X10

Sample ID: E2200604-006X10
Date Acquired: 7/5/2022 5:03:35 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_028.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.849	49210	22174	14.6844	ng/mL	26.12	17.74-32.95
Perchlorate 2	Auto	2.850	12851	22174	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.849	22174	22174	1.0000	ng/mL	----	

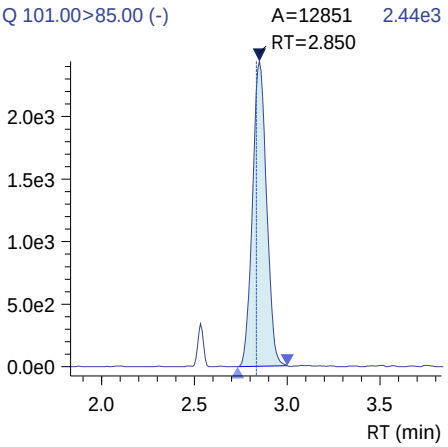
Perchlorate

Conc 14.6844



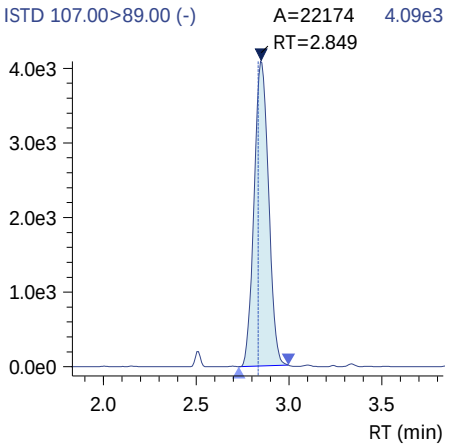
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

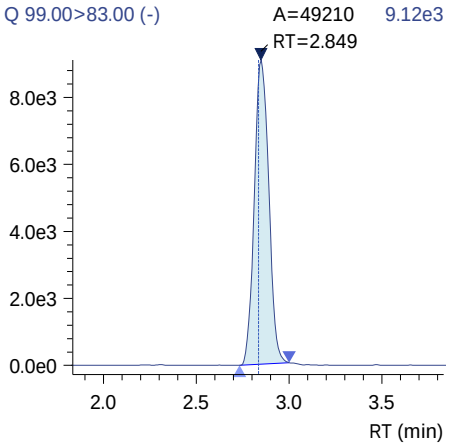
Printed at 7/6/2022 10:21:04 AM

E2200604-006X10

Sample ID: E2200604-006X10
Date Acquired: 7/5/2022 5:03:35 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_028.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 5

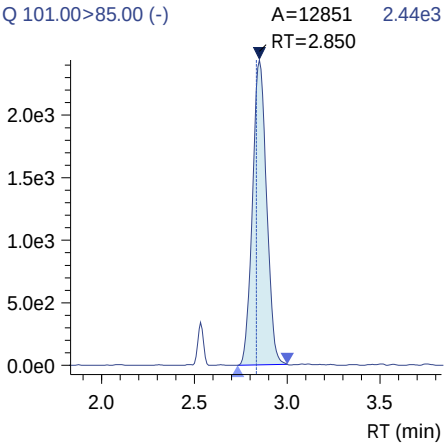
Perchlorate

Conc 15.0401



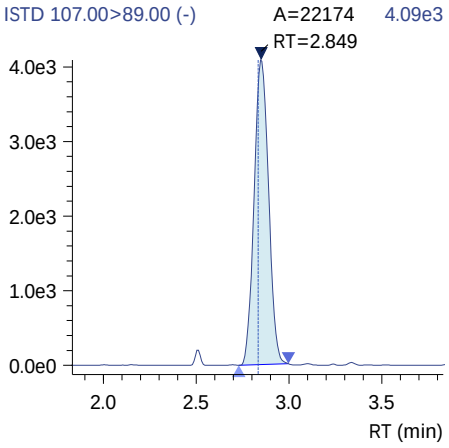
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:07:16 AM

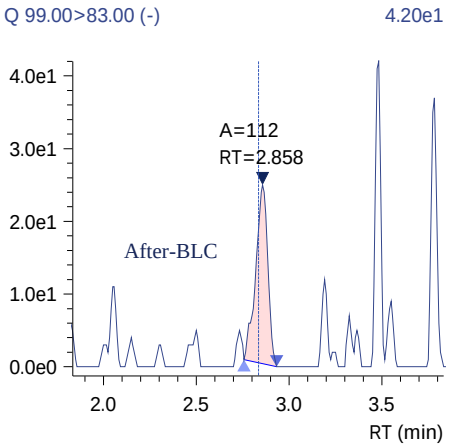
E2200604-008

Sample ID: E2200604-008
Date Acquired: 7/5/2022 5:19:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_030.lcd
Vial: 15 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.858	112	30567	0.0242	ng/mL	9.82	17.74-32.95
Perchlorate 2	M	2.842	11	30567	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.851	30567	30567	1.0000	ng/mL	----	

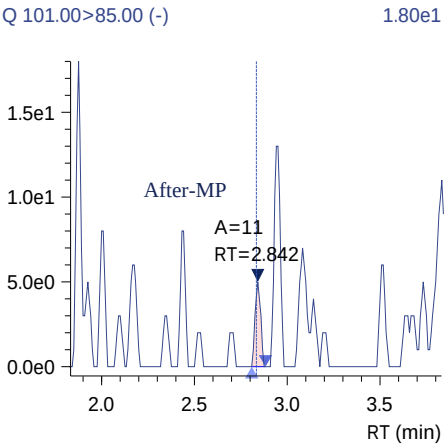
Perchlorate

Conc 0.0242



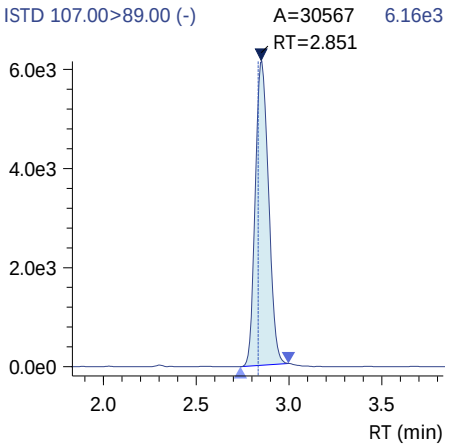
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/6/2022 10:21:04 AM

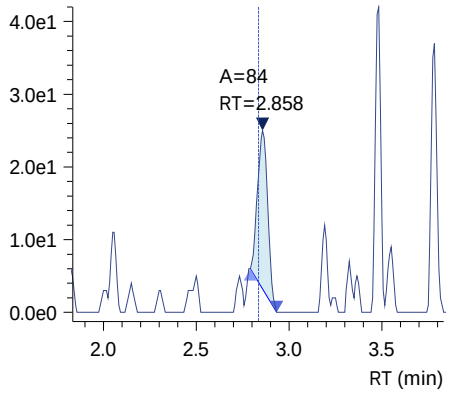
E2200604-008

Sample ID: E2200604-008
Date Acquired: 7/5/2022 5:19:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_030.lcd
Vial: 15 | Inj. Volume: 25.0000uL | Tray: 5

Perchlorate

Conc 0.0186

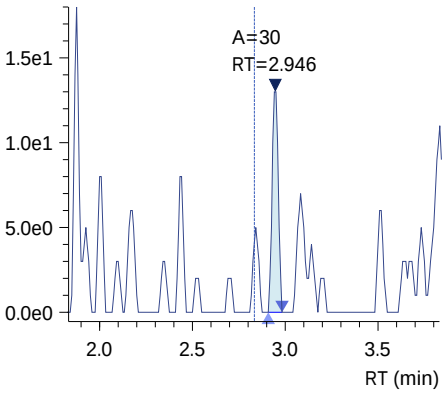
Q 99.00>83.00 (-) 4.20e1



Perchlorate 2

Conc 0.0000

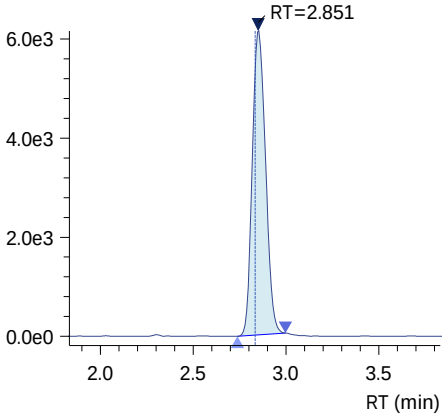
Q 101.00>85.00 (-) 1.80e1



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=30567 6.16e3



Insight Report

Printed at 7/6/2022 10:07:16 AM

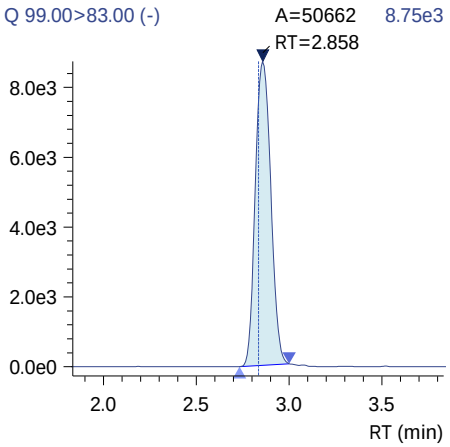
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/5/2022 5:27:15 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_031.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.858	50662	34258	9.7851	ng/mL	25.48	17.74-32.95
Perchlorate 2	Auto	2.854	12906	34258	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.854	34258	34258	1.0000	ng/mL	----	

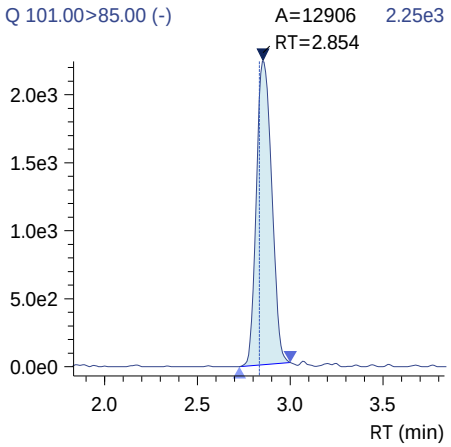
Perchlorate

Conc 9.7851



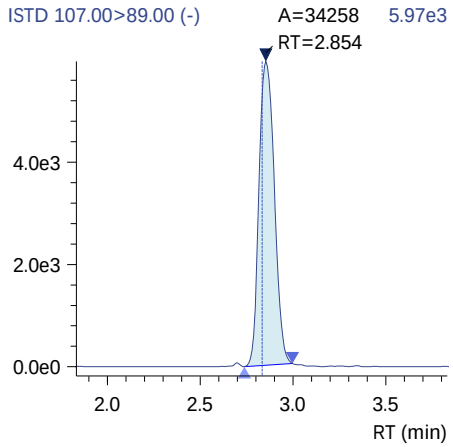
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

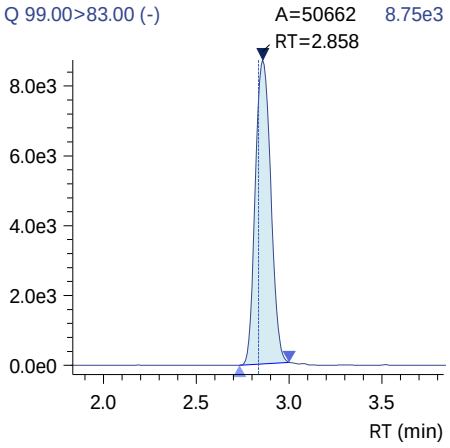
Printed at 7/6/2022 10:21:04 AM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/5/2022 5:27:15 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220705\20220705_031.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

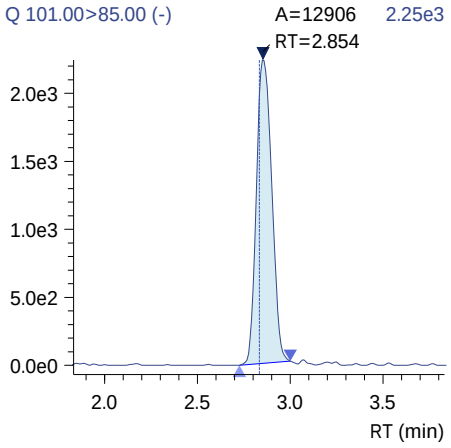
Perchlorate

Conc 10.0221



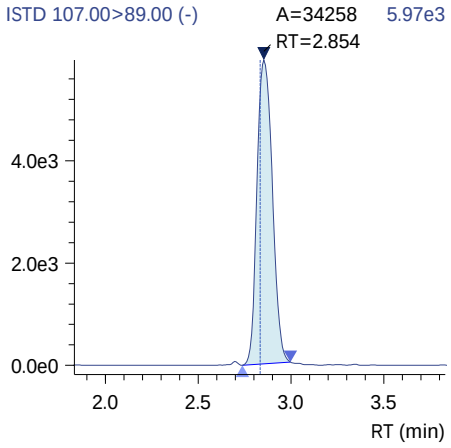
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

Method File: I:\LCMS01\DATA\20220706\20220601.lcm
Project File: I:\LCMS01\DATA\20220706\20220706.damlp

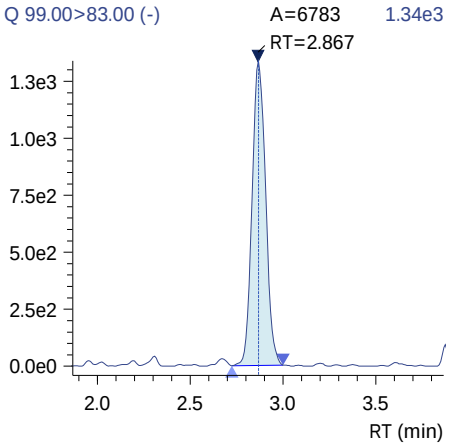
ICS

Sample ID: ICS
Date Acquired: 7/6/2022 11:21:24 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_007.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.867	6783	40214	1.1161	ng/mL	22.16	17.81-33.08
Perchlorate 2	Auto	2.862	1503	40214	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.862	40214	40214	1.0000	ng/mL	----	

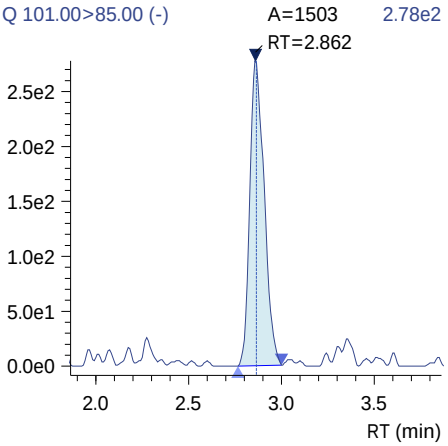
Perchlorate

Conc 1.1161



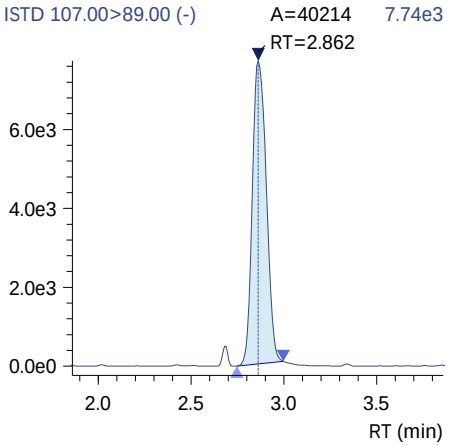
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:51:00 AM

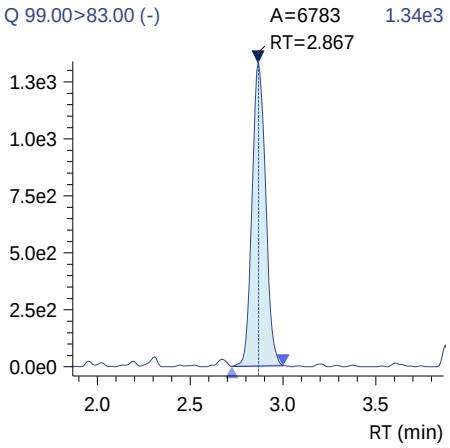
Method File: I:\LCMS01\DATA\20220706\20220601.lcm
Project File: I:\LCMS01\DATA\20220706\20220706.damlp

ICS

Sample ID: ICS
Date Acquired: 7/6/2022 11:21:24 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_007.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

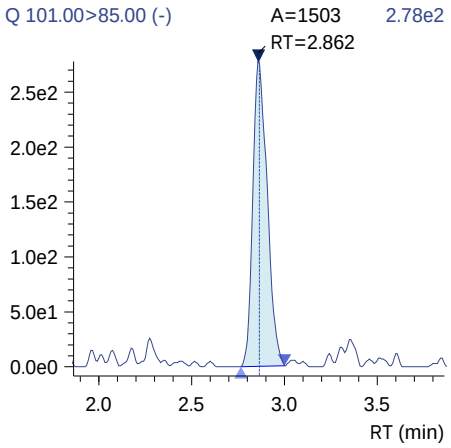
Perchlorate

Conc 1.1431



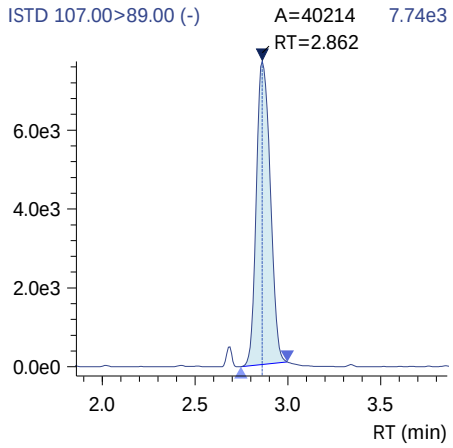
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

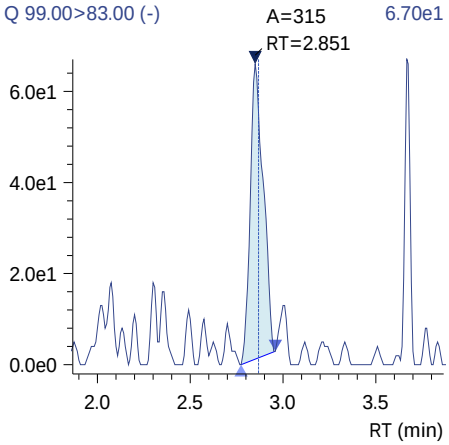
LODV

Sample ID: LODV
Date Acquired: 7/6/2022 12:00:53 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_008.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.851	315	43785	0.0476	ng/mL	24.44	17.81-33.08
Perchlorate 2	M	2.871	86	43785	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.850	43785	43785	1.0000	ng/mL	----	

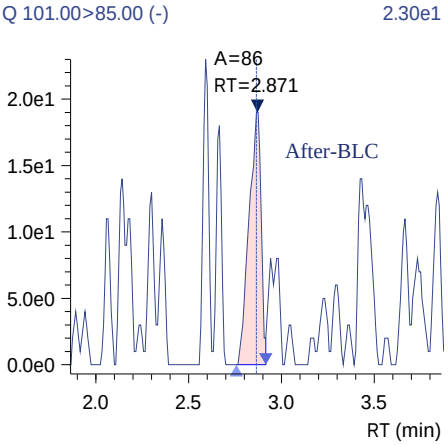
Perchlorate

Conc 0.0476



Perchlorate 2

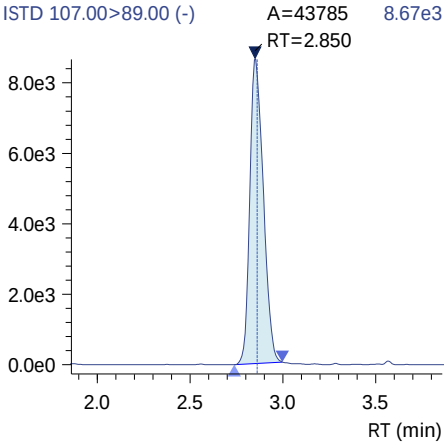
Conc 0.0000



After-BLC

Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

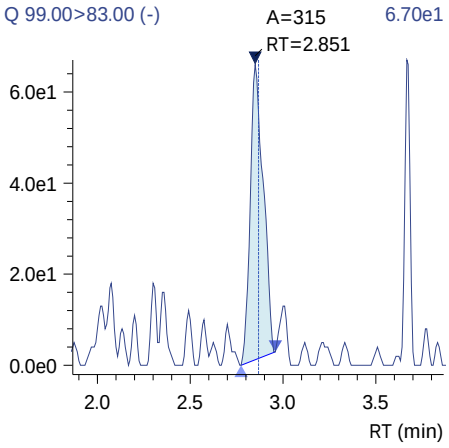
Printed at 7/7/2022 9:51:00 AM

LODV

Sample ID: LODV
Date Acquired: 7/6/2022 12:00:53 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_008.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 1

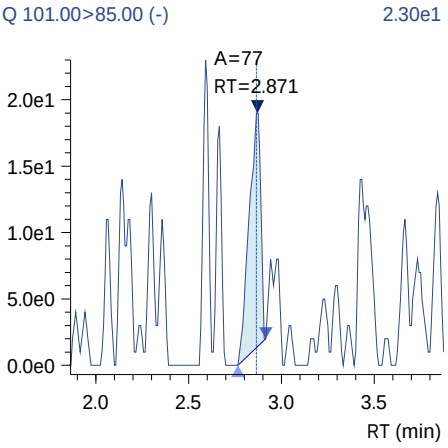
Perchlorate

Conc 0.0488



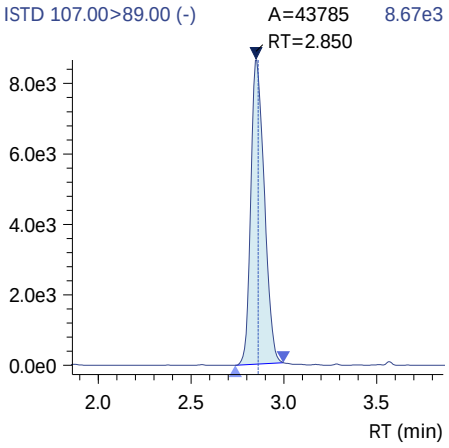
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

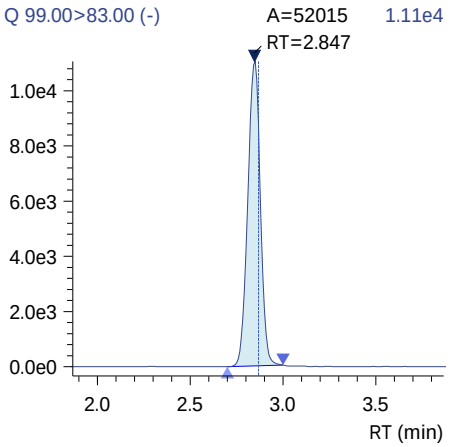
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/6/2022 12:08:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.847	52015	34430	9.9963	ng/mL	25.39	17.81-33.08
Perchlorate 2	Auto	2.845	13206	34430	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.843	34430	34430	1.0000	ng/mL	----	

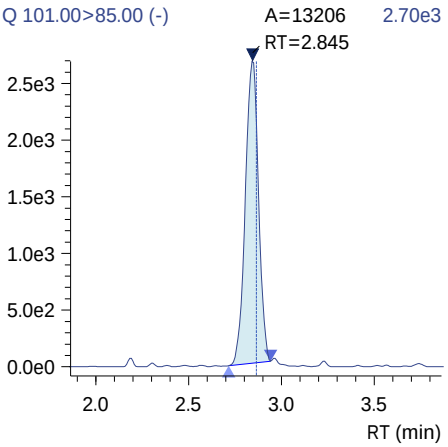
Perchlorate

Conc 9.9963



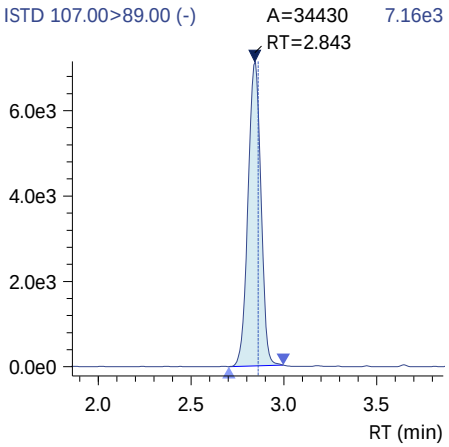
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

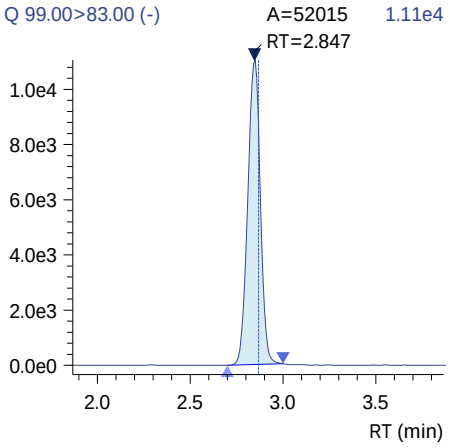
Printed at 7/7/2022 9:51:00 AM

PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/6/2022 12:08:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_009.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

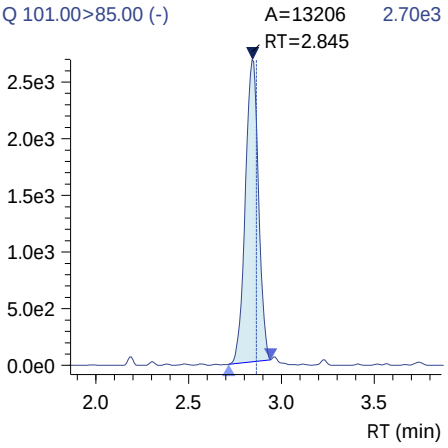
Perchlorate

Conc 10.2384



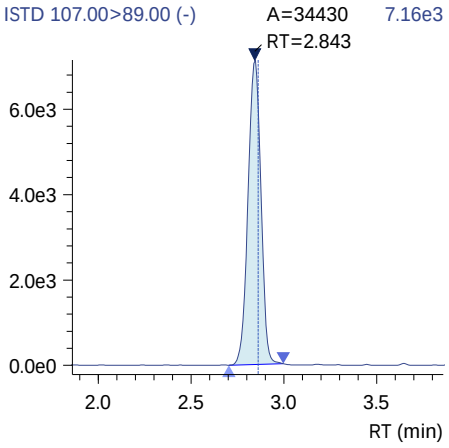
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

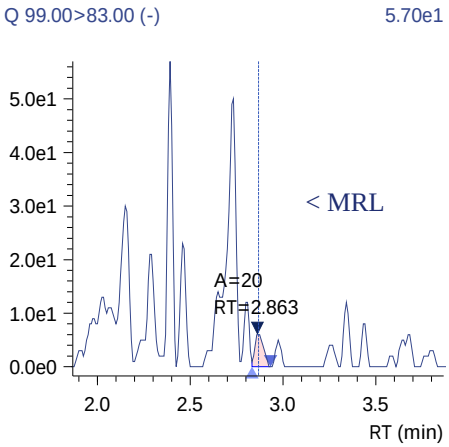
E2200604-007

Sample ID: E2200604-007
Date Acquired: 7/6/2022 12:56:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_013.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	M	2.863	20	29493	0.0045	ng/mL	195.00	17.81-33.08
Perchlorate 2	Auto	2.810	39	29493	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.832	29493	29493	1.0000	ng/mL	----	

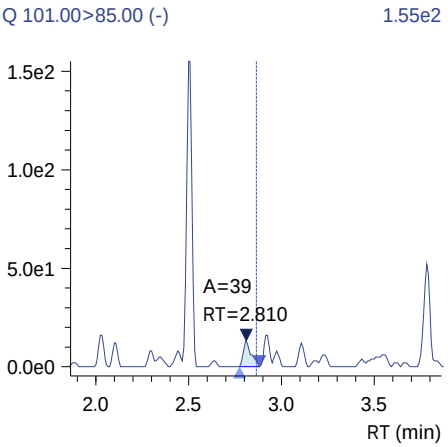
Perchlorate

Conc 0.0045



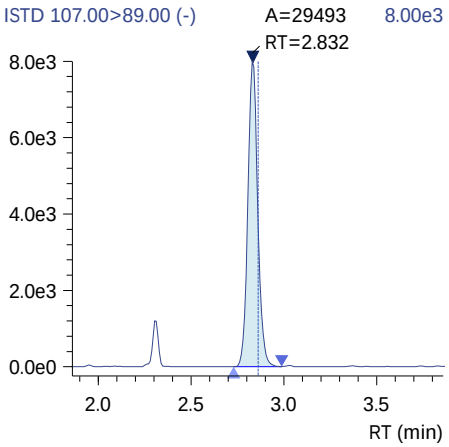
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

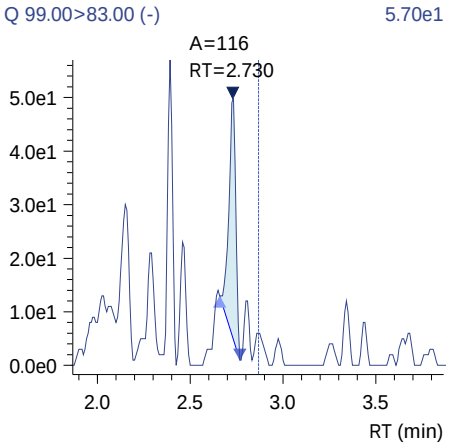
Printed at 7/7/2022 9:51:00 AM

E2200604-007

Sample ID: E2200604-007
Date Acquired: 7/6/2022 12:56:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_013.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 5

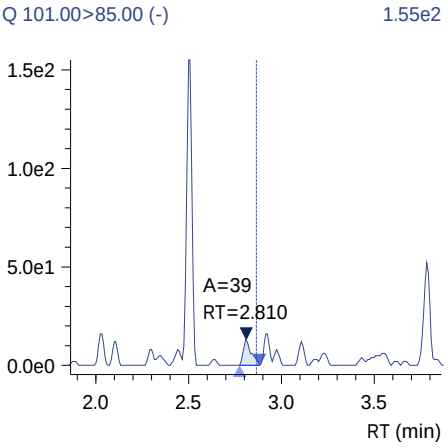
Perchlorate

Conc 0.0267



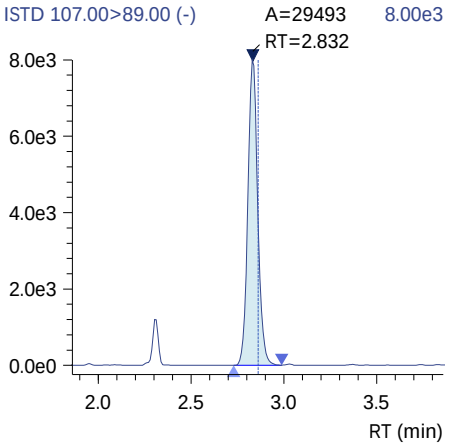
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

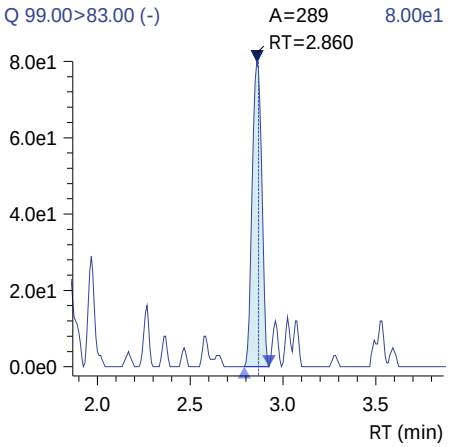
E2200604-003

Sample ID: E2200604-003
Date Acquired: 7/6/2022 1:52:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_014.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.860	289	17759	0.1077	ng/mL	29.76	17.81-33.08
Perchlorate 2	Auto	2.840	86	17759	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	M	2.856	17759	17759	1.0000	ng/mL	----	

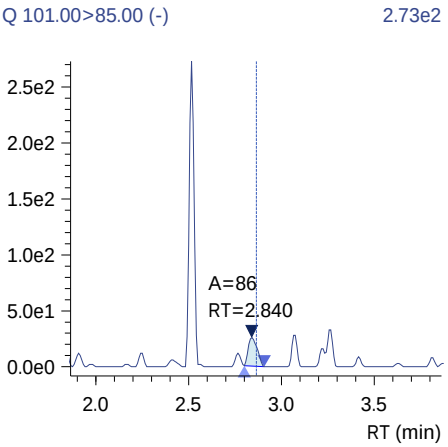
Perchlorate

Conc 0.1077



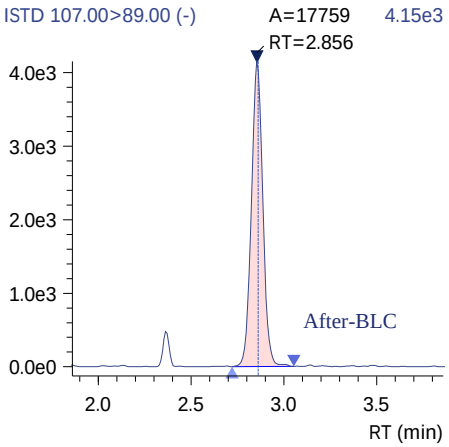
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

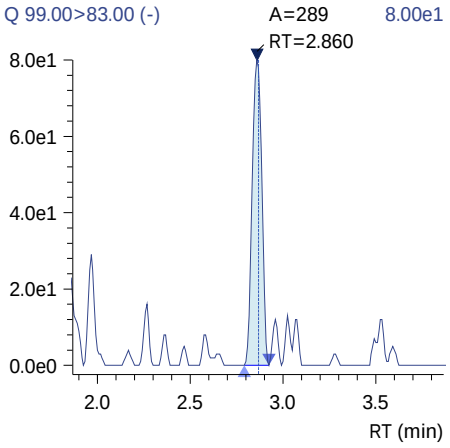
Printed at 7/7/2022 9:51:00 AM

E2200604-003

Sample ID: E2200604-003
Date Acquired: 7/6/2022 1:52:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_014.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 5

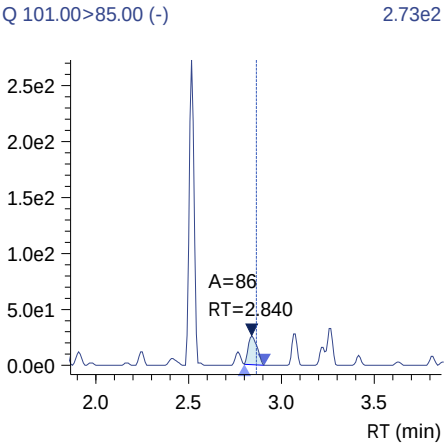
Perchlorate

Conc 0.1120



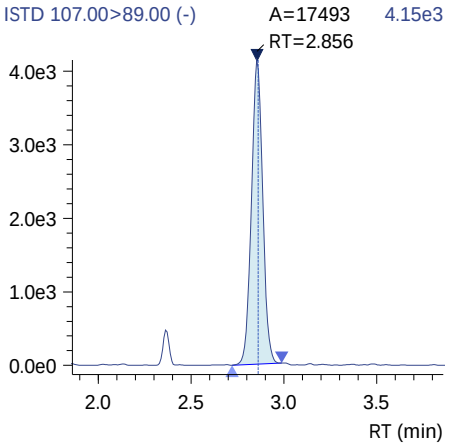
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

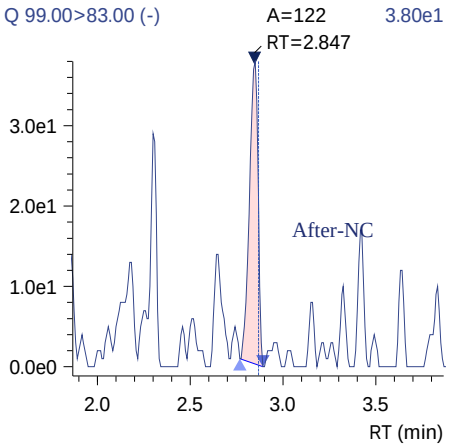
E2200604-005

Sample ID: E2200604-005
Date Acquired: 7/6/2022 2:18:28 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_015.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 5

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	MI	2.847	122	19433	0.0415	ng/mL	22.13	17.81-33.08
Perchlorate 2	M	2.826	27	19433	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.837	19433	19433	1.0000	ng/mL	----	

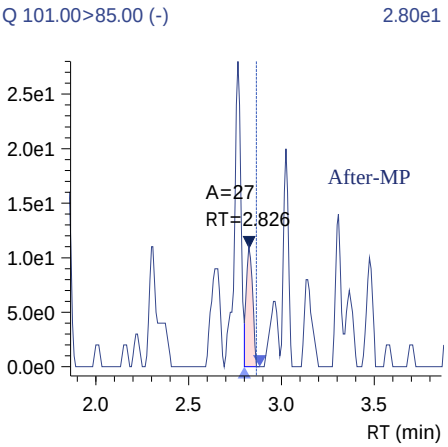
Perchlorate

Conc 0.0415



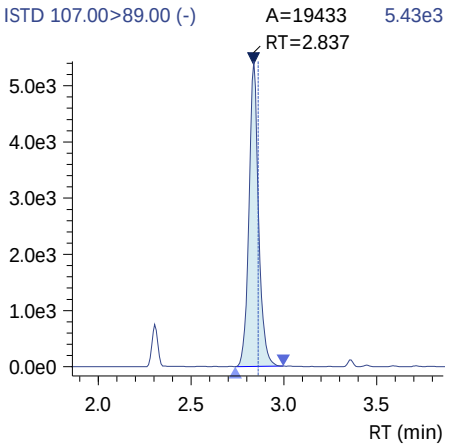
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

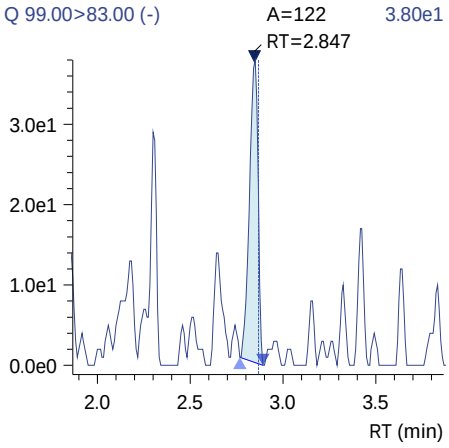
Printed at 7/7/2022 9:51:00 AM

E2200604-005

Sample ID: E2200604-005
Date Acquired: 7/6/2022 2:18:28 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_015.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 5

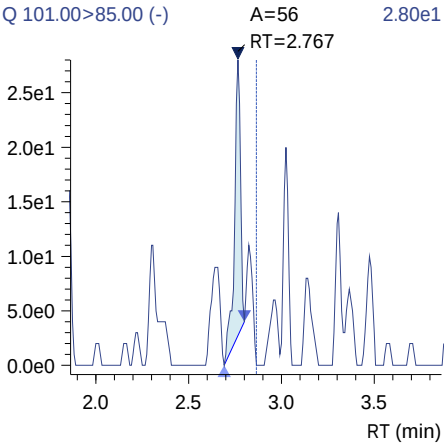
Perchlorate

Conc 0.0425



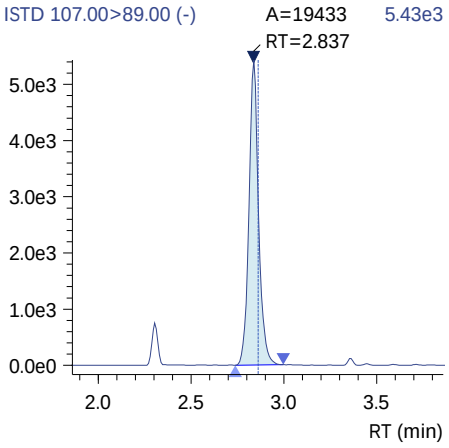
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:40:29 AM

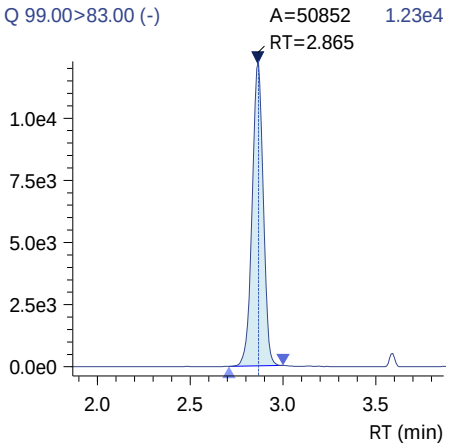
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/6/2022 2:40:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_016.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	Conc.	Unit	Ref 1 Actual Ratio	Comment 1
Perchlorate	Auto	2.865	50852	35076	9.5928	ng/mL	26.81	17.81-33.08
Perchlorate 2	Auto	2.864	13632	35076	0.0000	ng/mL	----	
Sodium Perchlorate-18O4_IS	Auto	2.864	35076	35076	1.0000	ng/mL	----	

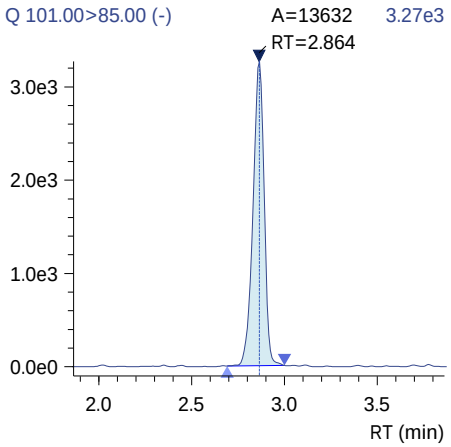
Perchlorate

Conc 9.5928



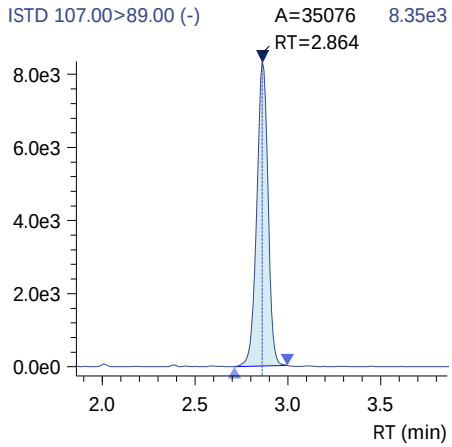
Perchlorate 2

Conc 0.0000



Sodium Perchlorate-18O4_IS

Conc 1.0000



Insight Report

Printed at 7/7/2022 9:51:00 AM

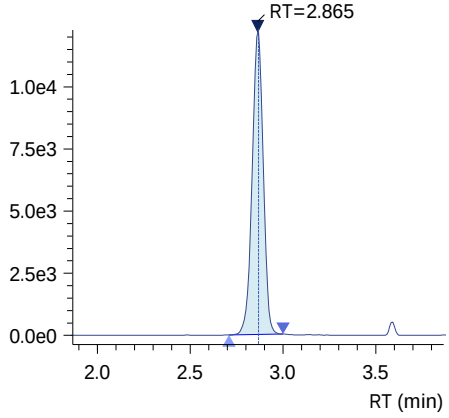
PERCHLORATE7

Sample ID: PERCHLORATE7
Date Acquired: 7/6/2022 2:40:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20220706\20220706_016.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Perchlorate

Conc 9.8251

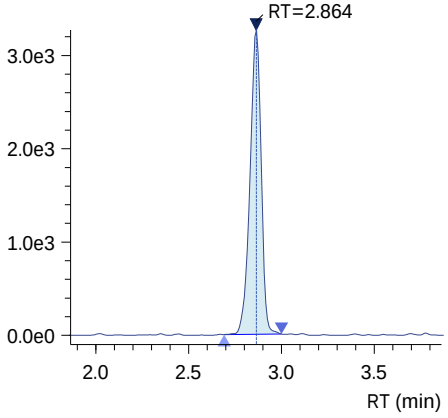
Q 99.00>83.00 (-) A=50852 1.23e4 RT=2.865



Perchlorate 2

Conc 0.0000

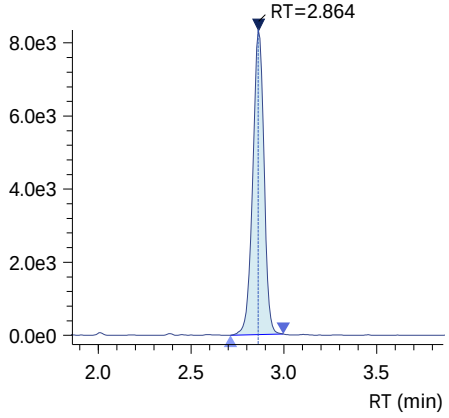
Q 101.00>85.00 (-) A=13632 3.27e3 RT=2.864



Sodium Perchlorate-18O4_IS

Conc 1.0000

ISTD 107.00>89.00 (-) A=35076 8.35e3 RT=2.864



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WorkOrder: HS22061645

LHAAP 16 June 2022

Aptim Environmental & Infrastucture, Inc.

Vicki Graves
10333 Richmond Ave Ste 1030
Houston TX 77042

21-Jul-2022

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HS22061645 LHAAP 16 June 2022 Final

ALS WO# HS22061645

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July 17, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS22061645**

Laboratory Results for: **LHAAP 16 June 2022**

Dear Vicki Graves ,

ALS Environmental received 11 sample(s) on Jun 30, 2022 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
Dane J. Wacasey

ALS Houston, US Date: 17-Jul-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 16 June 2022
Work Order: HS22061645

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS22061645-01	16EW03-220629	Groundwater		29-Jun-2022 07:05	30-Jun-2022 09:40	☐
HS22061645-02	16EW02-220629	Groundwater		29-Jun-2022 07:50	30-Jun-2022 09:40	☐
HS22061645-03	16EW02-220629-FD	Groundwater		29-Jun-2022 07:50	30-Jun-2022 09:40	☐
HS22061645-04	16IW26-220629	Groundwater		29-Jun-2022 08:40	30-Jun-2022 09:40	☐
HS22061645-05	16WW41-220629	Groundwater		29-Jun-2022 09:30	30-Jun-2022 09:40	☐
HS22061645-06	16WW41-220629-FD	Groundwater		29-Jun-2022 09:30	30-Jun-2022 09:40	☐
HS22061645-07	16WW22-220629	Groundwater		29-Jun-2022 10:25	30-Jun-2022 09:40	☐
HS22061645-08	16WW39-220629	Groundwater		29-Jun-2022 11:10	30-Jun-2022 09:40	☐
HS22061645-09	16WW49-220629	Groundwater		29-Jun-2022 11:55	30-Jun-2022 09:40	☐
HS22061645-10	16IW03-220629	Groundwater		29-Jun-2022 12:40	30-Jun-2022 09:40	☐
HS22061645-11	Trip Blank-220629	Water		29-Jun-2022 00:00	30-Jun-2022 09:40	☐

ALS Houston, US Date: 17-Jul-22

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 16 June 2022
Work Order: HS22061645

Work Order Comments

- The analysis for CO2 by RSK175 was subcontracted to Pace located in Baton Rouge, LA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Houston Specialty Lab. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R412754

Sample ID: 16IW03-220629 (HS22061645-10)

- Preservation of VOA vials can only be verified after samples are analyzed. Based on the post-analytical screening, the following chemically-preserved samples were found to have a pH >2.

Sample ID: 16IW26-220629 (HS22061645-04)

- Preservation of VOA vials can only be verified after samples are analyzed. Based on the post-analytical screening, the following chemically-preserved samples were found to have a pH >2.

Sample ID: HS22070020-01MS

- MS and MSD are for an unrelated sample

Sample ID: HS22070326-07MS

- MS and MSD are for an unrelated sample

GCMS Volatiles by Method SW8260

Batch ID: R412360

Sample ID: 16EW03-220629 (HS22061645-01)

- Lowest dilution due to matrix.

Sample ID: 16IW26-220629 (HS22061645-04)

- Lowest dilution due to sample matrix.

Batch ID: R412107

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R412413

Sample ID: HS22070020-01MSD

- MSD is performed on unrelated sample

WetChemistry by Method SM5310B

Batch ID: R412873,R412991

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 17-Jul-22

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 16 June 2022
Work Order: HS22061645

WetChemistry by Method SW9056

Batch ID: R411972

Sample ID: 16EW02-220629 (HS22061645-02)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 16EW02-220629-FD (HS22061645-03)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 16EW03-220629 (HS22061645-01)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 16IW26-220629 (HS22061645-04MS)

- 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. (Bromide)

Sample ID: 16WW41-220629 (HS22061645-05)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 16WW41-220629-FD (HS22061645-06)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))