LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 23

2022

Bate Stamp Numbers
01114702 – 01116702

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2022

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

VOLUME 23

2022

A. Title: (Cont'd) Report – Appendix D Level IV DOD (Jul-Aug 2020) to Final First Annual Remediation Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant, Karnack, Texas, April 2022
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: April 19, 2022
Bate Stamp: 01114702 – 01115163

B. Title: Report – Preliminary (30%) Remedial Design for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: April 25, 2022
Bate Stamp: 01115164 – 01115203

C. Title: Transmittal Letter – Request for Schedule Extension for Submittal of the LHAAP-18/24 Draft (60%) Remedial Design (RD) to EPA, Longhorn Army Ammunition Plant, Karnack, TX
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency
Date: April 26, 2022
Bate Stamp: 01115204 – 01115204

D. Title: Transmittal Letter – Request for Schedule Extension for Submittal of the LHAAP-18/24 Draft (60%) Remedial Design (RD) to TCEQ, Longhorn Army Ammunition Plant, Karnack, TX
Author(s): Department of the Army
Recipient: Texas Commission on Environmental Quality
Date: April 26, 2022
Bate Stamp: 01115205 – 01115205

E. Title: Minutes – Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP), March 16, 2022
Author(s): Department of the Army
Recipient: All Parties
Date: April 29, 2022
Bate Stamp: 01115206 – 01115238

VOLUME 23 (Cont'd)

2022

F. Title: Report – Quarterly Evaluation Report, 4th Quarter (October-December) 2021, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, May 2022
Author(s): Bhate Environmental Associates, Inc.
Recipient: U.S. Army Corps of Engineers
Date: May 25, 2022
Bate Stamp: 01115239 – 01115540

G. Title: (Cont'd) Report – Appendix C LHAAP-18-24 Labs to Quarterly Evaluation Report, 4th Quarter (October-December) 2021, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, May 2022
Author(s): Bhate Environmental Associates, Inc.
Recipient: U.S. Army Corps of Engineers
Date: May 25, 2022
Bate Stamp: 01115541 – 01116230

H. Title: (Cont'd) Report – Appendix F Labs to Quarterly Evaluation Report, 4th Quarter (October-December) 2021, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, May 2022
Author(s): Bhate Environmental Associates, Inc.
Recipient: U.S. Army Corps of Engineers
Date: May 25, 2022
Bate Stamp: 01116231 – 01116702

August 27, 2020

Service Request No:E2000759

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS20080738

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory August 19, 2020
For your reference, these analyses have been assigned our service request number **E2000759.**

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.:**	E2000759
Project:	HS20080738	**Date Received:**	08/19/20
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two samples were received for analysis at ALS Environmental in Houston on 08/19/20.

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:

EQ2000359: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The MS (EQ2000359-04) and MSD ((EQ2000359-05) were performed on unrelated samples. The LCS and LCSD recovery passed.

DOD Certification is held for the method/matrix/analytes provided in this report.

Lowest practical dilution performed on both E2000759-001/002 due to matrix interference.

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:**E2000759
Project: HS20080738

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000759-001	16WW58-200817	8/17/2020	0805
E2000759-002	16WW57-200817	8/17/2020	0920

Service Request Summary

Folder #: **E2000759**
Client Name: ALS Environmental - US
Project Name: HS20080738
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/19/20
Internal Due Date: 9/1/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20080738
EDD: No EDD Specified

4 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 10D
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2000759-001	16WW58-200817	Ground Water	08/17/20 0805	**IV**
E2000759-002	16WW57-200817	Ground Water	08/17/20 0920	**IV**

Service Request Summary

Folder #: **E2000759**
Client Name: ALS Environmental - US
Project Name: HS20080738
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/19/20
Internal Due Date: 9/1/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20080738
EDD: No EDD Specified

4 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 10D
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	Level II due 9/1,level IV 9/8
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

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	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.
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.
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.

Data Qualifiers

Lab 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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	1785988	12/31/2020
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022
Washington Department of Health	C819	11/14/2020

Chain of Custody

ALS Environmental - Houston HRMS
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F: +1 281 530 5887
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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14518**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@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: HS20080738
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20080738-01**	**16WW58-200817**	**Groundwater**	**17 Aug 2020 08:05**
	SUB_Perch-6850			26 Aug 2020
2.	**HS20080738-02**	**16WW57-200817**	**Groundwater**	**17 Aug 2020 09:20**
	SUB_Perch-6850			26 Aug 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20080738-02 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. [illegible] Date/Time: 8/19/20 13:20

Received By: [illegible] Date/Time: 8/19/20 1320

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-H

Thermometer ID: IR25

Date/Time Received: 8/19/20 Initials: CG Date/Time Logged in: 8/19/20 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☑ ALS Courier ○ 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?
–		8/19/20	1320	CG	3.3	☒
						☐
						☐
						☐

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#: 364168 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 8/24/20 09:31

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000716-001	LH18/24-SP650_080520-BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2000739-001	LH18/24-SP650_081120_BIX	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2000740-001	LH18/24-SP140_081120	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2000741-001	LH18/24-SP650_081120_BIX	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2000742-001	LHSMW01-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2000742-002	04WW04-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2000742-003	04WW08-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2000742-004	04WW08-200810-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2000742-005	04WW02-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2000742-006	04WW06-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2000742-007	LHSMW02-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2000742-008	04WW11-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2000742-009	04WW01-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2000742-010	04WW05-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2000742-011	04WW09-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2000742-012	04WW10-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
17	E2000742-013	04WW07-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
18	E2000742-014	04WW07-200811-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
19	E2000759-001	16WW58-200817	.01	6850/ClO4 DOD			Ground Water	10mL	
20	E2000759-002	16WW57-200817	.01	6850/ClO4 DOD			Ground Water	10mL	
21	EQ2000359-01	MB		6850/ClO4 DOD			Liquid	10mL	
22	EQ2000359-02	LCS		6850/ClO4 DOD			Liquid	10mL	
23	EQ2000359-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
24	EQ2000359-04	04WW10-200811 MS	.01	6850/ClO4 DOD			Liquid	10mL	
25	EQ2000359-05	04WW10-200811 DMS	.01	6850/ClO4 DOD			Liquid	10mL	
26	EQ2000359-06	16WW57-200817 MS	.01	6850/ClO4 DOD			Liquid	10mL	
27	EQ2000359-07	16WW57-200817 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 202037 Logbook Ref: Sodium Perchlorate Expires On: 05/22/2021

E2000716-001	100.00µL	E2000739-001	100.00µL	E2000740-001	100.00µL	E2000741-001	100.00µL	E2000742-001	100.00µL	E2000742-002	100.00µL
E2000742-003	100.00µL	E2000742-004	100.00µL	E2000742-005	100.00µL	E2000742-006	100.00µL	E2000742-007	100.00µL	E2000742-008	100.00µL
E2000742-009	100.00µL	E2000742-010	100.00µL	E2000742-011	100.00µL	E2000742-012	100.00µL	E2000742-013	100.00µL	E2000742-014	100.00µL
E2000759-001	100.00µL	E2000759-002	100.00µL	EQ2000359-01	100.00µL	EQ2000359-02	100.00µL	EQ2000359-03	100.00µL	EQ2000359-04	100.00µL

Preparation Information Benchsheet

Prep Run#: 364168 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 8/24/20 09:31

EQ2000359-05	100.00µL	EQ2000359-06	100.00µL	EQ2000359-07	100.00µL

Name:	Perchlorate Intermediate Stock1	Inventory ID	209764	Logbook Ref:	Perchlorate Int. Stock1 51820	Expires On:	11/18/2020

EQ2000359-02	1.00µL	EQ2000359-03	1.00µL	EQ2000359-04	1.00µL	EQ2000359-05	1.00µL	EQ2000359-06	1.00µL	EQ2000359-07	1.00µL

Preparation Steps

Step: Preparation
Started: 8/24/20 09:31
Finished: 8/25/20 17:54
By: GRIVERA
Comments

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined
Received By: _____ Date: _____ 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:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0805
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW58-200817	**Units:**	µg/L
Lab Code:	E2000759-001	**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	1.00	0.500	0.250	10	8/24/20	8/26/20 18:29	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	E2000759-002	**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	**0.454**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 18:36	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000359-01	**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	8/24/20	8/25/20 18:56	364168	692783	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	364168

	Lab Control Sample EQ2000359-02			Duplicate Lab Control Sample EQ2000359-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.108	0.100	108	0.100	0.100	100	84 - 119	8	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:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000359-02	**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	**0.108**		0.100	0.0500	0.0250	1	8/24/20	8/26/20 15:35	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000359-03	**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	**0.100**		0.100	0.0500	0.0250	1	8/24/20	8/26/20 15:27	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	8/26/20

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	E2000742-012	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ2000359-04				Batch QCDMS **Duplicate Matrix Spike** EQ2000359-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.339	0.459	0.100	120	*	0.428	0.100	89	84 - 119	7	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000359-04	**Basis:**	NA
Run Type:	Matrix Spike		

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	**0.459**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 15:43	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000359-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**0.428**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 15:51	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
		Date Analyzed:	8/26/20

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	E2000759-002	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		16WW57-200817MS				16WW57-200817DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2000359-06				EQ2000359-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.454	0.530	0.100	76	#	0.558	0.100	105	#	84 - 119	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	EQ2000359-06	**Basis:**	NA
Run Type:	Matrix Spike		

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	**0.530**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 15:59	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	EQ2000359-07	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**0.558**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 16:07	364168	692775	

Initial Calibration

ALS Environmental - Houston HRMS
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20200819

1st Review: Kneir
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 7/19/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000022**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200819_005	Perchlorate6850b.lcm	1x	☒	3100806-05	8/19/2020 10:42
2	PERCHLORATE2		20200819_006	Perchlorate6850b.lcm	1x	☒	3100806-06	8/19/2020 10:50
3	PERCHLORATE3		20200819_007	Perchlorate6850b.lcm	1x	☒	3100806-07	8/19/2020 10:58
4	PERCHLORATE4		20200819_008	Perchlorate6850b.lcm	1x	☒	3100807-01	8/19/2020 11:06
5	PERCHLORATE5		20200819_009	Perchlorate6850b.lcm	1x	☒	3100807-02	8/19/2020 11:14
6	PERCHLORATE6		20200819_010	Perchlorate6850b.lcm	1x	☒	3100807-03	8/19/2020 11:22
7	PERCHLORATE7		20200819_011	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 11:30
8	PERCHLORATE8		20200819_012	Perchlorate6850b.lcm	1x	☒	3100807-05	8/19/2020 11:38
9	PERCHLORATE9		20200819_013	Perchlorate6850b.lcm	1x	☒	3100807-06	8/19/2020 11:45
10	PERCHLORATE10		20200819_014	Perchlorate6850b.lcm	1x	☒	3100807-07	8/19/2020 11:53
11	PERCHLORATEICV		20200819_016	Perchlorate6850b.lcm	1x	☒	3100807-08	8/19/2020 12:09
12	LODV		20200819_017	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:17
13	EQ2000337-01		20200819_019	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:38
14	EQ2000337-02		20200819_020	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:46
15	EQ2000337-03		20200819_021	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:53
16	E2000723-001		20200819_022	Perchlorate6850b.lcm	1x	☒		8/19/2020 13:01
17	PERCHLORATE7		20200819_023	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 13:09
18	E2000680-002X10		20200819_024	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:17
19	E2000680-004X2		20200819_025	Perchlorate6850b.lcm	2x	☒		8/19/2020 13:25
20	E2000680-007X10		20200819_026	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:33
21	E2000680-009X10		20200819_027	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:41
22	E2000680-010X10		20200819_028	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:49
23	E2000680-011X10		20200819_029	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:57
24	EQ2000327-01		20200819_030	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:04
25	EQ2000327-02		20200819_031	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:12
26	EQ2000327-03		20200819_033	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:21
27	PERCHLORATE7		20200819_034	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 14:29
28	E2000735-001		20200819_035	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:37
29	E2000735-002		20200819_036	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:45
30	E2000735-003		20200819_037	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:53
31	E2000735-004		20200819_038	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:01
32	E2000735-005		20200819_039	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:09
33	E2000735-006		20200819_040	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:16
34	E2000735-007		20200819_041	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:24
35	E2000735-008		20200819_042	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:32
36	E2000735-009		20200819_043	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:44
37	PERCHLORATE7		20200819_044	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 15:52
38	E2000735-010		20200819_045	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:00
39	E2000735-011		20200819_046	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:08
40	E2000735-013		20200819_047	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:16
41	E2000735-014		20200819_048	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:24
42	E2000735-015		20200819_049	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:32
43	E2000735-016		20200819_050	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:40
44	E2000735-017		20200819_051	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:47
45	E2000735-018		20200819_052	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:55
46	E2000735-019		20200819_053	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:03
47	PERCHLORATE7		20200819_054	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 17:11
48	EQ2000339-01		20200819_055	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:19
49	EQ2000339-02		20200819_056	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:27
50	EQ2000339-03		20200819_057	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:35
51	E2000712-001		20200819_058	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:43
52	E2000712-002		20200819_059	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:51
53	E2000712-003		20200819_060	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:59
54	IB		20200819_061	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:08
55	IB		20200819_062	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:16
56	IB		20200819_063	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:24
57	IB		20200819_064	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:32
58	PERCHLORATE7		20200819_065	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 18:40
59	E2000712-004		20200819_066	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:48
60	E2000712-005		20200819_067	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:56
61	E2000712-006		20200819_068	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:04

20200819

1st Review: Kneir
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 7/19/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000022**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
62	E2000712-007		20200819_069	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:12
63	E2000694-012		20200819_070	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:19
64	E2000694-012MS		20200819_071	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:27
65	E2000694-012MSD		20200819_072	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:35
66	E2000711-001		20200819_073	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:43
67	E2000711-002		20200819_074	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:51
68	E2000724-001		20200819_075	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:59
69	PERCHLORATE7		20200819_076	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 20:07
70	E2000724-002		20200819_077	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:15
71	E2000724-003		20200819_078	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:22
72	E2000724-004		20200819_079	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:30
73	E2000728-001		20200819_080	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:38
74	E2000728-002		20200819_081	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:46
75	E2000729-001		20200819_082	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:54
76	R2006493-001		20200819_083	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:02
77	R2006493-003		20200819_084	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:10
78	R2006493-005		20200819_085	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:18
79	R2006493-007		20200819_086	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:26
80	PERCHLORATE7		20200819_087	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 21:33
81	R2006493-009		20200819_088	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:41
82	R2006493-011		20200819_089	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:49
83	R2006493-013		20200819_090	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:57
84	R2006493-015		20200819_091	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:05
85	PERCHLORATE7		20200819_092	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 22:13
86	EQ2000338-01		20200819_093	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:21
87	EQ2000338-02		20200819_094	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:29
88	EQ2000338-03		20200819_095	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:37
89	EQ2000338-04		20200819_096	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:44
90	EQ2000338-05		20200819_097	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:52
91	R2006532-001		20200819_098	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:00
92	R2006532-003		20200819_099	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:08
93	R2006532-005		20200819_100	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:16
94	R2006532-007		20200819_101	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:24
95	R2006532-009		20200819_102	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:32
96	PERCHLORATE7		20200819_103	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 23:40
97	R2006532-011		20200819_104	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:47
98	R2006555-002		20200819_105	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:55
99	R2006555-004		20200819_106	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:03
100	R2006555-006		20200819_107	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:11
101	R2006555-008		20200819_108	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:19
102	R2006555-010		20200819_109	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:27
103	R2006555-012		20200819_110	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:35
104	R2006617-001		20200819_111	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:43
105	R2006617-003		20200819_112	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:50
106	R2006617-005		20200819_113	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:58
107	PERCHLORATE7		20200819_114	Perchlorate6850b.lcm	1x	☒	3100807-04	8/20/2020 1:06
108	R2006617-007		20200819_115	Perchlorate6850b.lcm	1x	☒		8/20/2020 1:14
109	R2006617-009		20200819_116	Perchlorate6850b.lcm	1x	☒		8/20/2020 1:22
110	R2006617-010		20200819_117	Perchlorate6850b.lcm	1x	☒		8/20/2020 1:30
111	PERCHLORATE7		20200819_118	Perchlorate6850b.lcm	1x	☒	3100807-04	8/20/2020 1:38

Initial Calibration - Detailed Report

Calibration ID: EC2000022 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2000022-01	PERCHLORATE1	20200819_005	08/19/2020 10:42
02	EC2000022-02	PERCHLORATE2	20200819_006	08/19/2020 10:50
03	EC2000022-03	PERCHLORATE3	20200819_007	08/19/2020 10:58
04	EC2000022-04	PERCHLORATE4	20200819_008	08/19/2020 11:06
05	EC2000022-05	PERCHLORATE5	20200819_009	08/19/2020 11:14
06	EC2000022-06	PERCHLORATE6	20200819_010	08/19/2020 11:22
07	EC2000022-07	PERCHLORATE7	20200819_011	08/19/2020 11:30
08	EC2000022-08	PERCHLORATE8	20200819_012	08/19/2020 11:38
09	EC2000022-09	PERCHLORATE9	20200819_013	08/19/2020 11:45
10	EC2000022-10	PERCHLORATE10	20200819_014	08/19/2020 11:53

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 5.952** **Average RF = 0.1131**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1299	02	0.5000	0.113	03	0.7000	0.1123	04	1.0000	0.1147
05	2.0000	0.1134	06	5.0000	0.1082	07	10.0000	0.1069	08	20.0000	0.1158
09	30.0000	0.1094	10	50.0000	0.107						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.115	14.9	02	0.5000	0.500	-0.1	03	0.7000	0.695	-0.7
04	1.0000	1.01	1.5	05	2.0000	2.01	0.3	06	5.0000	4.78	-4.3
07	10.0000	9.46	-5.4	08	20.0000	20.5	2.4	09	30.0000	29.0	-3.2
10	50.0000	47.3	-5.4								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000022	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200819_016	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000022-11	T	Average RF	10	9.352	ng/mL	-6.5	<= 15

ALS Group Houston

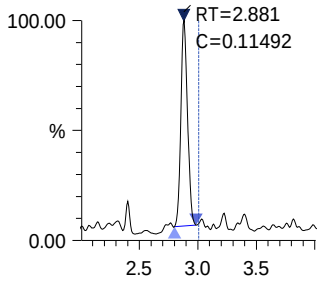
PERCHLORATE1

Date acquired: 8/19/2020 10:42:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_005.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	8/19/2020 10:42:37 AM	3802	0.11492	20200819_005	2.881	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	8/19/2020 10:42:37 AM	292622	1.00000	20200819_005	2.877	25.0000	1.0000	5

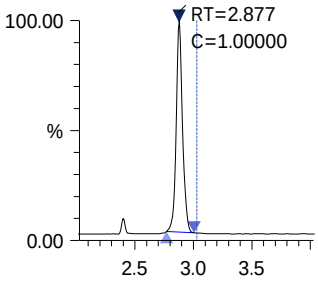
Perchlorate

Conc 0.11492
Area 3802
Q 99.00>83.00 (-) 1.00e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 292622
ISTD 107.00>89.00 (-) 7.83e4



ALS Group Houston

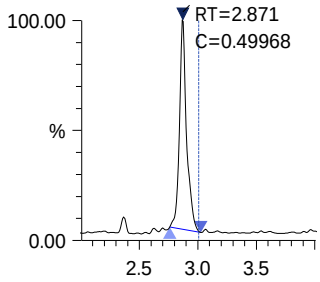
PERCHLORATE2

Date acquired: 8/19/2020 10:50:33 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_006.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	8/19/2020 10:50:33 AM	18036	0.49968	20200819_006	2.871	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	8/19/2020 10:50:33 AM	319274	1.00000	20200819_006	2.870	25.0000	1.0000	6

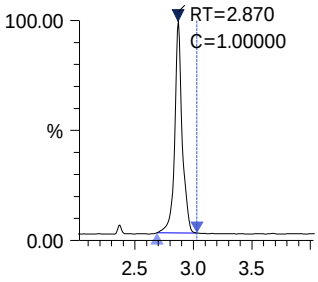
Perchlorate

Conc 0.49968
Area 18036
Q 99.00>83.00 (-) 4.32e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 319274
ISTD 107.00>89.00 (-) 7.26e4



ALS Group Houston

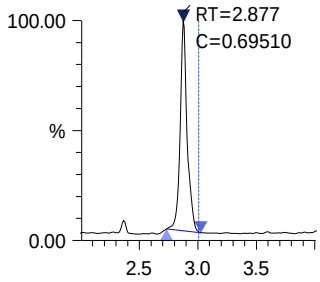
PERCHLORATE3

Date acquired: 8/19/2020 10:58:27 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_007.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	8/19/2020 10:58:27 AM	24394	0.69510	20200819_007	2.877	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	8/19/2020 10:58:27 AM	310422	1.00000	20200819_007	2.874	25.0000	1.0000	7

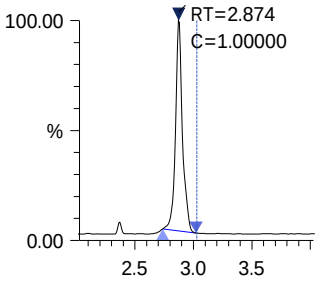
Perchlorate

Conc 0.69510
Area 24394
Q 99.00>83.00 (-) 5.99e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 310422
ISTD 107.00>89.00 (-) 7.56e4



ALS Group Houston

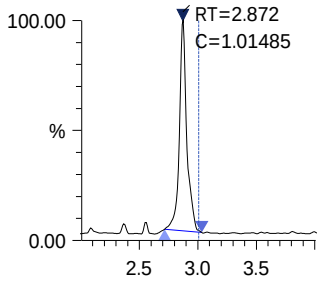
PERCHLORATE4

Date acquired: 8/19/2020 11:06:22 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_008.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	8/19/2020 11:06:22 AM	33591	1.01485	20200819_008	2.872	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	8/19/2020 11:06:22 AM	292786	1.00000	20200819_008	2.872	25.0000	1.0000	8

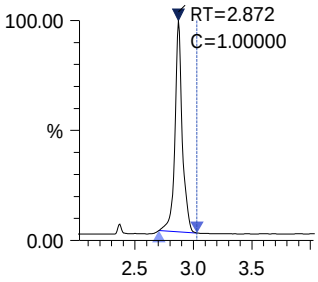
Perchlorate

Conc 1.01485
Area 33591
Q 99.00>83.00 (-) 7.70e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 292786
ISTD 107.00>89.00 (-) 6.80e4



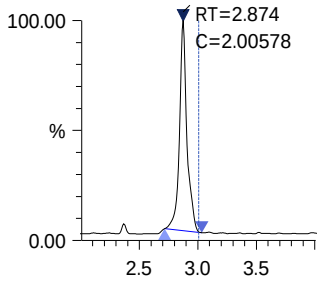
PERCHLORATE5

Date acquired: 8/19/2020 11:14:18 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_009.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	8/19/2020 11:14:18 AM	65114	2.00578	20200819_009	2.874	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	8/19/2020 11:14:18 AM	287158	1.00000	20200819_009	2.873	25.0000	1.0000	9

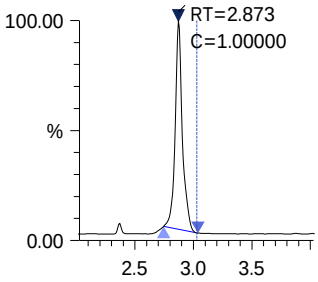
Perchlorate

Conc 2.00578
Area 65114
Q 99.00>83.00 (-) 1.49e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 287158
ISTD 107.00>89.00 (-) 6.84e4



ALS Group Houston

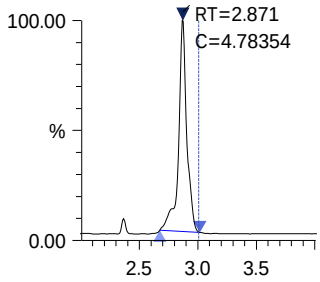
PERCHLORATE6

Date acquired: 8/19/2020 11:22:10 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_010.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	8/19/2020 11:22:10 AM	167892	4.78354	20200819_010	2.871	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	8/19/2020 11:22:10 AM	310462	1.00000	20200819_010	2.870	25.0000	1.0000	10

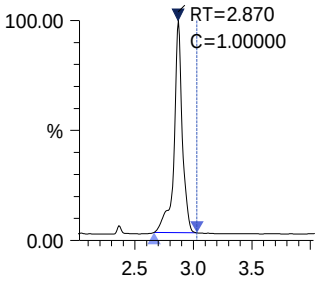
Perchlorate

Conc 4.78354
Area 167892
Q 99.00>83.00 (-) 3.45e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 310462
ISTD 107.00>89.00 (-) 6.38e4



ALS Group Houston

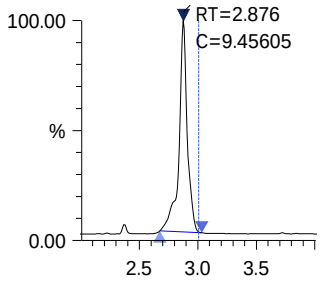
PERCHLORATE7

Date acquired: 8/19/2020 11:30:05 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_011.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/19/2020 11:30:05 AM	309830	9.45605	20200819_011	2.876	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/19/2020 11:30:05 AM	289828	1.00000	20200819_011	2.875	25.0000	1.0000	4

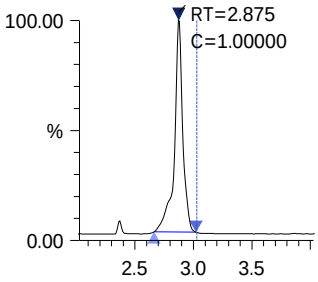
Perchlorate

Conc 9.45605
Area 309830
Q 99.00>83.00 (-) 6.35e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 289828
ISTD 107.00>89.00 (-) 5.81e4



ALS Group Houston

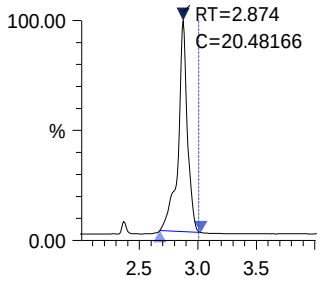
PERCHLORATE8

Date acquired: 8/19/2020 11:38:00 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_012.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	8/19/2020 11:38:00 AM	587088	20.48166	20200819_012	2.874	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	8/19/2020 11:38:00 AM	253551	1.00000	20200819_012	2.873	25.0000	1.0000	11

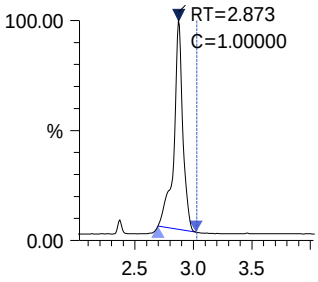
Perchlorate

Conc 20.48166
Area 587088
Q 99.00>83.00 (-) 1.09e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 253551
ISTD 107.00>89.00 (-) 4.87e4



ALS Group Houston

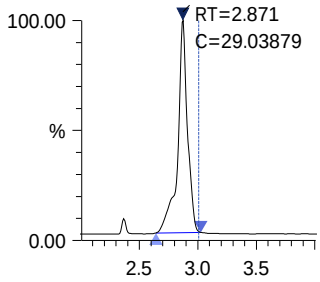
PERCHLORATE9

Date acquired: 8/19/2020 11:45:53 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_013.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	8/19/2020 11:45:53 AM	849278	29.03879	20200819_013	2.871	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	8/19/2020 11:45:53 AM	258702	1.00000	20200819_013	2.870	25.0000	1.0000	12

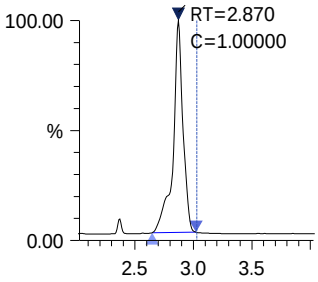
Perchlorate

Conc 29.03879
Area 849278
Q 99.00>83.00 (-) 1.48e5



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 258702
ISTD 107.00>89.00 (-) 4.43e4



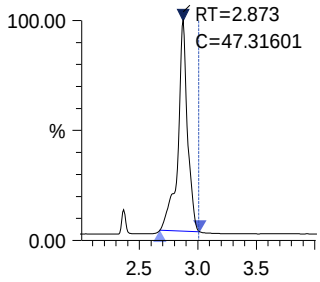
PERCHLORATE10

Date acquired: 8/19/2020 11:53:48 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_014.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	8/19/2020 11:53:48 AM	1220253	47.31601	20200819_014	2.873	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	8/19/2020 11:53:48 AM	228123	1.00000	20200819_014	2.871	25.0000	1.0000	13

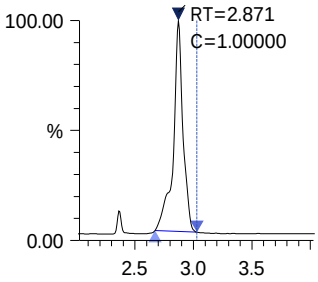
Perchlorate

Conc 47.31601
Area 1220253
Q 99.00>83.00 (-) 2.17e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 228123
ISTD 107.00>89.00 (-) 3.99e4



ALS Group Houston

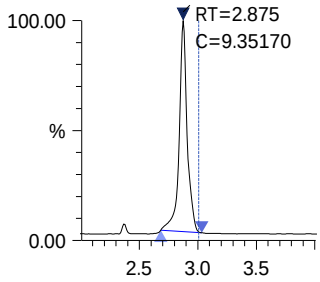
PERCHLORATEICV

Date acquired: 8/19/2020 12:09:35 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_016.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	8/19/2020 12:09:35 PM	294031	9.35170	20200819_016	2.875	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	8/19/2020 12:09:35 PM	278118	1.00000	20200819_016	2.873	25.0000	1.0000	14

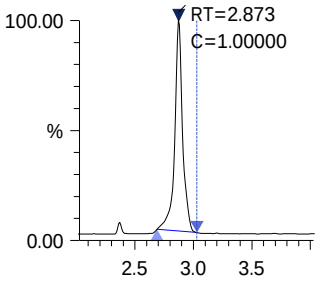
Perchlorate

Conc 9.35170
Area 294031
Q 99.00>83.00 (-) 6.27e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 278118
ISTD 107.00>89.00 (-) 5.98e4



20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200826_024	Perchlorate6850b.lcm	1x	☒	3100806-05	8/26/2020 11:55
2	PERCHLORATE2		20200826_025	Perchlorate6850b.lcm	1x	☒	3100806-06	8/26/2020 12:03
3	PERCHLORATE3		20200826_026	Perchlorate6850b.lcm	1x	☒	3100806-07	8/26/2020 12:11
4	PERCHLORATE4		20200826_027	Perchlorate6850b.lcm	1x	☒	3100807-01	8/26/2020 12:19
5	PERCHLORATE5		20200826_028	Perchlorate6850b.lcm	1x	☒	3100807-02	8/26/2020 12:27
6	PERCHLORATE6		20200826_029	Perchlorate6850b.lcm	1x	☒	3100807-03	8/26/2020 12:35
7	PERCHLORATE7		20200826_030	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 12:42
8	PERCHLORATE8		20200826_031	Perchlorate6850b.lcm	1x	☒	3100807-05	8/26/2020 12:50
9	PERCHLORATE9		20200826_032	Perchlorate6850b.lcm	1x	☒	3100807-06	8/26/2020 12:58
10	PERCHLORATE10		20200826_033	Perchlorate6850b.lcm	1x	☒	3100807-07	8/26/2020 13:06
11	IB		20200826_034	Perchlorate6850b.lcm	1x	☒		8/26/2020 13:14
12	PERCHLORATEICV		20200826_035	Perchlorate6850b.lcm	1x	☒	3100807-08	8/26/2020 14:26
13	IB		20200826_036	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:34
14	LODV		20200826_037	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:42
15	PERCHLORATE7		20200826_038	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 14:50
16	EQ2000359-01		20200826_039	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:12
17	EQ2000359-02		20200826_040	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:19
18	EQ2000359-03		20200826_041	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:27
19	EQ2000359-02		20200826_042	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:35
20	EQ2000359-04X10		20200826_043	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:43
21	EQ2000359-05X10		20200826_044	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:51
22	EQ2000359-06X10		20200826_045	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:59
23	EQ2000359-07X10		20200826_046	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:07
24	E2000716-001X10		20200826_047	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:15
25	E2000739-001X10		20200826_048	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:23
26	PERCHLORATE7		20200826_049	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 16:30
27	E2000740-001X200		20200826_050	Perchlorate6850b.lcm	200x	☒		8/26/2020 16:38
28	E2000741-001X10		20200826_051	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:46
29	E2000742-001X2		20200826_052	Perchlorate6850b.lcm	2x	☒		8/26/2020 16:54
30	E2000742-002X2		20200826_053	Perchlorate6850b.lcm	2x	☒		8/26/2020 17:02
31	E2000742-003X10		20200826_054	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:10
32	E2000742-004X10		20200826_055	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:18
33	E2000742-006X10		20200826_056	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:26
34	PERCHLORATE7		20200826_057	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 17:33
35	E2000742-009X10		20200826_058	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:41
36	E2000742-010X10		20200826_059	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:49
37	E2000742-011X10		20200826_060	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:57
38	E2000742-012X10		20200826_061	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:05
39	E2000742-013X10		20200826_062	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:13
40	E2000742-014X10		20200826_063	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:21
41	E2000759-001X10		20200826_064	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:29
42	E2000759-002X10		20200826_065	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:36
43	PERCHLORATE7		20200826_066	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 18:44
44	EQ2000369-01		20200826_067	Perchlorate6850b.lcm	1x	☒		8/26/2020 18:52
45	EQ2000369-02		20200826_068	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:00
46	EQ2000369-03		20200826_069	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:08
47	EQ2000369-04		20200826_070	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:16
48	EQ2000369-05		20200826_071	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:24
49	E2000764-001		20200826_072	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:32
50	E2000764-002		20200826_073	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:40
51	E2000764-003		20200826_074	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:47
52	E2000764-004		20200826_075	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:55
53	E2000764-005		20200826_076	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:03
54	PERCHLORATE7		20200826_077	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 20:11
55	E2000764-006		20200826_078	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:19
56	E2000764-007		20200826_079	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:27
57	E2000764-008		20200826_080	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:35
58	E2000764-009		20200826_081	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:43
59	E2000764-010		20200826_082	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:51
60	E2000764-011		20200826_083	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:58
61	E2000764-012		20200826_084	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:06

20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
62	E2000764-013		20200826_085	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:14
63	E2000764-014		20200826_086	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:22
64	E2000764-015		20200826_087	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:30
65	PERCHLORATE7		20200826_088	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 21:38
66	E2000764-016		20200826_089	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:46
67	E2000764-017		20200826_090	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:54
68	E2000764-018		20200826_091	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:01
69	PERCHLORATE7		20200826_092	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 22:09
70	EQ2000367-01		20200826_093	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:17
71	EQ2000367-02		20200826_094	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:25
72	EQ2000367-03		20200826_095	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:33
73	EQ2000367-04		20200826_096	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:41
74	EQ2000367-05		20200826_097	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:49
75	R2006746-001		20200826_098	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:57
76	R2006746-002		20200826_099	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:04
77	R2006777-001		20200826_100	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:12
78	R2006777-002		20200826_101	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:20
79	R2006777-003		20200826_102	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:28
80	PERCHLORATE7		20200826_103	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 23:36
81	R2006777-004		20200826_104	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:44
82	R2006777-005		20200826_105	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:52
83	R2006777-006		20200826_106	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:00
84	R2006777-007		20200826_107	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:08
85	R2006777-008		20200826_108	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:15
86	R2006805-001		20200826_109	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:23
87	R2006805-002		20200826_110	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:31
88	PERCHLORATE7		20200826_111	Perchlorate6850b.lcm	1x	☒	3100807-04	8/27/2020 0:39
89								
90								
91								
92								

Initial Calibration - Detailed Report

Calibration ID: EC2000023 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2000023-01	PERCHLORATE1	20200826_024	08/26/2020 11:55
02	EC2000023-02	PERCHLORATE2	20200826_025	08/26/2020 12:03
03	EC2000023-03	PERCHLORATE3	20200826_026	08/26/2020 12:11
04	EC2000023-04	PERCHLORATE4	20200826_027	08/26/2020 12:19
05	EC2000023-05	PERCHLORATE5	20200826_028	08/26/2020 12:27
06	EC2000023-06	PERCHLORATE6	20200826_029	08/26/2020 12:35
07	EC2000023-07	PERCHLORATE7	20200826_030	08/26/2020 12:42
08	EC2000023-08	PERCHLORATE8	20200826_031	08/26/2020 12:50
09	EC2000023-09	PERCHLORATE9	20200826_032	08/26/2020 12:58
10	EC2000023-10	PERCHLORATE10	20200826_033	08/26/2020 13:06

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 5.546** **Average RF = 0.1085**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1181	02	0.5000	0.1137	03	0.7000	0.1087	04	1.0000	0.1168
05	2.0000	0.1092	06	5.0000	0.1056	07	10.0000	0.1014	08	20.0000	0.1048
09	30.0000	0.1049	10	50.0000	0.1012						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.109	8.9	02	0.5000	0.524	4.8	03	0.7000	0.702	0.2
04	1.0000	1.08	7.7	05	2.0000	2.01	0.7	06	5.0000	4.87	-2.6
07	10.0000	9.35	-6.5	08	20.0000	19.3	-3.3	09	30.0000	29.0	-3.3
10	50.0000	46.7	-6.6								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000023	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200826_035	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000023-11	T	Average RF	10	9.690	ng/mL	-3.1	<= 15

ALS Group Houston

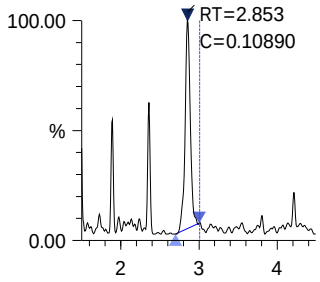
PERCHLORATE1

Date acquired: 8/26/2020 11:55:32 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_024.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	8/26/2020 11:55:32 AM	2254	0.10890	20200826_024	2.853	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	8/26/2020 11:55:32 AM	190859	1.00000	20200826_024	2.852	25.0000	1.0000	5

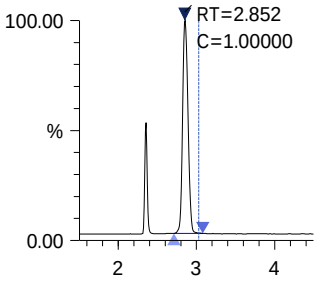
Perchlorate

Conc 0.10890
Area 2254
Q 99.00>83.00 (-) 4.92e2



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 190859
ISTD 107.00>89.00 (-) 3.91e4



ALS Group Houston

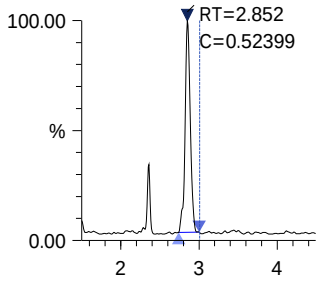
PERCHLORATE2

Date acquired: 8/26/2020 12:03:28 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_025.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	8/26/2020 12:03:28 PM	11013	0.52399	20200826_025	2.852	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	8/26/2020 12:03:28 PM	193789	1.00000	20200826_025	2.850	25.0000	1.0000	6

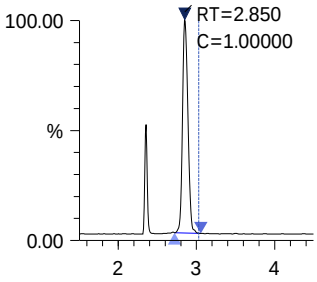
Perchlorate

Conc 0.52399
Area 11013
Q 99.00>83.00 (-) 2.37e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 193789
ISTD 107.00>89.00 (-) 3.95e4



ALS Group Houston

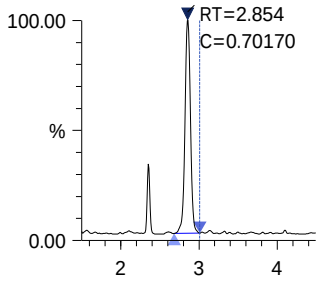
PERCHLORATE3

Date acquired: 8/26/2020 12:11:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_026.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	8/26/2020 12:11:22 PM	15252	0.70170	20200826_026	2.854	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	8/26/2020 12:11:22 PM	200410	1.00000	20200826_026	2.849	25.0000	1.0000	7

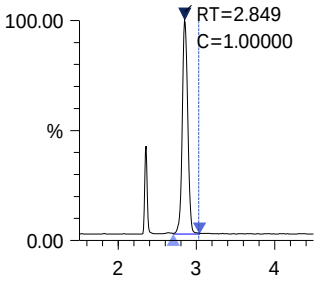
Perchlorate

Conc 0.70170
Area 15252
Q 99.00>83.00 (-) 3.07e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 200410
ISTD 107.00>89.00 (-) 4.03e4



ALS Group Houston

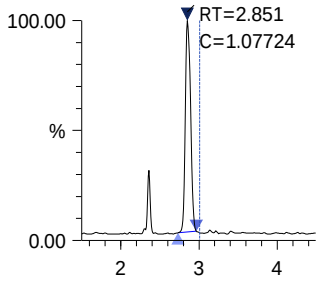
PERCHLORATE4

Date acquired: 8/26/2020 12:19:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_027.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	8/26/2020 12:19:17 PM	21473	1.07724	20200826_027	2.851	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	8/26/2020 12:19:17 PM	183791	1.00000	20200826_027	2.851	25.0000	1.0000	8

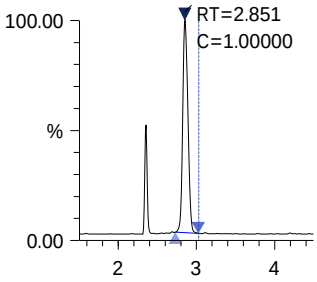
Perchlorate

Conc 1.07724
Area 21473
Q 99.00>83.00 (-) 4.54e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 183791
ISTD 107.00>89.00 (-) 3.92e4



ALS Group Houston

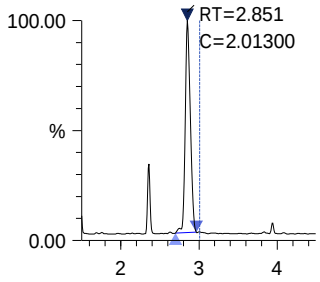
PERCHLORATE5

Date acquired: 8/26/2020 12:27:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_028.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	8/26/2020 12:27:10 PM	40038	2.01300	20200826_028	2.851	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	8/26/2020 12:27:10 PM	183386	1.00000	20200826_028	2.849	25.0000	1.0000	9

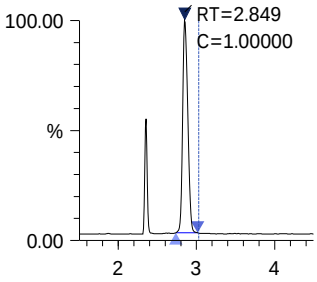
Perchlorate

Conc 2.01300
Area 40038
Q 99.00>83.00 (-) 8.76e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 183386
ISTD 107.00>89.00 (-) 3.95e4



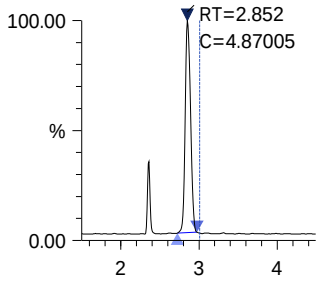
PERCHLORATE6

Date acquired: 8/26/2020 12:35:02 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_029.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	8/26/2020 12:35:02 PM	98121	4.87005	20200826_029	2.852	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	8/26/2020 12:35:02 PM	185768	1.00000	20200826_029	2.850	25.0000	1.0000	10

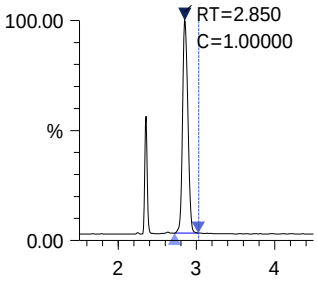
Perchlorate

Conc 4.87005
Area 98121
Q 99.00>83.00 (-) 2.04e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 185768
ISTD 107.00>89.00 (-) 3.86e4



ALS Group Houston

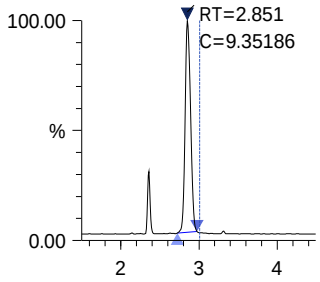
PERCHLORATE7

Date acquired: 8/26/2020 12:42:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_030.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/26/2020 12:42:57 PM	174248	9.35186	20200826_030	2.851	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/26/2020 12:42:57 PM	171796	1.00000	20200826_030	2.850	25.0000	1.0000	4

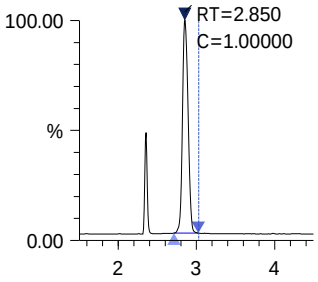
Perchlorate

Conc 9.35186
Area 174248
Q 99.00>83.00 (-) 3.57e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 171796
ISTD 107.00>89.00 (-) 3.39e4



ALS Group Houston

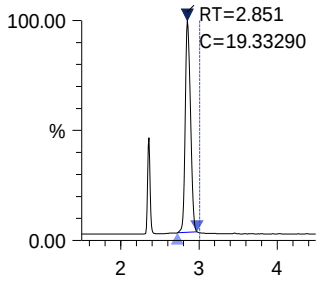
PERCHLORATE8

Date acquired: 8/26/2020 12:50:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_031.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	8/26/2020 12:50:51 PM	337010	19.33290	20200826_031	2.851	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	8/26/2020 12:50:51 PM	160727	1.00000	20200826_031	2.850	25.0000	1.0000	11

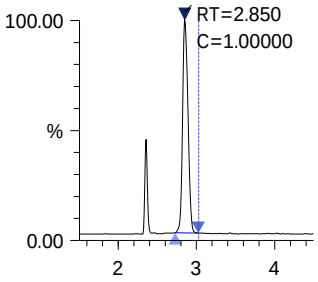
Perchlorate

Conc 19.33290
Area 337010
Q 99.00>83.00 (-) 7.14e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 160727
ISTD 107.00>89.00 (-) 3.30e4



ALS Group Houston

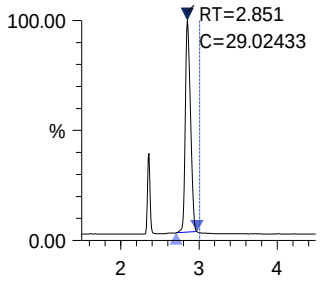
PERCHLORATE9

Date acquired: 8/26/2020 12:58:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_032.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	8/26/2020 12:58:44 PM	466342	29.02433	20200826_032	2.851	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	8/26/2020 12:58:44 PM	148144	1.00000	20200826_032	2.849	25.0000	1.0000	12

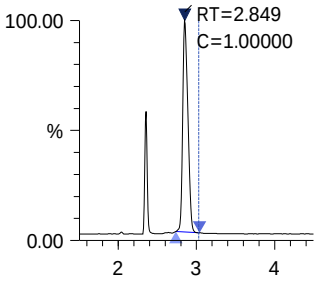
Perchlorate

Conc 29.02433
Area 466342
Q 99.00>83.00 (-) 1.00e5



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 148144
ISTD 107.00>89.00 (-) 3.19e4



ALS Group Houston

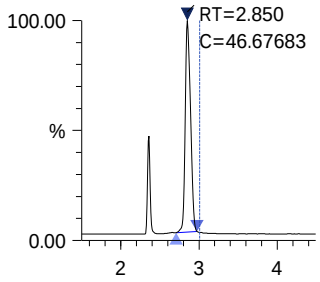
PERCHLORATE10

Date acquired: 8/26/2020 1:06:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_033.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	8/26/2020 1:06:40 PM	694738	46.67683	20200826_033	2.850	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	8/26/2020 1:06:40 PM	137234	1.00000	20200826_033	2.849	25.0000	1.0000	13

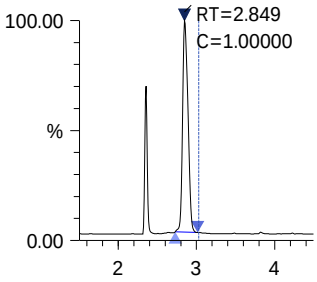
Perchlorate

Conc 46.67683
Area 694738
Q 99.00>83.00 (-) 1.46e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 137234
ISTD 107.00>89.00 (-) 2.84e4



ALS Group Houston

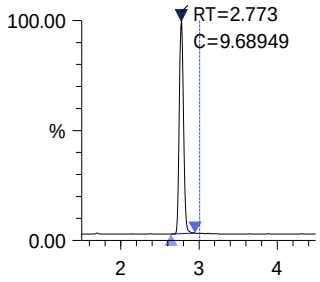
PERCHLORATEICV

Date acquired: 8/26/2020 2:26:45 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_035.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	8/26/2020 2:26:45 PM	257692	9.68949	20200826_035	2.773	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	8/26/2020 2:26:45 PM	245213	1.00000	20200826_035	2.771	25.0000	1.0000	14

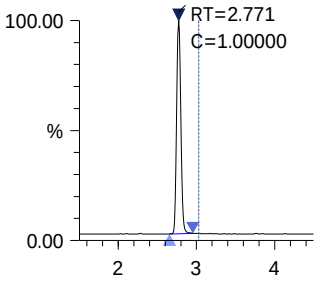
Perchlorate

Conc 9.68949
Area 257692
Q 99.00>83.00 (-) 7.12e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 245213
ISTD 107.00>89.00 (-) 6.83e4



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

20200825

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 7/19/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000022**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	IB		20200825_017	Perchlorate6850b.lcm	1x	☒		8/25/2020 16:49
2	IB		20200825_018	Perchlorate6850b.lcm	1x	☒		8/25/2020 16:57
3	IB		20200825_019	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:05
4	IB		20200825_020	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:13
5	null		20200825_021	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:20
6	null		20200825_022	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:25
7	null		20200825_023	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:30
8	null		20200825_024	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:34
9	IB		20200825_025	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:40
10	IB		20200825_027	Perchlorate6850b.lcm	1x	☒		8/25/2020 18:22
11	PERCHLORATE7		20200825_028	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 18:32
12	LODV		20200825_029	Perchlorate6850b.lcm	1x	☒		8/25/2020 18:40
13	PERCHLORATE7		20200825_030	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 18:48
14	EQ2000359-01		20200825_031	Perchlorate6850b.lcm	1x	☒		8/25/2020 18:56
15	EQ2000359-02		20200825_032	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:04
16	EQ2000359-03		20200825_033	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:12
17	EQ2000359-04		20200825_034	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:19
18	EQ2000359-05		20200825_035	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:27
19	EQ2000359-06		20200825_036	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:35
20	EQ2000359-07		20200825_037	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:43
21	E2000716-001		20200825_038	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:51
22	E2000739-001		20200825_039	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:59
23	E2000740-001		20200825_040	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:07
24	PERCHLORATE7		20200825_041	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 20:15
25	E2000741-001		20200825_042	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:22
26	E2000742-001		20200825_043	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:30
27	E2000742-002		20200825_044	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:38
28	E2000742-003		20200825_045	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:46
29	E2000742-004		20200825_046	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:54
30	E2000742-005		20200825_047	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:02
31	E2000742-006		20200825_048	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:10
32	E2000742-007		20200825_049	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:18
33	E2000742-008		20200825_050	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:26
34	E2000742-009		20200825_051	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:33
35	PERCHLORATE7		20200825_052	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 21:41
36	E2000742-010		20200825_053	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:49
37	E2000742-011		20200825_054	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:57
38	E2000742-012		20200825_055	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:05
39	E2000742-013		20200825_056	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:13
40	E2000742-014		20200825_057	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:21
41	E2000759-001		20200825_058	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:29
42	E2000759-002		20200825_059	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:36
43	PERCHLORATE7		20200825_060	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 22:44
44								
45								
46								
47								
48								

20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200826_024	Perchlorate6850b.lcm	1x	☒	3100806-05	8/26/2020 11:55
2	PERCHLORATE2		20200826_025	Perchlorate6850b.lcm	1x	☒	3100806-06	8/26/2020 12:03
3	PERCHLORATE3		20200826_026	Perchlorate6850b.lcm	1x	☒	3100806-07	8/26/2020 12:11
4	PERCHLORATE4		20200826_027	Perchlorate6850b.lcm	1x	☒	3100807-01	8/26/2020 12:19
5	PERCHLORATE5		20200826_028	Perchlorate6850b.lcm	1x	☒	3100807-02	8/26/2020 12:27
6	PERCHLORATE6		20200826_029	Perchlorate6850b.lcm	1x	☒	3100807-03	8/26/2020 12:35
7	PERCHLORATE7		20200826_030	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 12:42
8	PERCHLORATE8		20200826_031	Perchlorate6850b.lcm	1x	☒	3100807-05	8/26/2020 12:50
9	PERCHLORATE9		20200826_032	Perchlorate6850b.lcm	1x	☒	3100807-06	8/26/2020 12:58
10	PERCHLORATE10		20200826_033	Perchlorate6850b.lcm	1x	☒	3100807-07	8/26/2020 13:06
11	IB		20200826_034	Perchlorate6850b.lcm	1x	☒		8/26/2020 13:14
12	PERCHLORATEICV		20200826_035	Perchlorate6850b.lcm	1x	☒	3100807-08	8/26/2020 14:26
13	IB		20200826_036	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:34
14	LODV		20200826_037	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:42
15	PERCHLORATE7		20200826_038	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 14:50
16	EQ2000359-01		20200826_039	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:12
17	EQ2000359-02		20200826_040	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:19
18	EQ2000359-03		20200826_041	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:27
19	EQ2000359-02		20200826_042	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:35
20	EQ2000359-04X10		20200826_043	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:43
21	EQ2000359-05X10		20200826_044	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:51
22	EQ2000359-06X10		20200826_045	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:59
23	EQ2000359-07X10		20200826_046	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:07
24	E2000716-001X10		20200826_047	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:15
25	E2000739-001X10		20200826_048	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:23
26	PERCHLORATE7		20200826_049	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 16:30
27	E2000740-001X200		20200826_050	Perchlorate6850b.lcm	200x	☒		8/26/2020 16:38
28	E2000741-001X10		20200826_051	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:46
29	E2000742-001X2		20200826_052	Perchlorate6850b.lcm	2x	☒		8/26/2020 16:54
30	E2000742-002X2		20200826_053	Perchlorate6850b.lcm	2x	☒		8/26/2020 17:02
31	E2000742-003X10		20200826_054	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:10
32	E2000742-004X10		20200826_055	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:18
33	E2000742-006X10		20200826_056	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:26
34	PERCHLORATE7		20200826_057	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 17:33
35	E2000742-009X10		20200826_058	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:41
36	E2000742-010X10		20200826_059	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:49
37	E2000742-011X10		20200826_060	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:57
38	E2000742-012X10		20200826_061	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:05
39	E2000742-013X10		20200826_062	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:13
40	E2000742-014X10		20200826_063	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:21
41	E2000759-001X10		20200826_064	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:29
42	E2000759-002X10		20200826_065	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:36
43	PERCHLORATE7		20200826_066	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 18:44
44	EQ2000369-01		20200826_067	Perchlorate6850b.lcm	1x	☒		8/26/2020 18:52
45	EQ2000369-02		20200826_068	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:00
46	EQ2000369-03		20200826_069	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:08
47	EQ2000369-04		20200826_070	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:16
48	EQ2000369-05		20200826_071	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:24
49	E2000764-001		20200826_072	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:32
50	E2000764-002		20200826_073	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:40
51	E2000764-003		20200826_074	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:47
52	E2000764-004		20200826_075	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:55
53	E2000764-005		20200826_076	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:03
54	PERCHLORATE7		20200826_077	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 20:11
55	E2000764-006		20200826_078	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:19
56	E2000764-007		20200826_079	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:27
57	E2000764-008		20200826_080	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:35
58	E2000764-009		20200826_081	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:43
59	E2000764-010		20200826_082	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:51
60	E2000764-011		20200826_083	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:58
61	E2000764-012		20200826_084	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:06

20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
62	E2000764-013		20200826_085	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:14
63	E2000764-014		20200826_086	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:22
64	E2000764-015		20200826_087	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:30
65	PERCHLORATE7		20200826_088	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 21:38
66	E2000764-016		20200826_089	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:46
67	E2000764-017		20200826_090	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:54
68	E2000764-018		20200826_091	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:01
69	PERCHLORATE7		20200826_092	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 22:09
70	EQ2000367-01		20200826_093	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:17
71	EQ2000367-02		20200826_094	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:25
72	EQ2000367-03		20200826_095	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:33
73	EQ2000367-04		20200826_096	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:41
74	EQ2000367-05		20200826_097	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:49
75	R2006746-001		20200826_098	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:57
76	R2006746-002		20200826_099	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:04
77	R2006777-001		20200826_100	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:12
78	R2006777-002		20200826_101	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:20
79	R2006777-003		20200826_102	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:28
80	PERCHLORATE7		20200826_103	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 23:36
81	R2006777-004		20200826_104	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:44
82	R2006777-005		20200826_105	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:52
83	R2006777-006		20200826_106	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:00
84	R2006777-007		20200826_107	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:08
85	R2006777-008		20200826_108	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:15
86	R2006805-001		20200826_109	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:23
87	R2006805-002		20200826_110	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:31
88	PERCHLORATE7		20200826_111	Perchlorate6850b.lcm	1x	☒	3100807-04	8/27/2020 0:39
89								
90								
91								
92								

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080738

Service Request: E2000759
Date Analyzed: 8/26/20

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\20200826\20200826_038

Calibration Date: 8/26/20
Calibration ID: EC2000023
Analysis Lot: 692775
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.96	0.1085	0.09719	-10.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080738

Service Request: E2000759
Date Analyzed: 8/26/20

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\20200826\20200826_049

Calibration Date: 8/26/20
Calibration ID: EC2000023
Analysis Lot: 692775
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.65	0.1085	0.1047	-3.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/26/20
File ID:	I:\LCMS01\DATA\20200826\20200826_057	**Calibration ID:**	EC2000023
		Analysis Lot:	692775
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.59	0.1085	0.1040	-4.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080738

Service Request: E2000759
Date Analyzed: 8/26/20

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\20200826\20200826_066

Calibration Date: 8/26/20
Calibration ID: EC2000023
Analysis Lot: 692775
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.71	0.1085	0.1053	-2.9	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080738

Service Request: E2000759
Date Analyzed: 8/25/20

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\20200825\20200825_030

Calibration Date: 8/19/20
Calibration ID: EC2000022
Analysis Lot: 692783
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.23	0.1131	0.1043	-7.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080738

Service Request: E2000759
Date Analyzed: 8/25/20

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\20200825\20200825_041

Calibration Date: 8/19/20
Calibration ID: EC2000022
Analysis Lot: 692783
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.78	0.1131	0.1105	-2.2	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080738

Service Request: E2000759
Date Analyzed: 8/25/20

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\20200825\20200825_052

Calibration Date: 8/19/20
Calibration ID: EC2000022
Analysis Lot: 692783
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.00	0.1131	0.1018	-10.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 14:50

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_038	**Lab Code:**	EQ2000370-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-01	168,655	2.85
Duplicate Lab Control Sample	EQ2000359-03	222,420	2.86
Lab Control Sample	EQ2000359-02	218,301	2.86
Batch QCMS	EQ2000359-04	136,805	2.85
Batch QCDMS	EQ2000359-05	144,861	2.85
16WW57-200817MS	EQ2000359-06	127,802	2.85
16WW57-200817DMS	EQ2000359-07	144,838	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	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 16:30

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_049	**Lab Code:**	EQ2000370-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-02	159,403	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:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 17:33

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_057	**Lab Code:**	EQ2000370-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-03	153,993	2.86
Batch QC	E2000742-012	141,019	2.85
16WW58-200817	E2000759-001	148,816	2.85
16WW57-200817	E2000759-002	131,720	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	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 18:44

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_066	**Lab Code:**	EQ2000370-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-04	147,883	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:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20 18:48

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200825\20200825_030	**Lab Code:**	EQ2000371-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692783
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	284,293	2.87
	Upper Limit ==>	426,440	4.87
	Lower Limit ==>	142,147	0.87
Associated Analyses			
Continuing Calibration Verification	EQ2000371-01	185,913	2.86
Method Blank	EQ2000359-01	246,634	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:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20 20:15

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200825\20200825_041	**Lab Code:**	EQ2000371-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692783
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	284,293	2.87
	Upper Limit ==>	426,440	4.87
	Lower Limit ==>	142,147	0.87
Associated Analyses			
Continuing Calibration Verification	EQ2000371-02	148,398	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	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20 21:41

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200825\20200825_052	**Lab Code:**	EQ2000371-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692783
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	284,293	2.87
	Upper Limit ==>	426,440	4.87
	Lower Limit ==>	142,147	0.87
Associated Analyses			
Continuing Calibration Verification	EQ2000371-03	176,558	2.85

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group Houston

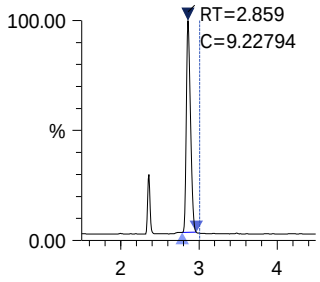
PERCHLORATE7

Date acquired: 8/25/2020 6:48:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_030.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/25/2020 6:48:17 PM	193948	9.22794	20200825_030	2.859	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/25/2020 6:48:17 PM	185913	1.00000	20200825_030	2.859	25.0000	1.0000	4

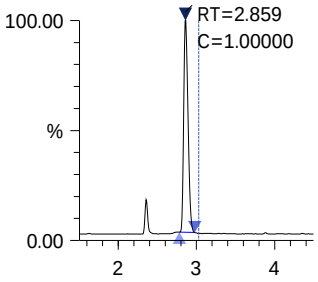
Perchlorate

Conc 9.22794
Area 193948
Q 99.00>83.00 (-) 5.19e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 185913
ISTD 107.00>89.00 (-) 4.80e4



ALS Group Houston

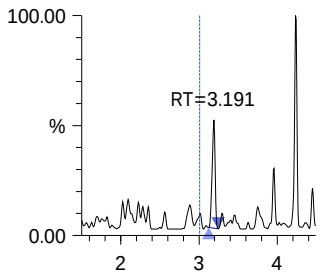
EQ2000359-01

Date acquired: 8/25/2020 6:56:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_031.lcd
Vial: 1 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-01	8/25/2020 6:56:11 PM	----	----	20200825_031	----	25.0000	1.0000	1
Sodium Perchlorate-18O4_IS	EQ2000359-01	8/25/2020 6:56:11 PM	246634	1.00000	20200825_031	2.856	25.0000	1.0000	1

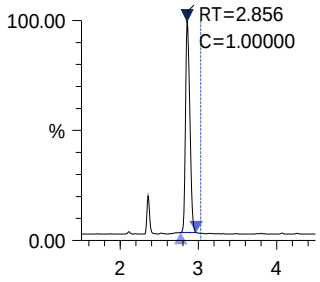
Perchlorate

Conc ----
Area ----
Q 99.00>83.00 (-) 5.44e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 246634
ISTD 107.00>89.00 (-) 6.33e4



ALS Group Houston

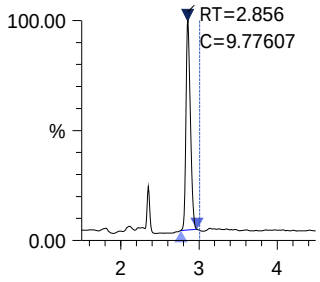
PERCHLORATE7

Date acquired: 8/25/2020 8:15:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_041.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/25/2020 8:15:05 PM	164008	9.77607	20200825_041	2.856	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/25/2020 8:15:05 PM	148398	1.00000	20200825_041	2.853	25.0000	1.0000	4

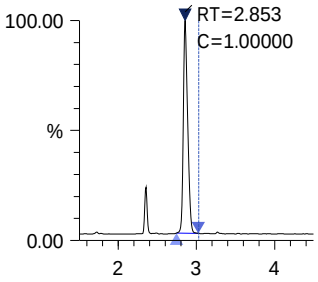
Perchlorate

Conc 9.77607
Area 164008
Q 99.00>83.00 (-) 4.18e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148398
ISTD 107.00>89.00 (-) 3.81e4



ALS Group Houston

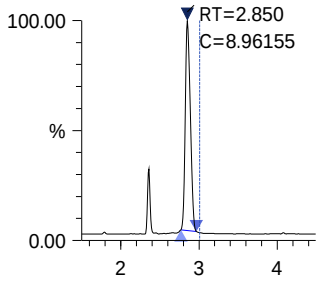
PERCHLORATE7

Date acquired: 8/26/2020 2:50:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_038.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/26/2020 2:50:21 PM	163923	8.96155	20200826_038	2.850	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/26/2020 2:50:21 PM	168655	1.00000	20200826_038	2.849	25.0000	1.0000	4

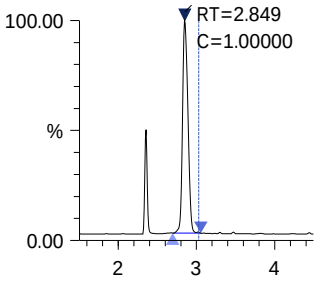
Perchlorate

Conc 8.96155
Area 163923
Q 99.00>83.00 (-) 3.65e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 168655
ISTD 107.00>89.00 (-) 3.46e4



ALS Group Houston

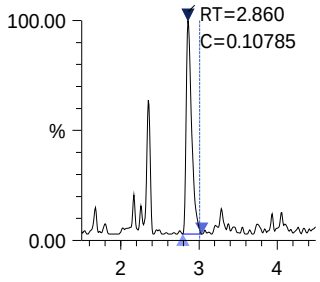
EQ2000359-02

Date acquired: 8/26/2020 3:35:46 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_042.lcd
Vial: 2 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-02	8/26/2020 3:35:46 PM	2554	0.10785	20200826_042	2.860	25.0000	1.0000	2
Sodium Perchlorate-18O4_IS	EQ2000359-02	8/26/2020 3:35:46 PM	218301	1.00000	20200826_042	2.861	25.0000	1.0000	2

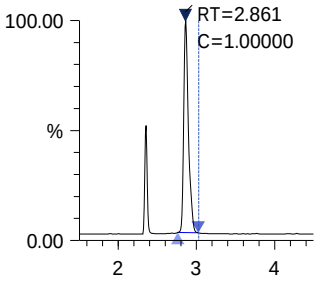
Perchlorate

Conc 0.10785
Area 2554
Q 99.00>83.00 (-) 5.15e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 218301
ISTD 107.00>89.00 (-) 5.16e4



ALS Group Houston

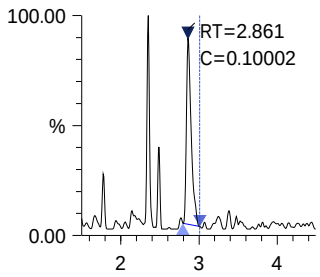
EQ2000359-03

Date acquired: 8/26/2020 3:27:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_041.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-03	8/26/2020 3:27:52 PM	2413	0.10002	20200826_041	2.861	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	EQ2000359-03	8/26/2020 3:27:52 PM	222420	1.00000	20200826_041	2.861	25.0000	1.0000	3

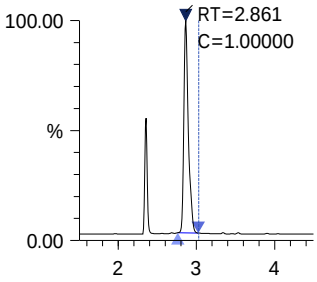
Perchlorate

Conc 0.10002
Area 2413
Q 99.00>83.00 (-) 6.41e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 222420
ISTD 107.00>89.00 (-) 5.49e4



ALS Group Houston

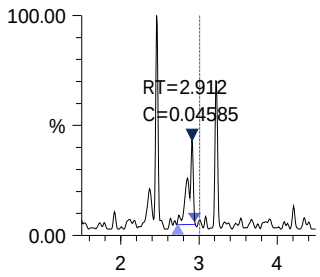
EQ2000359-04X10

Date acquired: 8/26/2020 3:43:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_043.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-04X10	8/26/2020 3:43:38 PM	680	0.04585	20200826_043	2.912	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	EQ2000359-04X10	8/26/2020 3:43:38 PM	136805	1.00000	20200826_043	2.846	25.0000	1.0000	4

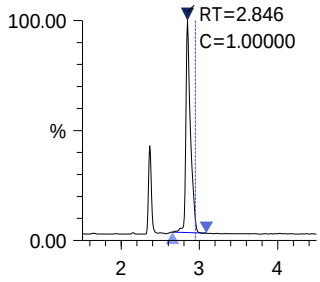
Perchlorate

Conc 0.04585
Area 680
Q 99.00>83.00 (-) 4.91e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 136805
ISTD 107.00>89.00 (-) 3.30e4



ALS Group Houston

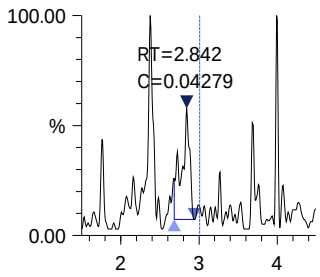
EQ2000359-05X10

Date acquired: 8/26/2020 3:51:31 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_044.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-05X10	8/26/2020 3:51:31 PM	672	0.04279	20200826_044	2.842	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	EQ2000359-05X10	8/26/2020 3:51:31 PM	144861	1.00000	20200826_044	2.847	25.0000	1.0000	5

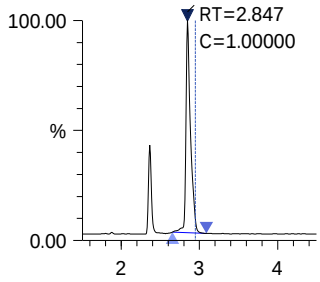
Perchlorate

Conc 0.04279
Area 672
Q 99.00>83.00 (-) 1.77e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144861
ISTD 107.00>89.00 (-) 3.54e4



ALS Group Houston

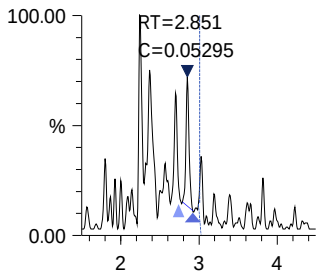
EQ2000359-06X10

Date acquired: 8/26/2020 3:59:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_045.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-06X10	8/26/2020 3:59:24 PM	734	0.05295	20200826_045	2.851	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	EQ2000359-06X10	8/26/2020 3:59:24 PM	127802	1.00000	20200826_045	2.850	25.0000	1.0000	6

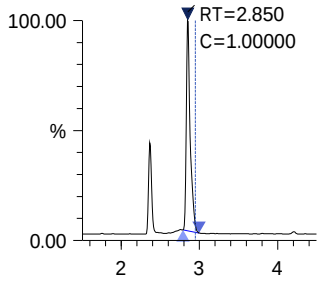
Perchlorate

Conc 0.05295
Area 734
Q 99.00>83.00 (-) 2.12e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 127802
ISTD 107.00>89.00 (-) 3.69e4



ALS Group Houston

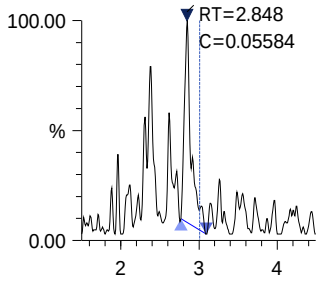
EQ2000359-07X10

Date acquired: 8/26/2020 4:07:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_046.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-07X10	8/26/2020 4:07:16 PM	878	0.05584	20200826_046	2.848	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	EQ2000359-07X10	8/26/2020 4:07:16 PM	144838	1.00000	20200826_046	2.851	25.0000	1.0000	7

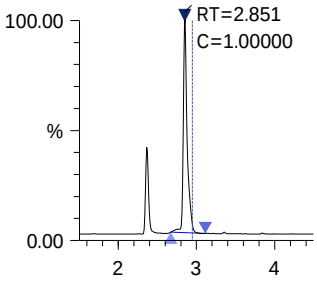
Perchlorate

Conc 0.05584
Area 878
Q 99.00>83.00 (-) 1.53e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144838
ISTD 107.00>89.00 (-) 4.13e4



ALS Group Houston

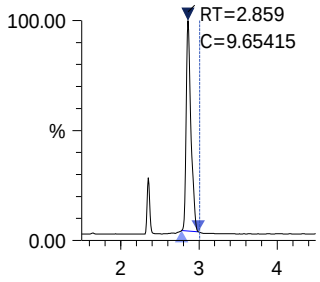
PERCHLORATE7

Date acquired: 8/26/2020 4:30:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_049.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/26/2020 4:30:55 PM	166904	9.65415	20200826_049	2.859	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/26/2020 4:30:55 PM	159403	1.00000	20200826_049	2.858	25.0000	1.0000	4

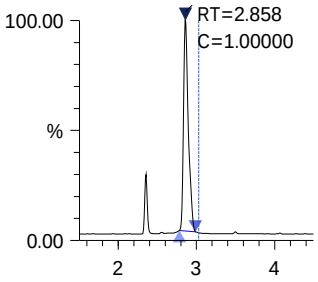
Perchlorate

Conc 9.65415
Area 166904
Q 99.00>83.00 (-) 3.94e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 159403
ISTD 107.00>89.00 (-) 3.71e4



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August 26, 2020

Analytical Report for Service Request No: K2007110

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: ALS Houston DOD TOC

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory August 19, 2020
For your reference, these analyses have been assigned our service request number **K2007110.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
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.
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.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

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ALS Environmental

Client: ALS Environmental - US
Project: ALS Houston DOD TOC
Sample Matrix: Ground Water

Service Request: K2007110
Date Received: 08/19/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Two ground water samples were received for analysis at ALS Environmental on 08/19/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 08/26/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
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K2007110

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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:** **14517**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626 **Phone:** +1 360 501 3312

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@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: HS20080738
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20080738-01**	**16WW58-200817**	**Groundwater**	**17 Aug 2020 08:05**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020
2.	**HS20080738-02**	**16WW57-200817**	**Groundwater**	**17 Aug 2020 09:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20080738-02 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 8/18/2020 1800

Received By: ALS Kelso Date/Time: 8/19/20 0950

Cooler ID(s): _____ Temperature(s): _____

PM KL

Cooler Receipt and Preservation Form

Client ALS- Houston Service Request K20 07110

Received: 8/19/20 Opened: 8/19/20 By: Km Unloaded: 8/19/20 By: Km

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.7	N/A	D202	14517	N/A	N/A	1891 8879 5111	

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project:	ALS Houston DOD TOC	**Date Collected:**	08/17/20
Sample Matrix:	Ground Water	**Date Received:**	08/19/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
16WW58-200817	K2007110-001	**4.56**	0.50	0.20	0.07	1	08/20/20 10:28	
16WW57-200817	K2007110-002	**13.2**	0.50	0.20	0.07	1	08/20/20 10:28	
Method Blank	K2007110-MB	ND U	0.50	0.20	0.07	1	08/20/20 10:28	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project	ALS Houston DOD TOC	**Date Collected:**	08/17/20
Sample Matrix:	Ground Water	**Date Received:**	08/19/20
		Date Analyzed:	08/20/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	16WW57-200817	**Units:**	mg/L
Lab Code:	K2007110-002	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2007110-002DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	13.2	13.1	13.1	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project:	ALS Houston DOD TOC	**Date Collected:**	08/17/20
Sample Matrix:	Ground Water	**Date Received:**	08/19/20
		Date Analyzed:	08/20/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	16WW57-200817	**Units:**	mg/L
Lab Code:	K2007110-002	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2007110-002MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	13.2	34.8	25.0	87	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project:	ALS Houston DOD TOC	**Date Analyzed:**	08/20/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	692111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2007110-LCS	23.2	25.0	93	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2007110
Project: ALS Houston DOD TOC

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	692111	KQ2011928-09	08/20/20 10:28	25.0	24.4	98	90-110
CCV2	692111	KQ2011928-10	08/20/20 10:28	25.0	24.6	98	90-110
CCV3	692111	KQ2011928-11	08/20/20 10:28	25.0	23.9	96	90-110
CCV4	692111	KQ2011928-12	08/20/20 10:28	25.0	23.4	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: ALS Houston DOD TOC

Service Request:K2007110

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C

Units:mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	692111	KQ2011928-05	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB2	692111	KQ2011928-06	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB3	692111	KQ2011928-07	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB4	692111	KQ2011928-08	08/20/20 10:28	0.50	0.20	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
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General Chemistry

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Work Request # 6746 6805 6806 6883 7004 7063 7110 7111 6929

Tier: IV I I II IV II IV IV II

Date Analyzed: 8-20-20 7018 IV 7063 II

Analyst: MK Run # 692111 692113

Analysis: TOC/DOC

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:
7018-3 needs reanalysis. High RPD 16% due to carryover. LCS/DLCS was ran

Final Approved by: [signature] Date: 8/26/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692111 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2006746-001	Carbon, Total Organic	N/A		Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2006746-002	Carbon, Total Organic	N/A		Water	2.29 mg/L	10 mL	2.29 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2006805-001	Carbon, Total Organic	N/A		Water	39.91 mg/L	10 mL	39.9 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006806-001	Carbon, Total Organic	N/A		Water	5.63 mg/L	10 mL	5.63 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006806-002	Carbon, Total Organic	N/A		Water	30.77 mg/L	10 mL	30.8 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006806-003	Carbon, Total Organic	N/A		Water	1.02 mg/L	10 mL	1.02 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006883-001	Carbon, Total Organic	N/A		Water	0.43 mg/L	10 mL	0.43 mg/L J	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-002	Carbon, Total Organic	N/A		Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-003	Carbon, Total Organic	N/A		Water	0.70 mg/L	10 mL	0.70 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-004	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-005	Carbon, Total Organic	N/A		Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-006	Carbon, Total Organic	N/A		Water	0.31 mg/L	10 mL	0.31 mg/L J	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006886-001	Carbon, Total Organic	N/A		Reagent Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006886-002	Carbon, Total Organic	N/A		Reagent Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	I
K2007004-001	Carbon, Total Organic	N/A		Water	2.11 mg/L	10 mL	2.11 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007063-001	Carbon, Total Organic	N/A		Water	4.20 mg/L	10 mL	4.20 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007063-003	Carbon, Total Organic	N/A		Water	3.18 mg/L	10 mL	3.18 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007110-001	Carbon, Total Organic	N/A		Ground Water	4.56 mg/L	10 mL	4.56 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007110-002	Carbon, Total Organic	N/A		Ground Water	13.18 mg/L	10 mL	13.2 mg/L	1	0.07	0.50			8/20/20 10:28:00	Y	IV
K2007111-001	Carbon, Total Organic	N/A		Water	2.49 mg/L	10 mL	2.49 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011928-01	Carbon, Total Organic	DUP	K2007110-002	Ground Water	13.08 mg/L	10 mL	13.1 mg/L	1	0.07	0.50		<1	8/20/20 10:28:00	N	IV
KQ2011928-02	Carbon, Total Organic	MS	K2007110-002	Ground Water	34.82 mg/L	10 mL	34.8 mg/L	1	0.07	0.50	87		8/20/20 10:28:00	N	IV
KQ2011928-03	Carbon, Total Organic	LCS		Water	23.20 mg/L	10 mL	23.2 mg/L	1	0.07	0.50	93		8/20/20 10:28:00	N	IV
KQ2011928-04	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-09	Carbon, Total Organic	CCV		Water	24.42 mg/L	10 mL	24.4 mg/L	1					8/20/20 10:28:00	N	IV
KQ2011928-10	Carbon, Total Organic	CCV		Water	24.55 mg/L	10 mL	24.6 mg/L	1					8/20/20 10:28:00	N	IV
KQ2011928-11	Carbon, Total Organic	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					8/20/20 10:28:00	N	IV
KQ2011928-12	Carbon, Total Organic	CCV		Water	23.44 mg/L	10 mL	23.4 mg/L	1					8/20/20 10:28:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692113 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2006883-007	Carbon, Total Organic	N/A		Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-008	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006929-001	Carbon, Total Organic	N/A		Water	7.61 mg/L	10 mL	7.61 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007018-001	Carbon, Total Organic	N/A		Ground Water	2.31 mg/L	10 mL	2.31 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007018-002	Carbon, Total Organic	N/A		Ground Water	468.90 mg/L	10 mL	4690 mg/L	10	0.7	5.0			8/20/20 10:28:00	N	IV
K2007018-003	Carbon, Total Organic	N/A		Ground Water	3.81 mg/L	10 mL	3.81 mg/L	1	0.07	0.50			8/20/20 10:28:00	Y	IV
K2007018-004	Carbon, Total Organic	N/A		Ground Water	23.77 mg/L	10 mL	23.8 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007018-005	Carbon, Total Organic	N/A		Ground Water	24.16 mg/L	10 mL	24.2 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007063-002	Carbon, Dissolved Organic (DOC)	N/A		Water	5.79 mg/L	10 mL	5.79 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007063-004	Carbon, Dissolved Organic (DOC)	N/A		Water	4.00 mg/L	10 mL	4.00 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-01	Carbon, Total Organic	DUP	K2007018-003	Ground Water	4.48 mg/L	10 mL	4.48 mg/L	1	0.07	0.50		16*	8/20/20 10:28:00	N	IV
KQ2011930-02	Carbon, Total Organic	MS	K2007018-003	Ground Water	29.16 mg/L	10 mL	29.2 mg/L	1	0.07	0.50	101		8/20/20 10:28:00	N	IV
KQ2011930-03	Carbon, Dissolved Organic (DOC)	MB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-03	Carbon, Total Organic	MB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-04	Carbon, Dissolved Organic (DOC)	LCS		Water	22.99 mg/L	10 mL	23.0 mg/L	1	0.07	0.50	92		8/20/20 10:28:00	N	II
KQ2011930-04	Carbon, Total Organic	LCS		Water	22.99 mg/L	10 mL	23.0 mg/L	1	0.07	0.50	92		8/20/20 10:28:00	N	II
KQ2011930-05	Carbon, Dissolved Organic (DOC)	DLCS		Water	22.76 mg/L	10 mL	22.8 mg/L	1	0.07	0.50	91	1	8/20/20 10:28:00	N	II
KQ2011930-05	Carbon, Total Organic	DLCS		Water	22.76 mg/L	10 mL	22.8 mg/L	1	0.07	0.50	91	1	8/20/20 10:28:00	N	II
KQ2011930-06	Carbon, Dissolved Organic (DOC)	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-06	Carbon, Total Organic	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-07	Carbon, Dissolved Organic (DOC)	CCV		Water	23.43 mg/L	10 mL	23.4 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-07	Carbon, Total Organic	CCV		Water	23.43 mg/L	10 mL	23.4 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-08	Carbon, Dissolved Organic (DOC)	CCV		Water	23.03 mg/L	10 mL	23.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-08	Carbon, Total Organic	CCV		Water	23.03 mg/L	10 mL	23.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-09	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-09	Carbon, Total Organic	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-10	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692113 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2011930-10	Carbon, Total Organic	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-11	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-11	Carbon, Total Organic	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-12	Carbon, Dissolved Organic (DOC)	CCV		Water	23.98 mg/L	10 mL	24.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-12	Carbon, Total Organic	CCV		Water	23.98 mg/L	10 mL	24.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-13	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-13	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	CCV	1	24.512	0.0969	24.4150	24.415	24.4	
3	CCB	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
4	MB1	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
5	LCS	1	23.302	0.0969	23.2052	23.2052	23.2	
6	ics	1	0.279	0.0969	0.1824	0.1824	<0.5	
7	6886-001	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
8	6886-002	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
9	6746-001	1	1.597	0.0969	1.5001	1.5001	1.50	
10	6746-002	1	2.390	0.0969	2.2928	2.2928	2.29	
11	7004-001	1	2.203	0.0969	2.1060	2.106	2.1	
12	6806-001	1	5.729	0.0969	5.6325	5.6325	5.63	
13	6806-002	1	30.872	0.0969	30.7746	30.7746	30.77	
14	ccv	1	24.532	0.0969	24.4354	24.4354	24.44	
15	ccb	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
16	6806-003	1	1.114	0.0969	1.0175	1.0175	1.0	
17	6805-001	1	40.009	0.0969	39.9118	39.9118	39.91	
18	7110-001	1	4.656	0.0969	4.5594	4.5594	4.6	
19	7110-002	1	13.277	0.0969	13.1801	13.1801	13.2	
20	7110-002d	1	13.179	0.0969	13.0824	13.0824	13.08	
21	7110-002ms	1	34.913	0.0969	34.8164	34.8164	34.82	
22	7111-001	1	2.591	0.0969	2.4943	2.4943	2.5	
23	7063-001	1	4.299	0.0969	4.2020	4.202	4.2	
24	7063-003	1	3.274	0.0969	3.1774	3.1774	3.18	
25	6883-001	1	0.523	0.0969	0.4261	0.4261	<0.5	

date time

Analyzed By:	Date Analyzed
Reviewed By:	Date Reviewed

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	ccv	1	24.012	0.0969	23.9155	23.9155	23.92	
27	ccb	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
28	mb	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
29	lcs	1	23.091	0.0969	22.9945	22.9945	23.0	
30	lcs	1	22.861	0.0969	22.7638	22.7638	22.8	
31	6883-002	1	0.6280	0.0969	0.5311	0.5311	0.5	
32	6883-003	1	0.7920	0.0969	0.6951	0.6951	0.7	
33	6883-004	1	0.7126	0.0969	0.6157	0.6157	0.6	
34	6883-005	1	0.7328	0.0969	0.6359	0.6359	0.6	
35	6883-006	1	0.4024	0.0969	0.3055	0.3055	<0.5	
36	6883-007	1	0.9261	0.0969	0.8292	0.8292	0.8	
37	6883-008	1	0.4861	0.0969	0.3892	0.3892	<0.5	
38	ccv	1	23.5262	0.0969	23.4293	23.4293	23.4	
39	ccb	1	0.0000	0.0969	-0.0969	-0.0969	<0.5	
40	6929-1	10	0.5872	0.0969	0.4903	4.903	4.9	NR
41	7018-001	1	2.4033	0.0969	2.3064	2.3064	2.3	
42	7018-002	1	97.1119	0.0969	97.0150	97.015	97.0	NR
43	7018-003	1	7.3687	0.0969	7.2718	7.2718	nr	NR
44	7018-3d	1	4.5730	0.0969	4.4761	4.4761	4.5	
45	7018-003ms	1	29.2565	0.0969	29.1596	29.1596	29.2	
46	7018-004	1	23.8707	0.0969	23.7738	23.7738	23.8	
47	7018-005	1	24.2526	0.0969	24.1557	24.1557	24.2	
48	7063-002	1	5.8856	0.0969	5.7887	5.7887	5.8	
49	7063-004	1	4.1003	0.0969	4.0034	4.0034	4.0	
50	ccv	1	23.1219	0.0969	23.0250	23.025	23.0	

Analyzed By:	Date Analyzed
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccb	1	0.5558	0.0969	0.4589	0.4589	<0.5	
52	mb	1	0.4627	0.0969	0.3658	0.3658	<0.5	
53	lcs	1	25.5496	0.0969	25.4527	25.4527	25.5	
54	dlcs	1	25.7292	0.0969	25.6323	25.6323	25.6	
55	6929-001	1	7.7110	0.0969	7.6141	7.6141	7.6	
56	7018-002	10	46.9853	0.0969	46.8884	468.884	468.9	
57	7018-003	1	3.9045	0.0969	3.8076	3.8076	3.8	
58	ccv	1	24.0763	0.0969	23.9794	23.9794	24.0	
59	ccb	1	0.0969	0.0969	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By:	Date Analyzed
Reviewed By:	Date Reviewed

Schedule: 082020

Version: 10
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/08/21 10:28 - Friday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Blank)	Blank	Reagent/Acid Blank		1	True	Done
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
3	Sample	K2006886-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
4	Sample	K2006886-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
5	Sample	K2006746-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
6	Sample	K2006746-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
7	Sample	K2007004-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
8	Sample	K2006806-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
9	Sample	K2006806-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
10	Sample	K2006806-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
11	Sample	K2006805-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
12	Sample	K2007110-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
13	Sample	K2007110-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
14	Sample	K2007110-002D	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
15	Sample	K2007110-002MS	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
16	Sample	K2007111-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
17	Sample	K2007063-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
18	Sample	K2007063-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
19	Sample	K2006883-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
22	Sample	K2006883-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
23	Sample	K2006883-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
24	Sample	K2006883-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
25	Sample	K2006883-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
26	Sample	K2006883-006	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
27	Sample	K2006883-007	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
28	Sample	K2006883-008	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
29	Sample	K2006929-001 10X	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
30	Sample	K2007018-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
31	Sample	K2007018-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
32	Sample	K2007018-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
33	Sample	K2007018-003D	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
34	Sample	K2007018-003MS	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
35	Sample	K2007018-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
36	Sample	K2007018-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
37	Sample	K2007063-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
38	Sample	K2007063-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Running

Schedule: 082020

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Pending
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K2006929-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K2007018-002 10X	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K2007018-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample		CAS_salt_010711 (CAS_salt_010711)	1	False	Ready
					False	

Fusion Report - 082020
Thursday, August 20, 2020 11:36 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/08/24 09:32 - Monday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	082020	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v1) Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8) Fusion1 (Fusion1) (v9) Fusion1 (Fusion1) (v10)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/08/20 11:36

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.60	26.95	13.35	49.69	05:30
2	TC Clean	16.57	29.67	13.10	49.70	07:16
3	TC Clean	2.40	15.39	12.99	49.88	07:03
4	TC Clean	0.99	14.20	13.21	49.75	07:03

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/08/20 12:08

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.23	12.89	13.11	49.83	08:00

2	TC Clean	4.24	17.20	12.97	49.91	07:18
3	TC Clean	0.78	13.76	12.98	49.71	07:04
4	TC Clean	0.36	13.36	13.00	49.73	07:02

Sample Type: Clean From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/08/20 12:42

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.05	12.76	12.80	49.67	05:19
2	TC Clean	3.48	16.54	13.07	49.72	07:15
3	TC Clean	0.78	13.80	13.02	49.73	06:58
4	TC Clean	0.47	13.41	12.94	49.84	07:01

Sample Type: Blank (Creating v1436) From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2020/08/20 13:13

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.18	12.77	12.95	49.84	08:00
2	TC Clean	4.11	16.89	12.78	49.87	07:15
3	TC Clean	0.70	13.73	13.04	49.78	07:00
4	TC Clean	0.39	13.32	12.93	49.71	07:03
5	Reagent Blank	4.21	17.15	12.94	49.86	08:12
6	Acid Blank	0.23	13.15	12.92	49.87	08:00

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.0418 ppm	0.0000 ppm	0.0000%	2020/08/20 14:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0418	0.4184	9.48	22.67	13.19	49.96	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5119 ppm (PASS)	0.0000 ppm	0%	2020/08/20 14:20

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5119	245.1193	181.84	194.84	13.00	49.89	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/20 14:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.09	21.89	12.80	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/20 14:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.57	21.49	12.92	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS — From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	23.3021 ppm (PASS)	0.0000 ppm	0%	2020/08/20 15:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.3021	233.0207	173.35	186.31	12.96	49.90	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.2793 ppm	0.0000 ppm	0.0000%	2020/08/20 15:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2793	2.7933	11.14	24.06	12.92	49.94	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K2006886-001	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/20 15:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.49	21.38	12.88	49.91	10:29
2	TOC	0.0000	0.0000	8.61	21.52	12.91	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2006886-002	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/20 16:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.36	21.30	12.95	49.93	10:31
2	TOC	0.0000	0.0000	8.06	21.04	12.98	49.92	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K2006746-001	1.5970 ppm	0.0385 ppm	2.4100%	2020/08/20 16:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5697	15.6974	20.19	33.24	13.04	49.93	10:25
2	TOC	1.6242	16.2420	20.58	33.48	12.90	49.88	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2006746-002	2.3897 ppm	0.0540 ppm	2.2600%	2020/08/20 16:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3515	23.5152	25.68	38.58	12.90	49.96	10:31
2	TOC	2.4279	24.2793	26.21	39.04	12.83	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2007004-001	2.2029 ppm	0.0211 ppm	0.9600%	2020/08/20 17:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1880	21.8801	24.53	37.65	13.11	49.95	10:30
2	TOC	2.2178	22.1780	24.74	37.46	12.72	49.96	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2006806-001	5.7294 ppm	0.0040 ppm	0.0700%	2020/08/20 17:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.7322	57.3221	49.39	62.24	12.85	49.95	10:27
2	TOC	5.7265	57.2651	49.35	62.31	12.96	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2006806-002	30.8715 ppm	0.0903 ppm	0.2900%	2020/08/20 18:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.8077	308.0767	225.29	238.33	13.03	50.06	10:26
2	TOC	30.9354	309.3540	226.19	239.30	13.11	50.16	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5323 ppm (PASS)	0.0000 ppm	0%	2020/08/20 18:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5323	245.3232	181.98	194.98	13.00	50.10	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/20 19:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.80	22.74	12.94	50.07	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K2006806-003	1.1144 ppm	0.0101 ppm	0.9000%	2020/08/20 19:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1216	11.2155	17.05	30.13	13.08	50.21	10:25
2	TOC	1.1073	11.0730	16.95	29.91	12.96	50.12	10:26

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2006805-001	40.0087 ppm	0.4426 ppm	1.1100%	2020/08/20 19:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	40.3217	403.2167	292.03	305.07	13.04	50.08	10:29
2	TOC	39.6957	396.9571	287.64	300.54	12.89	50.22	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2007110-001	4.6563 ppm	0.1970 ppm	4.2300%	2020/08/20 20:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7956	47.9563	42.82	55.78	12.96	50.04	10:24
2	TOC	4.5171	45.1707	40.87	53.90	13.03	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2007110-002	13.2770 ppm	0.1438 ppm	1.0800%	2020/08/20 20:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.1753	131.7531	101.61	114.52	12.92	49.87	10:27
2	TOC	13.3787	133.7873	103.03	115.88	12.84	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2007110-002D	13.1793 ppm	0.1365 ppm	1.0400%	2020/08/20 21:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.2758	132.7581	102.31	115.16	12.85	49.88	10:29
2	TOC	13.0828	130.8279	100.96	113.87	12.91	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K2007110-002MS	34.9133 ppm	0.5447 ppm	1.5600%	2020/08/20 21:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	35.2984	352.9845	256.80	269.65	12.85	49.87	10:31
2	TOC	34.5281	345.2808	251.39	264.23	12.84	49.83	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K2007111-001	2.5912 ppm	0.0951 ppm	3.6700%	2020/08/20 22:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6584	26.5844	27.83	40.81	12.98	49.91	10:28
2	TOC	2.5240	25.2401	26.89	39.81	12.92	49.87	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2007063-001	4.2989 ppm	0.0922 ppm	2.1500%	2020/08/20 22:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2337	42.3367	38.88	51.93	13.05	49.81	10:28
2	TOC	4.3641	43.6411	39.80	52.62	12.83	49.90	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2007063-003	3.2743 ppm	0.0023 ppm	0.0700%	2020/08/20 23:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2760	32.7599	32.16	45.10	12.93	49.84	10:27
2	TOC	3.2727	32.7271	32.14	44.98	12.83	50.00	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2006883-001	0.5230 ppm	0.0016 ppm	0.3100%	2020/08/20 23:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5218	5.2182	12.84	25.81	12.97	49.86	10:25
2	TOC	0.5241	5.2410	12.86	25.94	13.08	49.84	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC)	CAS_salt_010711	CAS_salt_010711

(v1436) (v4) (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0124 ppm (PASS)	0.0000 ppm	0%	2020/08/20 23:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0124	240.1242	178.33	191.21	12.88	49.93	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/21 00:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.90	21.92	13.02	49.86	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/21 00:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.11	21.07	12.96	49.94	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	23.0914 ppm (PASS)	0.0000 ppm	0%	2020/08/21 00:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.0914	230.9137	171.87	184.62	12.74	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	22.8607 ppm (PASS)	0.0000 ppm	0%	2020/08/21 00:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	22.8607	228.6071	170.26	183.33	13.08	49.92	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K2006883-002	0.6280 ppm	0.0527 ppm	8.4000%	2020/08/21 01:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6652	6.6523	13.85	26.73	12.88	49.95	10:27
2	TOC	0.5907	5.9068	13.33	26.21	12.88	49.85	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K2006883-003	0.7920 ppm	0.0757 ppm	9.5600%	2020/08/21 01:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7385	7.3851	14.36	27.23	12.87	49.98	10:27
2	TOC	0.8456	8.4556	15.11	28.10	12.99	49.91	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K2006883-004	0.7126 ppm	0.0096 ppm	1.3400%	2020/08/21 02:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7059	7.0586	14.13	27.31	13.18	50.04	10:30
2	TOC	0.7194	7.1940	14.23	27.30	13.07	49.97	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K2006883-005	0.7328 ppm	0.0488 ppm	6.6600%	2020/08/21 02:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7673	7.6730	14.57	27.51	12.95	49.88	10:27
2	TOC	0.6983	6.9830	14.08	27.23	13.15	49.99	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K2006883-006	0.4024 ppm	0.0026 ppm	0.6500%	2020/08/21 03:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4005	4.0051	11.99	25.13	13.14	49.91	10:26
2	TOC	0.4042	4.0421	12.02	25.07	13.06	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K2006883-007	0.9261 ppm	0.0369 ppm	3.9800%	2020/08/21 03:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9000	9.0002	15.50	28.52	13.02	49.93	10:30
2	TOC	0.9522	9.5220	15.86	28.80	12.93	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K2006883-008	0.4861 ppm	0.0084 ppm	1.7200%	2020/08/21 04:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4802	4.8020	12.55	25.76	13.20	49.95	10:26

2	TOC	0.4920	4.9203	12.64	25.80	13.16	49.93	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.5262 ppm (PASS)	0.0000 ppm	0%	2020/08/21 04:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.5262	235.2616	174.92	187.91	12.99	49.99	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/21 04:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.96	21.91	12.95	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K2006929-001 10X	0.5872 ppm	0.0408 ppm	6.9500%	2020/08/21 04:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5583	5.5832	13.10	26.27	13.17	49.99	10:25
2	TOC	0.6161	6.1605	13.50	26.43	12.93	49.92	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◈	30	TOC	K2007018-001	2.4033 ppm	0.0459 ppm	1.9100%	2020/08/21 05:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3709	23.7090	25.82	38.92	13.11	49.99	10:24
2	TOC	2.4358	24.3577	26.27	39.20	12.93	49.95	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K2007018-002	97.1119 ppm	1.3734 ppm	1.4100%	2020/08/21 05:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	98.0830	980.8304	697.22	710.23	13.01	50.00	10:27
2	TOC	96.1407	961.4072	683.59	697.36	13.77	49.92	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K2007018-003	7.3687 ppm	2.6382 ppm	35.8000%	2020/08/21 06:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2342	92.3422	73.96	87.68	13.72	50.00	10:28
2	TOC	5.5033	55.0327	47.79	60.91	13.13	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K2007018-003D	4.5753 ppm	0.3918 ppm	8.5600%	2020/08/21 06:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8524	48.5236	43.22	56.16	12.93	49.97	10:29
2	TOC	4.2983	42.9825	39.33	52.30	12.97	50.10	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K2007018-003MS	29.2565 ppm	0.1532 ppm	0.5200%	2020/08/21 07:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.3649	293.6487	215.17	228.41	13.24	49.95	10:29
2	TOC	29.1482	291.4819	213.65	226.91	13.26	50.02	10:27

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K2007018-004	23.8707 ppm	0.5947 ppm	2.4900%	2020/08/21 07:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	23.4501	234.5011	173.68	186.59	12.90	50.07	10:30
2	TOC	24.2912	242.9119	179.58	192.65	13.07	49.97	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K2007018-005	24.2526 ppm	0.0925 ppm	0.3800%	2020/08/21 08:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.1871	241.8713	178.85	191.97	13.11	50.02	10:25
2	TOC	24.3180	243.1799	179.77	192.98	13.21	50.07	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K2007063-002	5.8856 ppm	0.7693 ppm	13.0700%	2020/08/21 08:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4296	64.2959	54.29	67.26	12.98	49.96	10:29
2	TOC	5.3416	53.4161	46.65	59.71	13.06	50.05	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K2007063-004	4.1003 ppm	0.0134 ppm	0.3300%	2020/08/21 09:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1098	41.0979	38.01	51.09	13.08	50.10	10:27
2	TOC	4.0908	40.9083	37.88	50.85	12.97	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.1219 ppm (PASS)	0.0000 ppm	0%	2020/08/21 10:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.1219	231.2188	172.09	185.09	13.01	49.98	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.5558 ppm (PASS)	0.0000 ppm	0%	2020/08/21 10:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.5558	5.5582	13.79	26.93	13.14	50.01	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 10

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.4627 ppm	0.0000 ppm	0.0000%	2020/08/21 10:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4627	4.6266	12.43	25.52	13.09	50.12	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.5496 ppm (PASS)	0.0000 ppm	0%	2020/08/21 11:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.5496	255.4959	189.12	202.09	12.97	50.03	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Check Standard --> LCS From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.7292 ppm (PASS)	0.0000 ppm	0%	2020/08/21 11:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.7292	257.2921	190.38	203.40	13.02	49.96	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample From Schedule Version 10

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K2006929-001	7.7110 ppm	0.0183 ppm	0.2400%	2020/08/21 11:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.7240	77.2400	63.37	76.45	13.09	50.07	10:26
2	TOC	7.6980	76.9805	63.18	76.02	12.83	50.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K2007018-002 10X	46.9853 ppm	0.2265 ppm	0.4800%	2020/08/21 12:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	46.8252	468.2518	337.65	350.55	12.90	49.97	10:26
2	TOC	47.1455	471.4550	339.90	353.06	13.16	50.07	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K2007018-003	3.9045 ppm	0.3744 ppm	9.5900%	2020/08/21 12:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1692	41.6924	38.43	51.54	13.11	49.94	10:27
2	TOC	3.6398	36.3979	34.72	47.72	13.01	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0763 ppm (PASS)	0.0000 ppm	0%	2020/08/21 13:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0763	240.7628	178.78	191.91	13.12	50.05	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0969 ppm (PASS)	0.0000 ppm	0%	2020/08/21 13:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0969	0.9693	10.57	23.46	12.88	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1435	1.3927	0.5240	0.0000	0.0000	0.0000	2020/08/17 12:16	Fusion1 (Fusion1)

v1436	1.4033	0.2300	0.0000	0.0000	0.0000	2020/08/20 14:05	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v38

Ver Creation: 2020/06/13 16:40

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type TOC

Calibration curve formula: TOC: y = 7.015x + 9.892

r^2 value: TOC: r^2 = 0.99974

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	9.5750	0.0000		2020/06/13 15:13
0.500 ppm	12.9010	0.5000		2020/06/13 15:28
1.0 ppm	15.6320	1.0000		2020/06/13 15:42
5.0 ppm	43.2510	5.0000		2020/06/13 15:56
10 ppm	82.4040	10.0000		2020/06/13 16:11
25 ppm	188.6880	25.0000		2020/06/13 16:25
50 ppm	358.6500	50.0000		2020/06/13 16:39

Methods

Name: CAS_salt_010711 (TOC)

Version: v4

Ver Creation: 2019/02/21 17:57

Comment:

Operator: Fusion1 (Fusion1)

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5

SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/08/21 13:34

0.556				OBSERVATIONS	9	ABOVE
0.463				STD Deviation	0.22197	ABOVE
0.097	0.097	######	######	AVERAGE	0.12393	0.0969
0.000				UCL	0.34590	0
0.000				LCL	-0.09803	0
0.000						0
0.000						0
0.000				OBSERVATIONS	1	0
0.000				STD Deviation	~~#DIV/0!~~	0
				AVERAGE	0.09690	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
						0
						0
						0
						0
						0
						0

ALS Environmental

StarLIMS Run: 692111/392113

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 19-GEN-8-15-C 50 ppm LCS: 19-GEN-8-31I 25.0 ppm

ICAL Date: 6/16/2020

ICAL ID: 19-GEN-8-22-G

ICS ID: 19-GEN-8-35-J

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 19-GEN-8-15-B 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-38-B

21 % H3PO4: 19-GEN-08-38-A

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By:	MMC	Date Analyzed:	8/10/20
Reviewed By:	JC	Date Reviewed:	8/26/20

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WorkOrder: HS20080738

Longhorn Army Ammunition Plant 16 July 2020

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

26-Sep-2020

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HS20080738 Longhorn Army Ammunition Plant
16 July 2020 Final

ALS WO# HS20080738

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August 27, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20080738**

Laboratory Results for: **Longhorn Army Ammunition Plant 16 July 2020**

Dear Susan Huang,

ALS Environmental received 3 sample(s) on Aug 18, 2020 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

RJ Modashia
Project Manager

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
Work Order: HS20080738

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20080738-01	16WW58-200817	Groundwater		17-Aug-2020 08:05	18-Aug-2020 09:50	☐
HS20080738-02	16WW57-200817	Groundwater		17-Aug-2020 09:20	18-Aug-2020 09:50	☐
HS20080738-03	Trip Blank-200817	Water	C&G-052219-11	17-Aug-2020 00:00	18-Aug-2020 09:50	☐

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
Work Order: HS20080738

CASE NARRATIVE

Work Order Comments

- Analysis of Perchlorate was performed by ALS Houston TX, High Resolution. Laboratory. Final report attached.

  The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R367340

Sample ID: 16WW57-200817 (HS20080738-02MS)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

Sample ID: 16WW57-200817 (HS20080738-02MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference.

GCMS Volatiles by Method SW8260

Batch ID: R367092

Sample ID: 16WW57-200817 (HS20080738-02MS)

- MS/MSD failed QC limits for some compounds.

WetChemistry by Method SM2320B

Batch ID: R367090

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R367032

Sample ID: 16WW57-200817 (HS20080738-02 MS/MSD)

- MS/MSD reported at 5X dilution

Sample ID: 16WW57-200817 (HS20080738-02)

- Sample ran at 5X due to high concentration of Chloride

Sample ID: 16WW57-200817 (HS20080738-02MS)

- 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. (Sulfate)

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
Sample ID: 16WW58-200817
Collection Date: 17-Aug-2020 08:05

ANALYTICAL REPORT
WorkOrder:HS20080738
Lab ID:HS20080738-01
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	5.0	U	1.5	5.0	5.0	UG/L	5	19-Aug-2020 13:16
1,1-Dichloroethene	**2.9**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	19-Aug-2020 13:16
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	19-Aug-2020 13:16
cis-1,2-Dichloroethene	**110**		**1.0**	**2.5**	**5.0**	**UG/L**	5	19-Aug-2020 13:16
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	19-Aug-2020 13:16
Trichloroethene	**3,400**		**10**	**25**	**50**	**UG/L**	50	19-Aug-2020 14:28
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	19-Aug-2020 13:16
Surr: 1,2-Dichloroethane-d4	*87.6*			**0**	*81-118*	*%REC*	*5*	*19-Aug-2020 13:16*
Surr: 1,2-Dichloroethane-d4	*90.1*			**0**	*81-118*	*%REC*	*50*	*19-Aug-2020 14:28*
Surr: 4-Bromofluorobenzene	*94.6*			**0**	*85-114*	*%REC*	*5*	*19-Aug-2020 13:16*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*50*	*19-Aug-2020 14:28*
Surr: Dibromofluoromethane	*92.3*			**0**	*80-119*	*%REC*	*5*	*19-Aug-2020 13:16*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*50*	*19-Aug-2020 14:28*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*19-Aug-2020 13:16*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*50*	*19-Aug-2020 14:28*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	0.000250	U	0.000144	0.000250	0.00100	mg/L	1	24-Aug-2020 10:50
Ethene	**0.00171**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	24-Aug-2020 10:50
Methane	**0.00969**		**0.000107**	**0.000250**	**0.000500**	**mg/L**	1	24-Aug-2020 10:50
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**97.8**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	19-Aug-2020 18:16
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**3.42**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Aug-2020 21:14
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	18-Aug-2020 21:14
Sulfate	**348**		**2.00**	**5.00**	**5.00**	**mg/L**	10	18-Aug-2020 14:55
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	27-Aug-2020 17:43
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Aug-2020 14:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
Sample ID: 16WW57-200817
Collection Date: 17-Aug-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20080738
Lab ID:HS20080738-02
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	19-Aug-2020 12:52
1,1-Dichloroethene	**1.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Aug-2020 12:52
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:52
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:52
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Aug-2020 12:52
Trichloroethene	**69**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Aug-2020 12:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:52
Surr: 1,2-Dichloroethane-d4	*88.4*			**0**	*81-118*	*%REC*	*1*	*19-Aug-2020 12:52*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*19-Aug-2020 12:52*
Surr: Dibromofluoromethane	*92.2*			**0**	*80-119*	*%REC*	*1*	*19-Aug-2020 12:52*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*19-Aug-2020 12:52*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	0.000250	U	0.000144	0.000250	0.00100	mg/L	1	24-Aug-2020 10:59
Ethene	0.000500	U	0.000234	0.000500	0.00100	mg/L	1	24-Aug-2020 10:59
Methane	**0.00219**		**0.000107**	**0.000250**	**0.000500**	**mg/L**	1	24-Aug-2020 10:59
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**138**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	19-Aug-2020 18:05
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**4.70**		**0.150**	**0.500**	**0.500**	**mg/L**	5	18-Aug-2020 21:32
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	18-Aug-2020 21:32
Sulfate	**2,610**		**20.0**	**50.0**	**50.0**	**mg/L**	100	18-Aug-2020 23:02
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	27-Aug-2020 17:43
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Aug-2020 14:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Aug-20

ANALYTICAL REPORT

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
Sample ID: Trip Blank-200817
Collection Date: 17-Aug-2020 00:00

WorkOrder:HS20080738
Lab ID:HS20080738-03
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	19-Aug-2020 12:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:28
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Aug-2020 12:28
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Aug-2020 12:28
Surr: 1,2-Dichloroethane-d4	*87.7*			**0**	*81-118*	*%REC*	*1*	*19-Aug-2020 12:28*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*1*	*19-Aug-2020 12:28*
Surr: Dibromofluoromethane	*91.7*			**0**	*80-119*	*%REC*	*1*	*19-Aug-2020 12:28*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*19-Aug-2020 12:28*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R367032 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			18 Aug 2020 21:14	1
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			18 Aug 2020 14:55	10
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			18 Aug 2020 23:02	100
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			18 Aug 2020 21:32	5
Batch ID: R367090 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			19 Aug 2020 18:16	1
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			19 Aug 2020 18:05	1
Batch ID: R367092 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20080738-03	Trip Blank-200817	17 Aug 2020 00:00			19 Aug 2020 12:28	1
Batch ID: R367092 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			19 Aug 2020 14:28	50
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			19 Aug 2020 13:16	5
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			19 Aug 2020 12:52	1
Batch ID: R367340 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Groundwater	
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			24 Aug 2020 10:50	1
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			24 Aug 2020 10:59	1
Batch ID: R367563 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			27 Aug 2020 14:05	1
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			27 Aug 2020 14:05	1
Batch ID: R367591 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20080738-01	16WW58-200817	17 Aug 2020 08:05			27 Aug 2020 17:43	1
HS20080738-02	16WW57-200817	17 Aug 2020 09:20			27 Aug 2020 17:43	1

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

QC BATCH REPORT

Batch ID: R367340 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-200824** Units: **mg/L** Analysis Date: **24-Aug-2020 10:12**
Client ID: Run ID: **FID-4_367340** SeqNo: **5712529** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000250	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000250	0.000500								U

LCS Sample ID: **LCS-200824** Units: **mg/L** Analysis Date: **24-Aug-2020 10:25**
Client ID: Run ID: **FID-4_367340** SeqNo: **5712530** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0180	0.00100	0.01804	0	99.9	75 - 125				
Ethene	0.0174	0.00100	0.0168	0	103	75 - 125				
Methane	0.00928	0.000500	0.009647	0	96.2	75 - 125				

LCSD Sample ID: **LCSD-200824** Units: **mg/L** Analysis Date: **24-Aug-2020 10:40**
Client ID: Run ID: **FID-4_367340** SeqNo: **5712531** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0172	0.00100	0.01804	0	95.5	75 - 125	0.01803	4.52	30	
Ethene	0.0163	0.00100	0.0168	0	97.1	75 - 125	0.01738	6.34	30	
Methane	0.00849	0.000500	0.009647	0	88.0	75 - 125	0.009280	8.85	30	

MS Sample ID: **HS20080738-02MS** Units: **mg/L** Analysis Date: **24-Aug-2020 11:08**
Client ID: **16WW57-200817** Run ID: **FID-4_367340** SeqNo: **5712534** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0186	0.00100	0.01804	0	103	75 - 125				
Ethene	0.0184	0.00100	0.0168	0	110	75 - 125				
Methane	0.00889	0.000500	0.009647	0.002186	69.5	75 - 125				S

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

QC BATCH REPORT

Batch ID: **R367340 (0)** **Instrument:** **FID-4** **Method:** **DISSOLVED GASES BY RSK-175**

MSD Sample ID: **HS20080738-02MSD** Units: **mg/L** Analysis Date: **24-Aug-2020 11:20**
Client ID: **16WW57-200817** Run ID: **FID-4_367340** SeqNo: **5712567** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0188	0.00100	0.01804	0	104	75 - 125	0.01863	0.758	30	
Ethene	0.0188	0.00100	0.0168	0	112	75 - 125	0.01841	1.94	30	
Methane	0.00913	0.000500	0.009647	0.002186	72.0	75 - 125	0.008893	2.62	30	S

The following samples were analyzed in this batch: HS20080738-01 HS20080738-02

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

QC BATCH REPORT

Batch ID: R367092 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200819** Units: **UG/L** Analysis Date: **19-Aug-2020 12:04**
Client ID: Run ID: **VOA6_367092** SeqNo: **5707421** 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	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.99*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.44*	*1.0*	*50*	*0*	*94.9*	*85 - 114*				
Surr: Dibromofluoromethane	*46.07*	*1.0*	*50*	*0*	*92.1*	*80 - 119*				
Surr: Toluene-d8	*53.28*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-200819** Units: **UG/L** Analysis Date: **19-Aug-2020 11:16**
Client ID: Run ID: **VOA6_367092** SeqNo: **5707420** 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	19.93	1.0	20	0	99.6	80 - 119				
1,1-Dichloroethene	20.53	1.0	20	0	103	71 - 131				
1,2-Dichloroethane	20.03	1.0	20	0	100	73 - 128				
cis-1,2-Dichloroethene	20.54	1.0	20	0	103	78 - 123				
Methylene chloride	19.48	2.0	20	0	97.4	74 - 124				
Trichloroethene	19.9	1.0	20	0	99.5	79 - 123				
Vinyl chloride	18.69	1.0	20	0	93.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.51*	*1.0*	*50*	*0*	*93.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.87*	*1.0*	*50*	*0*	*93.7*	*85 - 114*				
Surr: Dibromofluoromethane	*47.72*	*1.0*	*50*	*0*	*95.4*	*80 - 119*				
Surr: Toluene-d8	*48.49*	*1.0*	*50*	*0*	*97.0*	*89 - 112*				

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

QC BATCH REPORT

Batch ID: R367092 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20080738-02MS** Units: **UG/L** Analysis Date: **19-Aug-2020 13:40**
Client ID: **16WW57-200817** Run ID: **VOA6_367092** SeqNo: **5707425** 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	24.79	1.0	20	0	124	80 - 119				S
1,1-Dichloroethene	27.41	1.0	20	1.527	129	71 - 131				
1,2-Dichloroethane	23.86	1.0	20	0	119	73 - 128				
cis-1,2-Dichloroethene	25.2	1.0	20	0	126	78 - 123				S
Methylene chloride	22.64	2.0	20	0	113	74 - 124				
Trichloroethene	96.79	1.0	20	68.56	141	79 - 123				S
Vinyl chloride	22.82	1.0	20	0	114	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.85*	*1.0*	*50*	*0*	*89.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.79*	*1.0*	*50*	*0*	*95.6*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*52.45*	*1.0*	*50*	*0*	*105*	*89 - 112*				

MSD Sample ID: **HS20080738-02MSD** Units: **UG/L** Analysis Date: **19-Aug-2020 14:04**
Client ID: **16WW57-200817** Run ID: **VOA6_367092** SeqNo: **5707426** 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	23.91	1.0	20	0	120	80 - 119	24.79	3.6	20	S
1,1-Dichloroethene	26.26	1.0	20	1.527	124	71 - 131	27.41	4.27	20	
1,2-Dichloroethane	23.16	1.0	20	0	116	73 - 128	23.86	2.98	20	
cis-1,2-Dichloroethene	23.86	1.0	20	0	119	78 - 123	25.2	5.5	20	
Methylene chloride	22.14	2.0	20	0	111	74 - 124	22.64	2.23	20	
Trichloroethene	90.65	1.0	20	68.56	110	79 - 123	96.79	6.55	20	
Vinyl chloride	21.6	1.0	20	0	108	58 - 137	22.82	5.49	20	
Surr: 1,2-Dichloroethane-d4	*44.24*	*1.0*	*50*	*0*	*88.5*	*81 - 118*	*44.85*	*1.39*	*20*	
Surr: 4-Bromofluorobenzene	*47.89*	*1.0*	*50*	*0*	*95.8*	*85 - 114*	*47.79*	*0.215*	*20*	
Surr: Dibromofluoromethane	*46.05*	*1.0*	*50*	*0*	*92.1*	*80 - 119*	*46.9*	*1.83*	*20*	
Surr: Toluene-d8	*52.62*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52.45*	*0.326*	*20*	

The following samples were analyzed in this batch: HS20080738-01 HS20080738-02 HS20080738-03

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

QC BATCH REPORT

Batch ID: R367032 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK-081820** Units: **mg/L** Analysis Date: **18-Aug-2020 20:20**
Client ID: Run ID: **ICS-Integrion_367032** SeqNo: **5706036** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-081820** Units: **mg/L** Analysis Date: **18-Aug-2020 20:38**
Client ID: Run ID: **ICS-Integrion_367032** SeqNo: **5706037** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	4.003	0.100	4	0	100	80 - 120				
Nitrogen, Nitrate (As N)	3.828	0.100	4	0	95.7	80 - 120				
Sulfate	19.7	0.500	20	0	98.5	80 - 120				

MS Sample ID: **HS20080738-02MS** Units: **mg/L** Analysis Date: **18-Aug-2020 21:50**
Client ID: **16WW57-200817** Run ID: **ICS-Integrion_367032** SeqNo: **5706040** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	14.27	0.500	10	4.702	95.7	80 - 120				
Nitrogen, Nitrate (As N)	11.74	0.500	10	0	117	80 - 120				
Sulfate	2420	2.50	50	2447	-53.1	80 - 120				SEO

MSD Sample ID: **HS20080738-02MSD** Units: **mg/L** Analysis Date: **18-Aug-2020 22:08**
Client ID: **16WW57-200817** Run ID: **ICS-Integrion_367032** SeqNo: **5706041** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	14.33	0.500	10	4.702	96.3	80 - 120	14.27	0.426	20	
Nitrogen, Nitrate (As N)	11.75	0.500	10	0	117	80 - 120	11.74	0.0639	20	
Sulfate	2403	2.50	50	2447	-87.6	80 - 120	2420	0.715	20	SEO

The following samples were analyzed in this batch: HS20080738-01 HS20080738-02

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: HS20080738

QC BATCH REPORT

Batch ID: R367090 (0) **Instrument:** ManTech01 **Method:** ALKALINITY BY SM2320B

MBLK Sample ID: **WBLKW1-200819** Units: **mg/L** Analysis Date: **19-Aug-2020 17:42**
Client ID: Run ID: **ManTech01_367090** SeqNo: **5707395** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	5.00	5.00								U

LCS Sample ID: **LCS1-200819** Units: **mg/L** Analysis Date: **19-Aug-2020 17:51**
Client ID: Run ID: **ManTech01_367090** SeqNo: **5707396** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1077	5.00	1000	0	108	85 - 115				

LCSD Sample ID: **LCSD1-200819** Units: **mg/L** Analysis Date: **19-Aug-2020 17:59**
Client ID: Run ID: **ManTech01_367090** SeqNo: **5707397** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1083	5.00	1000	0	108	85 - 115	1077	0.495	20	

DUP Sample ID: **HS20080738-02DUP** Units: **mg/L** Analysis Date: **19-Aug-2020 18:11**
Client ID: **16WW57-200817** Run ID: **ManTech01_367090** SeqNo: **5707399** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	139.4	5.00					138.1	0.944	20	

The following samples were analyzed in this batch: HS20080738-01 HS20080738-02

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
WorkOrder: **HS20080738**

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	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	ANAB L2231 V010	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
Maryland	343, 2019-2020	30-Sep-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 27-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 16 July 2020
Work Order: HS20080738

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20080738-01	16WW58-200817	Login	8/18/2020 12:58:16 PM	PMG	Sub
HS20080738-01	16WW58-200817	Login	8/18/2020 12:58:16 PM	PMG	WET206
HS20080738-01	16WW58-200817	Login	8/18/2020 12:58:16 PM	PMG	VOA157
HS20080738-01	16WW58-200817	Login	8/18/2020 12:58:16 PM	PMG	RSK012
HS20080738-01	16WW58-200817	Login	8/18/2020 12:58:16 PM	PMG	Sub

ALS Houston, US Date: 27-Aug-20

Sample Receipt Checklist

Work Order ID: HS20080738 **Date/Time Received:** 18-Aug-2020 09:50

Client Name: CBI-Houston **Received by:** Jared R. Makan

Completed By: /S/ Paresh M. Giga (eSignature) 18-Aug-2020 13:04 (Date/Time) **Reviewed by:** /S/ RJ Modashia (eSignature) 19-Aug-2020 10:48 (Date/Time)

Matrices: **GW/Water** Carrier name: **FedEx**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:None
Samplers name present on COC?	☐	☑	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.1C U/c	IR31
Cooler(s)/Kit(s):	45351	
Date/Time sample(s) sent to storage:	8/18/2020 13:15	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☐	☐	N/A ☑
pH adjusted?	☐	☐	N/A ☑

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 16 JULY 2020_ALS**

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 (bromide, sulfate, nitrate) by SW9056 and Alkalinity by SM2320	Bromide by SW9056	Perchlorate by SW6850	Metals (arsenic, chromium, manganese, nickel, thallium) by SW6020				Remarks (Preservatives, etc.)	Lab I.D.#
16WW58-200817	WG	8/17/20/0805		10	X	X	X	X	X	X						
16WW57-200817	WG	8/17/20/0920		10	X	X	X	X	X	X						
16WW57-200817-MS	WG	8/17/20/0920		10	X	X	X	X	X	X						
16WW57-200817-MSD	WG	8/17/20/0920		10	X	X	X	X	X	X						
TripBlank-200817	WG	8/17/20		2	X											

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@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	8/17/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Juarcard	8/18/20	09:50							

Remarks: Cooler 45351 1.2.31
Temp 1.1°C CFO

HS20080738

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 16 July 2020

(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

45351

CUSTODY SEAL

Date: 8/17/20 Time: 1430
Name: Scott Beesinger
Company: BTHATX

Seal Broken By: SM
Date: 08/18/20

45351 AUG 18 2020

Must D[illegible]xt Business Day
Time and Tempature Sensitive!

45351.

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 23JUN20
ACTWGT: 1.00 LB MAN
CAD: 3001907/AFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 16 - B072394 - RJ
RMA:

FedEx Express

FedEx.
TRK# 0221 1891 8877 8358

TUE - 18 AUG 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FED: 169785 17Aug2020 CGCA 560GA/77099/05A2

August 27, 2020

Service Request No:E2000759

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS20080738

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory August 19, 2020
For your reference, these analyses have been assigned our service request number **E2000759.**

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.:**	E2000759
Project:	HS20080738	**Date Received:**	08/19/20
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two samples were received for analysis at ALS Environmental in Houston on 08/19/20.

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:

EQ2000359: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The MS (EQ2000359-04) and MSD ((EQ2000359-05) were performed on unrelated samples. The LCS and LCSD recovery passed.

DOD Certification is held for the method/matrix/analytes provided in this report.

Lowest practical dilution performed on both E2000759-001/002 due to matrix interference.

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:**E2000759
Project: HS20080738

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000759-001	16WW58-200817	8/17/2020	0805
E2000759-002	16WW57-200817	8/17/2020	0920

Service Request Summary

Folder #: **E2000759**
Client Name: ALS Environmental - US
Project Name: HS20080738
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 08/19/20
Internal Due Date: 9/1/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20080738
EDD: No EDD Specified

4 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 10D
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2000759-001	16WW58-200817	Ground Water	08/17/20 0805	**IV**
E2000759-002	16WW57-200817	Ground Water	08/17/20 0920	**IV**

Service Request Summary

Folder #:	**E2000759**
Client Name:	ALS Environmental - US
Project Name:	HS20080738
Project Number:	

Report To:	RJ Modashia ALS Laboratory Group 10450 Stancliff Road Houston, TX 77099-4338 USA
Phone Number:	281-530-5656
Cell Number:	
Fax Number:	281-530-5887
E-mail:	rj.modashia@alsglobal.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	08/19/20
Internal Due Date:	9/1/2020
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	Y
P.O. Number:	HS20080738
EDD:	No EDD Specified

4 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved

Location: EHRMS-WIC 10D

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	Level II due 9/1,level IV 9/8
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

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	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.
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.
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.

Data Qualifiers

Lab 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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	1785988	12/31/2020
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022
Washington Department of Health	C819	11/14/2020

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

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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:** **14518**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@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: HS20080738
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20080738-01**	**16WW58-200817**	**Groundwater**	**17 Aug 2020 08:05**
	SUB_Perch-6850			26 Aug 2020
2.	**HS20080738-02**	**16WW57-200817**	**Groundwater**	**17 Aug 2020 09:20**
	SUB_Perch-6850			26 Aug 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20080738-02 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: S. Nussmann Date/Time: 8/19/20 13:20

Received By: Date/Time: 8/19/20 1320

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ACG-H

Thermometer ID: IR25

Date/Time Received: 8/19/20 Initials: CG

Date/Time Logged in: 8/19/20 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☑ ALS Courier ○ 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?
–		8/19/20	1320	CG	3.3	☒
						☐
						☐
						☐

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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Houston, TX 77099
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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#: 364168 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 8/24/20 09:31

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000716-001	LH18/24-SP650_080520-BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2000739-001	LH18/24-SP650_081120_BIX	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2000740-001	LH18/24-SP140_081120	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2000741-001	LH18/24-SP650_081120_BIX	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2000742-001	LHSMW01-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2000742-002	04WW04-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2000742-003	04WW08-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2000742-004	04WW08-200810-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2000742-005	04WW02-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2000742-006	04WW06-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2000742-007	LHSMW02-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2000742-008	04WW11-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2000742-009	04WW01-200810	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2000742-010	04WW05-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2000742-011	04WW09-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2000742-012	04WW10-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
17	E2000742-013	04WW07-200811	.01	6850/ClO4 DOD			Ground Water	10mL	
18	E2000742-014	04WW07-200811-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
19	E2000759-001	16WW58-200817	.01	6850/ClO4 DOD			Ground Water	10mL	
20	E2000759-002	16WW57-200817	.01	6850/ClO4 DOD			Ground Water	10mL	
21	EQ2000359-01	MB		6850/ClO4 DOD			Liquid	10mL	
22	EQ2000359-02	LCS		6850/ClO4 DOD			Liquid	10mL	
23	EQ2000359-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
24	EQ2000359-04	04WW10-200811 MS	.01	6850/ClO4 DOD			Liquid	10mL	
25	EQ2000359-05	04WW10-200811 DMS	.01	6850/ClO4 DOD			Liquid	10mL	
26	EQ2000359-06	16WW57-200817 MS	.01	6850/ClO4 DOD			Liquid	10mL	
27	EQ2000359-07	16WW57-200817 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 202037 Logbook Ref: Sodium Perchlorate Expires On: 05/22/2021

E2000716-001	100.00µL	E2000739-001	100.00µL	E2000740-001	100.00µL	E2000741-001	100.00µL	E2000742-001	100.00µL	E2000742-002	100.00µL
E2000742-003	100.00µL	E2000742-004	100.00µL	E2000742-005	100.00µL	E2000742-006	100.00µL	E2000742-007	100.00µL	E2000742-008	100.00µL
E2000742-009	100.00µL	E2000742-010	100.00µL	E2000742-011	100.00µL	E2000742-012	100.00µL	E2000742-013	100.00µL	E2000742-014	100.00µL
E2000759-001	100.00µL	E2000759-002	100.00µL	EQ2000359-01	100.00µL	EQ2000359-02	100.00µL	EQ2000359-03	100.00µL	EQ2000359-04	100.00µL

Preparation Information Benchsheet

Prep Run#: 364168 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 8/24/20 09:31

EQ2000359-05	100.00µL	EQ2000359-06	100.00µL	EQ2000359-07	100.00µL

Name:	Perchlorate Intermediate Stock1	Inventory ID	209764	Logbook Ref:	Perchlorate Int. Stock1 51820	Expires On:	11/18/2020				
EQ2000359-02	1.00µL	EQ2000359-03	1.00µL	EQ2000359-04	1.00µL	EQ2000359-05	1.00µL	EQ2000359-06	1.00µL	EQ2000359-07	1.00µL

Preparation Steps

Step: Preparation
Started: 8/24/20 09:31
Finished: 8/25/20 17:54
By: GRIVERA
Comments

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ 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:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0805
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW58-200817	**Units:**	µg/L
Lab Code:	E2000759-001	**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	1.00	0.500	0.250	10	8/24/20	8/26/20 18:29	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	E2000759-002	**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	**0.454**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 18:36	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000359-01	**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	8/24/20	8/25/20 18:56	364168	692783	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	364168

	Lab Control Sample EQ2000359-02			Duplicate Lab Control Sample EQ2000359-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.108	0.100	108	0.100	0.100	100	84 - 119	8	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:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000359-02	**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	**0.108**		0.100	0.0500	0.0250	1	8/24/20	8/26/20 15:35	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000359-03	**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	**0.100**		0.100	0.0500	0.0250	1	8/24/20	8/26/20 15:27	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	8/26/20

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	E2000742-012	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ2000359-04					Batch QCDMS **Duplicate Matrix Spike** EQ2000359-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.339	0.459	0.100	120	*	0.428	0.100	89	84 - 119	7	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000359-04	**Basis:**	NA
Run Type:	Matrix Spike		

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	**0.459**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 15:43	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000359-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**0.428**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 15:51	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
		Date Analyzed:	8/26/20

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	E2000759-002	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		16WW57-200817MS				16WW57-200817DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2000359-06				EQ2000359-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.454	0.530	0.100	76	#	0.558	0.100	105	#	84 - 119	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	EQ2000359-06	**Basis:**	NA
Run Type:	Matrix Spike		

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	**0.530**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 15:59	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Collected:**	8/17/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/19/20
Sample Name:	16WW57-200817	**Units:**	µg/L
Lab Code:	EQ2000359-07	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**0.558**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 16:07	364168	692775	

Initial Calibration

ALS Environmental - Houston HRMS
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20200819

1st Review: Kneir
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 7/19/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000022**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200819_005	Perchlorate6850b.lcm	1x	☒	3100806-05	8/19/2020 10:42
2	PERCHLORATE2		20200819_006	Perchlorate6850b.lcm	1x	☒	3100806-06	8/19/2020 10:50
3	PERCHLORATE3		20200819_007	Perchlorate6850b.lcm	1x	☒	3100806-07	8/19/2020 10:58
4	PERCHLORATE4		20200819_008	Perchlorate6850b.lcm	1x	☒	3100807-01	8/19/2020 11:06
5	PERCHLORATE5		20200819_009	Perchlorate6850b.lcm	1x	☒	3100807-02	8/19/2020 11:14
6	PERCHLORATE6		20200819_010	Perchlorate6850b.lcm	1x	☒	3100807-03	8/19/2020 11:22
7	PERCHLORATE7		20200819_011	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 11:30
8	PERCHLORATE8		20200819_012	Perchlorate6850b.lcm	1x	☒	3100807-05	8/19/2020 11:38
9	PERCHLORATE9		20200819_013	Perchlorate6850b.lcm	1x	☒	3100807-06	8/19/2020 11:45
10	PERCHLORATE10		20200819_014	Perchlorate6850b.lcm	1x	☒	3100807-07	8/19/2020 11:53
11	PERCHLORATEICV		20200819_016	Perchlorate6850b.lcm	1x	☒	3100807-08	8/19/2020 12:09
12	LODV		20200819_017	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:17
13	EQ2000337-01		20200819_019	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:38
14	EQ2000337-02		20200819_020	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:46
15	EQ2000337-03		20200819_021	Perchlorate6850b.lcm	1x	☒		8/19/2020 12:53
16	E2000723-001		20200819_022	Perchlorate6850b.lcm	1x	☒		8/19/2020 13:01
17	PERCHLORATE7		20200819_023	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 13:09
18	E2000680-002X10		20200819_024	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:17
19	E2000680-004X2		20200819_025	Perchlorate6850b.lcm	2x	☒		8/19/2020 13:25
20	E2000680-007X10		20200819_026	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:33
21	E2000680-009X10		20200819_027	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:41
22	E2000680-010X10		20200819_028	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:49
23	E2000680-011X10		20200819_029	Perchlorate6850b.lcm	10x	☒		8/19/2020 13:57
24	EQ2000327-01		20200819_030	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:04
25	EQ2000327-02		20200819_031	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:12
26	EQ2000327-03		20200819_033	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:21
27	PERCHLORATE7		20200819_034	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 14:29
28	E2000735-001		20200819_035	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:37
29	E2000735-002		20200819_036	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:45
30	E2000735-003		20200819_037	Perchlorate6850b.lcm	1x	☒		8/19/2020 14:53
31	E2000735-004		20200819_038	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:01
32	E2000735-005		20200819_039	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:09
33	E2000735-006		20200819_040	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:16
34	E2000735-007		20200819_041	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:24
35	E2000735-008		20200819_042	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:32
36	E2000735-009		20200819_043	Perchlorate6850b.lcm	1x	☒		8/19/2020 15:44
37	PERCHLORATE7		20200819_044	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 15:52
38	E2000735-010		20200819_045	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:00
39	E2000735-011		20200819_046	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:08
40	E2000735-013		20200819_047	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:16
41	E2000735-014		20200819_048	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:24
42	E2000735-015		20200819_049	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:32
43	E2000735-016		20200819_050	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:40
44	E2000735-017		20200819_051	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:47
45	E2000735-018		20200819_052	Perchlorate6850b.lcm	1x	☒		8/19/2020 16:55
46	E2000735-019		20200819_053	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:03
47	PERCHLORATE7		20200819_054	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 17:11
48	EQ2000339-01		20200819_055	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:19
49	EQ2000339-02		20200819_056	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:27
50	EQ2000339-03		20200819_057	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:35
51	E2000712-001		20200819_058	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:43
52	E2000712-002		20200819_059	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:51
53	E2000712-003		20200819_060	Perchlorate6850b.lcm	1x	☒		8/19/2020 17:59
54	IB		20200819_061	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:08
55	IB		20200819_062	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:16
56	IB		20200819_063	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:24
57	IB		20200819_064	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:32
58	PERCHLORATE7		20200819_065	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 18:40
59	E2000712-004		20200819_066	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:48
60	E2000712-005		20200819_067	Perchlorate6850b.lcm	1x	☒		8/19/2020 18:56
61	E2000712-006		20200819_068	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:04

20200819

1st Review: Kneir
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 7/19/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000022**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
62	E2000712-007		20200819_069	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:12
63	E2000694-012		20200819_070	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:19
64	E2000694-012MS		20200819_071	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:27
65	E2000694-012MSD		20200819_072	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:35
66	E2000711-001		20200819_073	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:43
67	E2000711-002		20200819_074	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:51
68	E2000724-001		20200819_075	Perchlorate6850b.lcm	1x	☒		8/19/2020 19:59
69	PERCHLORATE7		20200819_076	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 20:07
70	E2000724-002		20200819_077	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:15
71	E2000724-003		20200819_078	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:22
72	E2000724-004		20200819_079	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:30
73	E2000728-001		20200819_080	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:38
74	E2000728-002		20200819_081	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:46
75	E2000729-001		20200819_082	Perchlorate6850b.lcm	1x	☒		8/19/2020 20:54
76	R2006493-001		20200819_083	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:02
77	R2006493-003		20200819_084	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:10
78	R2006493-005		20200819_085	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:18
79	R2006493-007		20200819_086	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:26
80	PERCHLORATE7		20200819_087	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 21:33
81	R2006493-009		20200819_088	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:41
82	R2006493-011		20200819_089	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:49
83	R2006493-013		20200819_090	Perchlorate6850b.lcm	1x	☒		8/19/2020 21:57
84	R2006493-015		20200819_091	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:05
85	PERCHLORATE7		20200819_092	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 22:13
86	EQ2000338-01		20200819_093	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:21
87	EQ2000338-02		20200819_094	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:29
88	EQ2000338-03		20200819_095	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:37
89	EQ2000338-04		20200819_096	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:44
90	EQ2000338-05		20200819_097	Perchlorate6850b.lcm	1x	☒		8/19/2020 22:52
91	R2006532-001		20200819_098	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:00
92	R2006532-003		20200819_099	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:08
93	R2006532-005		20200819_100	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:16
94	R2006532-007		20200819_101	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:24
95	R2006532-009		20200819_102	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:32
96	PERCHLORATE7		20200819_103	Perchlorate6850b.lcm	1x	☒	3100807-04	8/19/2020 23:40
97	R2006532-011		20200819_104	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:47
98	R2006555-002		20200819_105	Perchlorate6850b.lcm	1x	☒		8/19/2020 23:55
99	R2006555-004		20200819_106	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:03
100	R2006555-006		20200819_107	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:11
101	R2006555-008		20200819_108	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:19
102	R2006555-010		20200819_109	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:27
103	R2006555-012		20200819_110	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:35
104	R2006617-001		20200819_111	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:43
105	R2006617-003		20200819_112	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:50
106	R2006617-005		20200819_113	Perchlorate6850b.lcm	1x	☒		8/20/2020 0:58
107	PERCHLORATE7		20200819_114	Perchlorate6850b.lcm	1x	☒	3100807-04	8/20/2020 1:06
108	R2006617-007		20200819_115	Perchlorate6850b.lcm	1x	☒		8/20/2020 1:14
109	R2006617-009		20200819_116	Perchlorate6850b.lcm	1x	☒		8/20/2020 1:22
110	R2006617-010		20200819_117	Perchlorate6850b.lcm	1x	☒		8/20/2020 1:30
111	PERCHLORATE7		20200819_118	Perchlorate6850b.lcm	1x	☒	3100807-04	8/20/2020 1:38

Initial Calibration - Detailed Report

Calibration ID: EC2000022 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2000022-01	PERCHLORATE1	20200819_005	08/19/2020 10:42
02	EC2000022-02	PERCHLORATE2	20200819_006	08/19/2020 10:50
03	EC2000022-03	PERCHLORATE3	20200819_007	08/19/2020 10:58
04	EC2000022-04	PERCHLORATE4	20200819_008	08/19/2020 11:06
05	EC2000022-05	PERCHLORATE5	20200819_009	08/19/2020 11:14
06	EC2000022-06	PERCHLORATE6	20200819_010	08/19/2020 11:22
07	EC2000022-07	PERCHLORATE7	20200819_011	08/19/2020 11:30
08	EC2000022-08	PERCHLORATE8	20200819_012	08/19/2020 11:38
09	EC2000022-09	PERCHLORATE9	20200819_013	08/19/2020 11:45
10	EC2000022-10	PERCHLORATE10	20200819_014	08/19/2020 11:53

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 5.952** **Average RF = 0.1131**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1299	02	0.5000	0.113	03	0.7000	0.1123	04	1.0000	0.1147
05	2.0000	0.1134	06	5.0000	0.1082	07	10.0000	0.1069	08	20.0000	0.1158
09	30.0000	0.1094	10	50.0000	0.107						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.115	14.9	02	0.5000	0.500	-0.1	03	0.7000	0.695	-0.7
04	1.0000	1.01	1.5	05	2.0000	2.01	0.3	06	5.0000	4.78	-4.3
07	10.0000	9.46	-5.4	08	20.0000	20.5	2.4	09	30.0000	29.0	-3.2
10	50.0000	47.3	-5.4								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000022	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200819_016	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000022-11	T	Average RF	10	9.352	ng/mL	-6.5	<= 15

ALS Group Houston

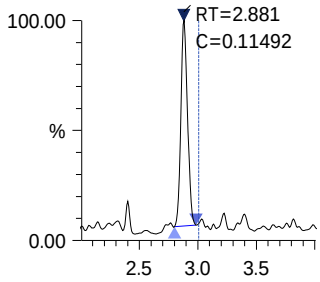
PERCHLORATE1

Date acquired: 8/19/2020 10:42:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_005.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	8/19/2020 10:42:37 AM	3802	0.11492	20200819_005	2.881	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	8/19/2020 10:42:37 AM	292622	1.00000	20200819_005	2.877	25.0000	1.0000	5

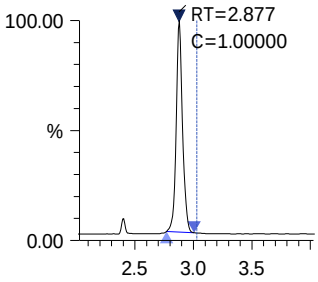
Perchlorate

Conc 0.11492
Area 3802
Q 99.00>83.00 (-) 1.00e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 292622
ISTD 107.00>89.00 (-) 7.83e4



ALS Group Houston

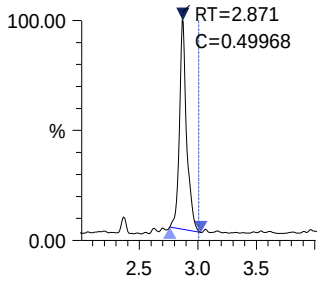
PERCHLORATE2

Date acquired: 8/19/2020 10:50:33 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_006.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	8/19/2020 10:50:33 AM	18036	0.49968	20200819_006	2.871	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	8/19/2020 10:50:33 AM	319274	1.00000	20200819_006	2.870	25.0000	1.0000	6

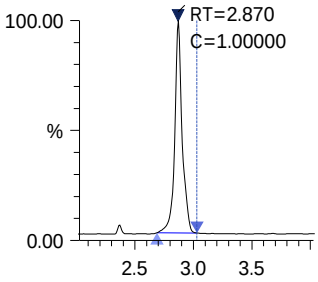
Perchlorate

Conc 0.49968
Area 18036
Q 99.00>83.00 (-) 4.32e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 319274
ISTD 107.00>89.00 (-) 7.26e4



ALS Group Houston

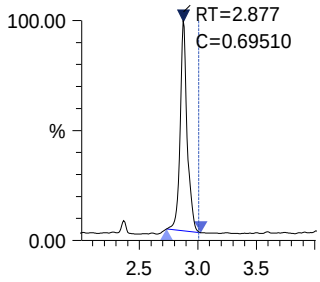
PERCHLORATE3

Date acquired: 8/19/2020 10:58:27 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_007.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	8/19/2020 10:58:27 AM	24394	0.69510	20200819_007	2.877	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	8/19/2020 10:58:27 AM	310422	1.00000	20200819_007	2.874	25.0000	1.0000	7

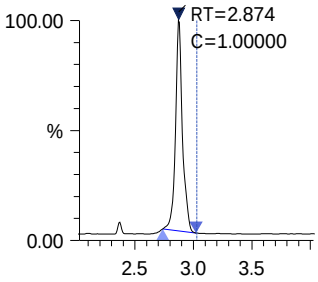
Perchlorate

Conc 0.69510
Area 24394
Q 99.00>83.00 (-) 5.99e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 310422
ISTD 107.00>89.00 (-) 7.56e4



ALS Group Houston

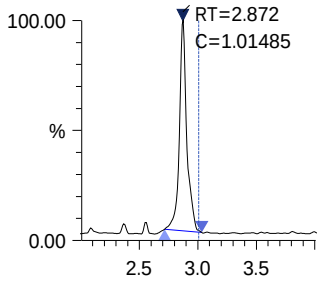
PERCHLORATE4

Date acquired: 8/19/2020 11:06:22 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_008.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	8/19/2020 11:06:22 AM	33591	1.01485	20200819_008	2.872	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	8/19/2020 11:06:22 AM	292786	1.00000	20200819_008	2.872	25.0000	1.0000	8

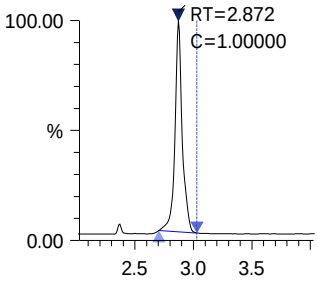
Perchlorate

Conc 1.01485
Area 33591
Q 99.00>83.00 (-) 7.70e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 292786
ISTD 107.00>89.00 (-) 6.80e4



ALS Group Houston

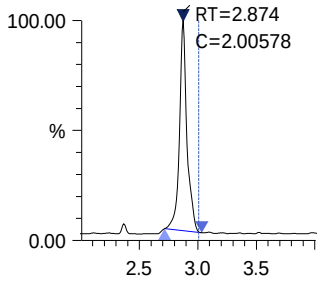
PERCHLORATE5

Date acquired: 8/19/2020 11:14:18 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_009.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	8/19/2020 11:14:18 AM	65114	2.00578	20200819_009	2.874	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	8/19/2020 11:14:18 AM	287158	1.00000	20200819_009	2.873	25.0000	1.0000	9

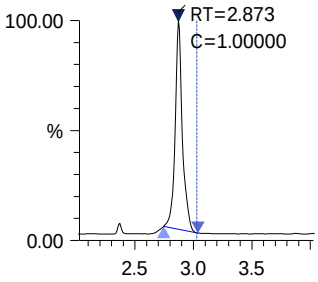
Perchlorate

Conc 2.00578
Area 65114
Q 99.00>83.00 (-) 1.49e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 287158
ISTD 107.00>89.00 (-) 6.84e4



ALS Group Houston

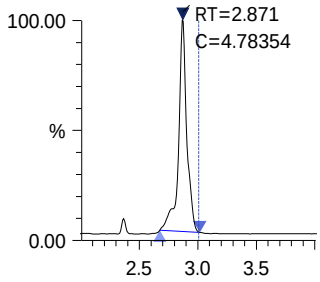
PERCHLORATE6

Date acquired: 8/19/2020 11:22:10 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_010.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	8/19/2020 11:22:10 AM	167892	4.78354	20200819_010	2.871	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	8/19/2020 11:22:10 AM	310462	1.00000	20200819_010	2.870	25.0000	1.0000	10

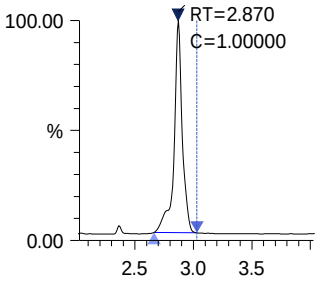
Perchlorate

Conc 4.78354
Area 167892
Q 99.00>83.00 (-) 3.45e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 310462
ISTD 107.00>89.00 (-) 6.38e4



ALS Group Houston

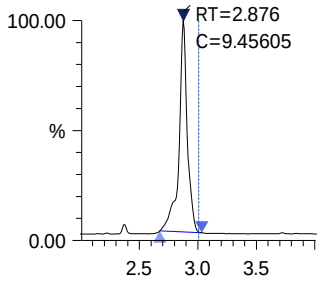
PERCHLORATE7

Date acquired: 8/19/2020 11:30:05 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_011.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/19/2020 11:30:05 AM	309830	9.45605	20200819_011	2.876	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/19/2020 11:30:05 AM	289828	1.00000	20200819_011	2.875	25.0000	1.0000	4

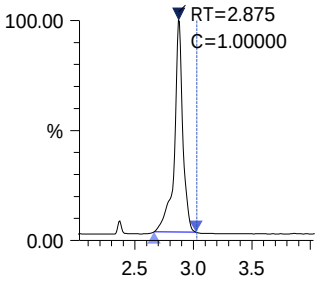
Perchlorate

Conc 9.45605
Area 309830
Q 99.00>83.00 (-) 6.35e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 289828
ISTD 107.00>89.00 (-) 5.81e4



ALS Group Houston

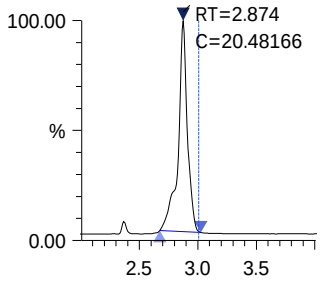
PERCHLORATE8

Date acquired: 8/19/2020 11:38:00 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_012.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	8/19/2020 11:38:00 AM	587088	20.48166	20200819_012	2.874	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	8/19/2020 11:38:00 AM	253551	1.00000	20200819_012	2.873	25.0000	1.0000	11

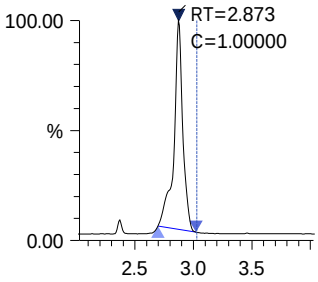
Perchlorate

Conc 20.48166
Area 587088
Q 99.00>83.00 (-) 1.09e5



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 253551
ISTD 107.00>89.00 (-) 4.87e4



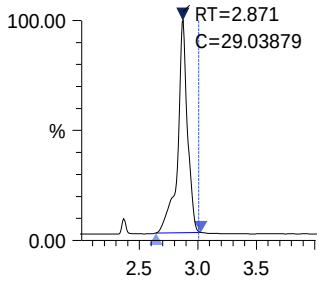
PERCHLORATE9

Date acquired: 8/19/2020 11:45:53 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_013.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	8/19/2020 11:45:53 AM	849278	29.03879	20200819_013	2.871	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	8/19/2020 11:45:53 AM	258702	1.00000	20200819_013	2.870	25.0000	1.0000	12

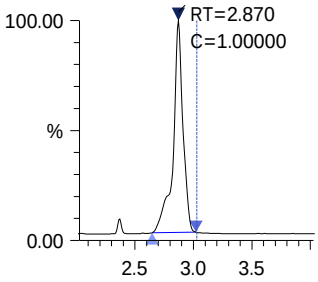
Perchlorate

Conc 29.03879
Area 849278
Q 99.00>83.00 (-) 1.48e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 258702
ISTD 107.00>89.00 (-) 4.43e4



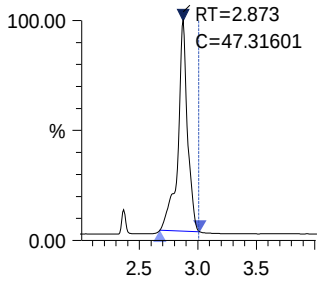
PERCHLORATE10

Date acquired: 8/19/2020 11:53:48 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_014.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	8/19/2020 11:53:48 AM	1220253	47.31601	20200819_014	2.873	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	8/19/2020 11:53:48 AM	228123	1.00000	20200819_014	2.871	25.0000	1.0000	13

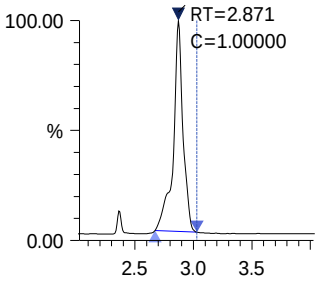
Perchlorate

Conc 47.31601
Area 1220253
Q 99.00>83.00 (-) 2.17e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 228123
ISTD 107.00>89.00 (-) 3.99e4



ALS Group Houston

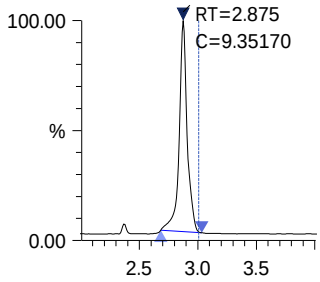
PERCHLORATEICV

Date acquired: 8/19/2020 12:09:35 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_016.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	8/19/2020 12:09:35 PM	294031	9.35170	20200819_016	2.875	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	8/19/2020 12:09:35 PM	278118	1.00000	20200819_016	2.873	25.0000	1.0000	14

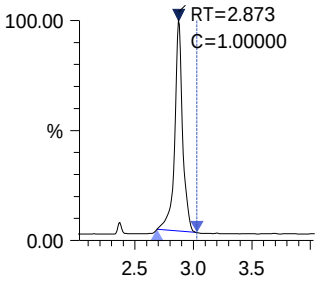
Perchlorate

Conc 9.35170
Area 294031
Q 99.00>83.00 (-) 6.27e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 278118
ISTD 107.00>89.00 (-) 5.98e4



20200826

ALS Environmental

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200826_024	Perchlorate6850b.lcm	1x	☒	3100806-05	8/26/2020 11:55
2	PERCHLORATE2		20200826_025	Perchlorate6850b.lcm	1x	☒	3100806-06	8/26/2020 12:03
3	PERCHLORATE3		20200826_026	Perchlorate6850b.lcm	1x	☒	3100806-07	8/26/2020 12:11
4	PERCHLORATE4		20200826_027	Perchlorate6850b.lcm	1x	☒	3100807-01	8/26/2020 12:19
5	PERCHLORATE5		20200826_028	Perchlorate6850b.lcm	1x	☒	3100807-02	8/26/2020 12:27
6	PERCHLORATE6		20200826_029	Perchlorate6850b.lcm	1x	☒	3100807-03	8/26/2020 12:35
7	PERCHLORATE7		20200826_030	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 12:42
8	PERCHLORATE8		20200826_031	Perchlorate6850b.lcm	1x	☒	3100807-05	8/26/2020 12:50
9	PERCHLORATE9		20200826_032	Perchlorate6850b.lcm	1x	☒	3100807-06	8/26/2020 12:58
10	PERCHLORATE10		20200826_033	Perchlorate6850b.lcm	1x	☒	3100807-07	8/26/2020 13:06
11	IB		20200826_034	Perchlorate6850b.lcm	1x	☒		8/26/2020 13:14
12	PERCHLORATEICV		20200826_035	Perchlorate6850b.lcm	1x	☒	3100807-08	8/26/2020 14:26
13	IB		20200826_036	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:34
14	LODV		20200826_037	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:42
15	PERCHLORATE7		20200826_038	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 14:50
16	EQ2000359-01		20200826_039	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:12
17	EQ2000359-02		20200826_040	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:19
18	EQ2000359-03		20200826_041	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:27
19	EQ2000359-02		20200826_042	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:35
20	EQ2000359-04X10		20200826_043	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:43
21	EQ2000359-05X10		20200826_044	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:51
22	EQ2000359-06X10		20200826_045	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:59
23	EQ2000359-07X10		20200826_046	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:07
24	E2000716-001X10		20200826_047	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:15
25	E2000739-001X10		20200826_048	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:23
26	PERCHLORATE7		20200826_049	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 16:30
27	E2000740-001X200		20200826_050	Perchlorate6850b.lcm	200x	☒		8/26/2020 16:38
28	E2000741-001X10		20200826_051	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:46
29	E2000742-001X2		20200826_052	Perchlorate6850b.lcm	2x	☒		8/26/2020 16:54
30	E2000742-002X2		20200826_053	Perchlorate6850b.lcm	2x	☒		8/26/2020 17:02
31	E2000742-003X10		20200826_054	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:10
32	E2000742-004X10		20200826_055	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:18
33	E2000742-006X10		20200826_056	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:26
34	PERCHLORATE7		20200826_057	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 17:33
35	E2000742-009X10		20200826_058	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:41
36	E2000742-010X10		20200826_059	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:49
37	E2000742-011X10		20200826_060	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:57
38	E2000742-012X10		20200826_061	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:05
39	E2000742-013X10		20200826_062	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:13
40	E2000742-014X10		20200826_063	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:21
41	E2000759-001X10		20200826_064	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:29
42	E2000759-002X10		20200826_065	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:36
43	PERCHLORATE7		20200826_066	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 18:44
44	EQ2000369-01		20200826_067	Perchlorate6850b.lcm	1x	☒		8/26/2020 18:52
45	EQ2000369-02		20200826_068	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:00
46	EQ2000369-03		20200826_069	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:08
47	EQ2000369-04		20200826_070	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:16
48	EQ2000369-05		20200826_071	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:24
49	E2000764-001		20200826_072	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:32
50	E2000764-002		20200826_073	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:40
51	E2000764-003		20200826_074	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:47
52	E2000764-004		20200826_075	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:55
53	E2000764-005		20200826_076	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:03
54	PERCHLORATE7		20200826_077	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 20:11
55	E2000764-006		20200826_078	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:19
56	E2000764-007		20200826_079	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:27
57	E2000764-008		20200826_080	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:35
58	E2000764-009		20200826_081	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:43
59	E2000764-010		20200826_082	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:51
60	E2000764-011		20200826_083	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:58
61	E2000764-012		20200826_084	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:06

20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
62	E2000764-013		20200826_085	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:14
63	E2000764-014		20200826_086	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:22
64	E2000764-015		20200826_087	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:30
65	PERCHLORATE7		20200826_088	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 21:38
66	E2000764-016		20200826_089	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:46
67	E2000764-017		20200826_090	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:54
68	E2000764-018		20200826_091	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:01
69	PERCHLORATE7		20200826_092	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 22:09
70	EQ2000367-01		20200826_093	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:17
71	EQ2000367-02		20200826_094	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:25
72	EQ2000367-03		20200826_095	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:33
73	EQ2000367-04		20200826_096	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:41
74	EQ2000367-05		20200826_097	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:49
75	R2006746-001		20200826_098	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:57
76	R2006746-002		20200826_099	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:04
77	R2006777-001		20200826_100	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:12
78	R2006777-002		20200826_101	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:20
79	R2006777-003		20200826_102	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:28
80	PERCHLORATE7		20200826_103	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 23:36
81	R2006777-004		20200826_104	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:44
82	R2006777-005		20200826_105	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:52
83	R2006777-006		20200826_106	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:00
84	R2006777-007		20200826_107	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:08
85	R2006777-008		20200826_108	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:15
86	R2006805-001		20200826_109	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:23
87	R2006805-002		20200826_110	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:31
88	PERCHLORATE7		20200826_111	Perchlorate6850b.lcm	1x	☒	3100807-04	8/27/2020 0:39
89								
90								
91								
92								

Initial Calibration - Detailed Report

Calibration ID: EC2000023 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2000023-01	PERCHLORATE1	20200826_024	08/26/2020 11:55
02	EC2000023-02	PERCHLORATE2	20200826_025	08/26/2020 12:03
03	EC2000023-03	PERCHLORATE3	20200826_026	08/26/2020 12:11
04	EC2000023-04	PERCHLORATE4	20200826_027	08/26/2020 12:19
05	EC2000023-05	PERCHLORATE5	20200826_028	08/26/2020 12:27
06	EC2000023-06	PERCHLORATE6	20200826_029	08/26/2020 12:35
07	EC2000023-07	PERCHLORATE7	20200826_030	08/26/2020 12:42
08	EC2000023-08	PERCHLORATE8	20200826_031	08/26/2020 12:50
09	EC2000023-09	PERCHLORATE9	20200826_032	08/26/2020 12:58
10	EC2000023-10	PERCHLORATE10	20200826_033	08/26/2020 13:06

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 5.546** **Average RF = 0.1085**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1181	02	0.5000	0.1137	03	0.7000	0.1087	04	1.0000	0.1168
05	2.0000	0.1092	06	5.0000	0.1056	07	10.0000	0.1014	08	20.0000	0.1048
09	30.0000	0.1049	10	50.0000	0.1012						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.109	8.9	02	0.5000	0.524	4.8	03	0.7000	0.702	0.2
04	1.0000	1.08	7.7	05	2.0000	2.01	0.7	06	5.0000	4.87	-2.6
07	10.0000	9.35	-6.5	08	20.0000	19.3	-3.3	09	30.0000	29.0	-3.3
10	50.0000	46.7	-6.6								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000023	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200826_035	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000023-11	T	Average RF	10	9.690	ng/mL	-3.1	<= 15

ALS Group Houston

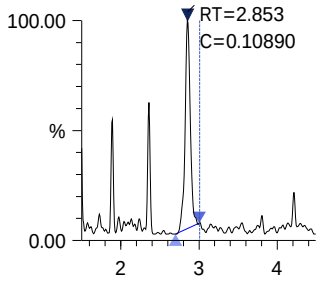
PERCHLORATE1

Date acquired: 8/26/2020 11:55:32 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_024.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	8/26/2020 11:55:32 AM	2254	0.10890	20200826_024	2.853	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	8/26/2020 11:55:32 AM	190859	1.00000	20200826_024	2.852	25.0000	1.0000	5

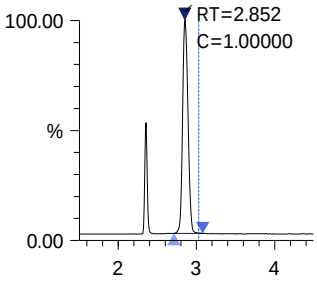
Perchlorate

Conc 0.10890
Area 2254
Q 99.00>83.00 (-) 4.92e2



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 190859
ISTD 107.00>89.00 (-) 3.91e4



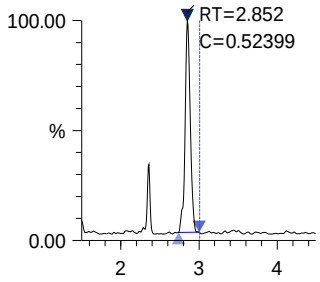
PERCHLORATE2

Date acquired: 8/26/2020 12:03:28 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_025.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	8/26/2020 12:03:28 PM	11013	0.52399	20200826_025	2.852	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	8/26/2020 12:03:28 PM	193789	1.00000	20200826_025	2.850	25.0000	1.0000	6

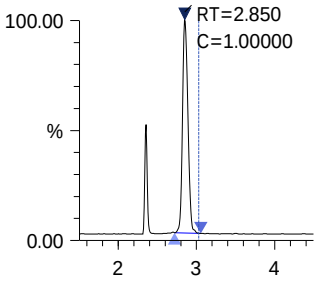
Perchlorate

Conc 0.52399
Area 11013
Q 99.00>83.00 (-) 2.37e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 193789
ISTD 107.00>89.00 (-) 3.95e4



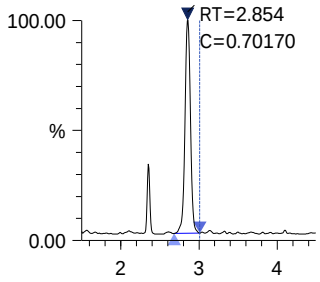
PERCHLORATE3

Date acquired: 8/26/2020 12:11:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_026.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	8/26/2020 12:11:22 PM	15252	0.70170	20200826_026	2.854	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	8/26/2020 12:11:22 PM	200410	1.00000	20200826_026	2.849	25.0000	1.0000	7

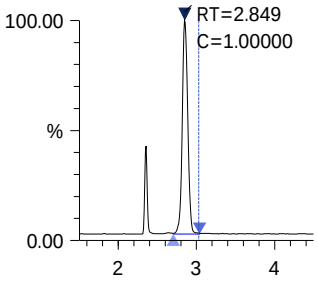
Perchlorate

Conc 0.70170
Area 15252
Q 99.00>83.00 (-) 3.07e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 200410
ISTD 107.00>89.00 (-) 4.03e4



ALS Group Houston

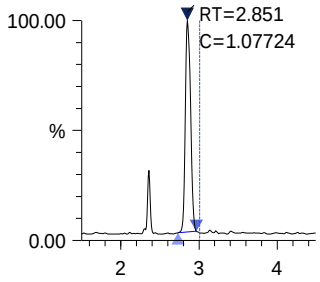
PERCHLORATE4

Date acquired: 8/26/2020 12:19:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_027.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	8/26/2020 12:19:17 PM	21473	1.07724	20200826_027	2.851	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	8/26/2020 12:19:17 PM	183791	1.00000	20200826_027	2.851	25.0000	1.0000	8

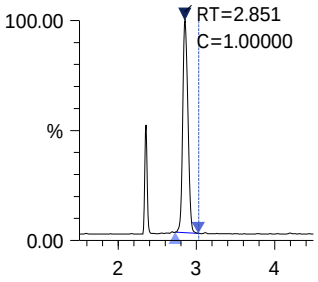
Perchlorate

Conc 1.07724
Area 21473
Q 99.00>83.00 (-) 4.54e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 183791
ISTD 107.00>89.00 (-) 3.92e4



ALS Group Houston

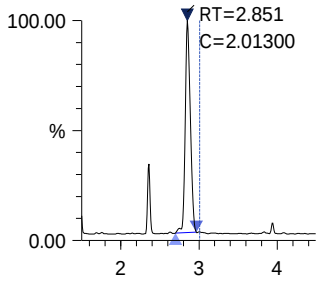
PERCHLORATE5

Date acquired: 8/26/2020 12:27:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_028.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	8/26/2020 12:27:10 PM	40038	2.01300	20200826_028	2.851	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	8/26/2020 12:27:10 PM	183386	1.00000	20200826_028	2.849	25.0000	1.0000	9

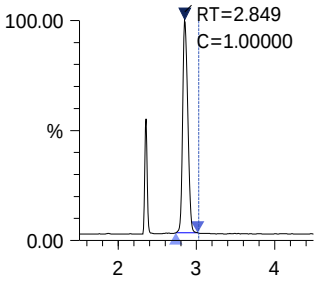
Perchlorate

Conc 2.01300
Area 40038
Q 99.00>83.00 (-) 8.76e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 183386
ISTD 107.00>89.00 (-) 3.95e4



ALS Group Houston

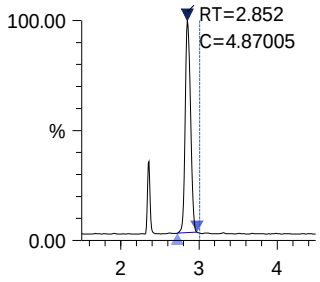
PERCHLORATE6

Date acquired: 8/26/2020 12:35:02 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_029.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	8/26/2020 12:35:02 PM	98121	4.87005	20200826_029	2.852	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	8/26/2020 12:35:02 PM	185768	1.00000	20200826_029	2.850	25.0000	1.0000	10

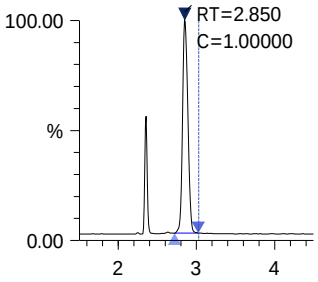
Perchlorate

Conc 4.87005
Area 98121
Q 99.00>83.00 (-) 2.04e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 185768
ISTD 107.00>89.00 (-) 3.86e4



ALS Group Houston

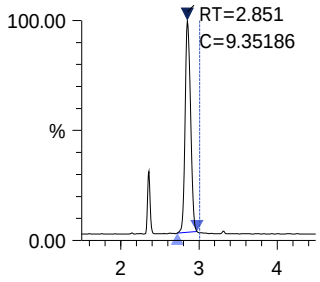
PERCHLORATE7

Date acquired: 8/26/2020 12:42:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_030.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/26/2020 12:42:57 PM	174248	9.35186	20200826_030	2.851	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/26/2020 12:42:57 PM	171796	1.00000	20200826_030	2.850	25.0000	1.0000	4

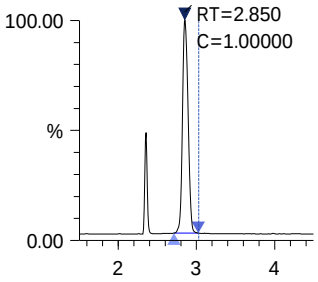
Perchlorate

Conc 9.35186
Area 174248
Q 99.00>83.00 (-) 3.57e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 171796
ISTD 107.00>89.00 (-) 3.39e4



ALS Group Houston

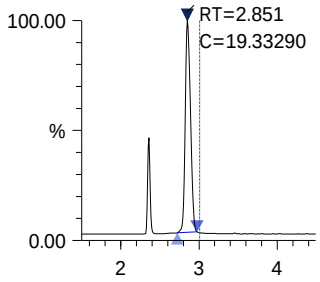
PERCHLORATE8

Date acquired: 8/26/2020 12:50:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_031.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	8/26/2020 12:50:51 PM	337010	19.33290	20200826_031	2.851	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	8/26/2020 12:50:51 PM	160727	1.00000	20200826_031	2.850	25.0000	1.0000	11

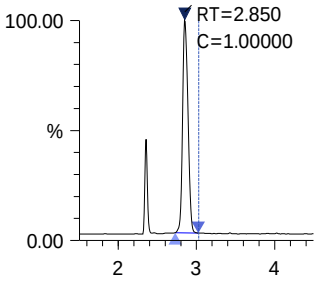
Perchlorate

Conc 19.33290
Area 337010
Q 99.00>83.00 (-) 7.14e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 160727
ISTD 107.00>89.00 (-) 3.30e4



ALS Group Houston

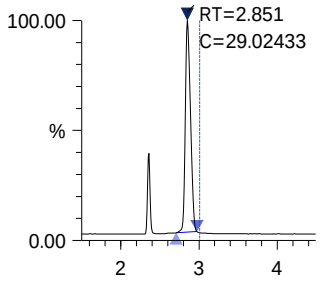
PERCHLORATE9

Date acquired: 8/26/2020 12:58:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_032.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	8/26/2020 12:58:44 PM	466342	29.02433	20200826_032	2.851	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	8/26/2020 12:58:44 PM	148144	1.00000	20200826_032	2.849	25.0000	1.0000	12

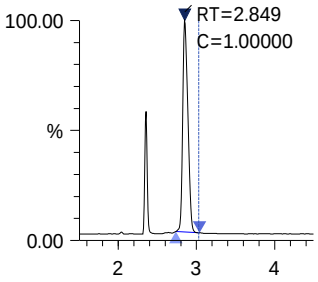
Perchlorate

Conc 29.02433
Area 466342
Q 99.00>83.00 (-) 1.00e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148144
ISTD 107.00>89.00 (-) 3.19e4



ALS Group Houston

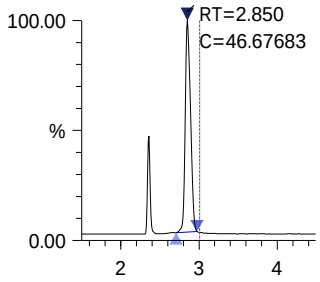
PERCHLORATE10

Date acquired: 8/26/2020 1:06:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_033.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	8/26/2020 1:06:40 PM	694738	46.67683	20200826_033	2.850	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	8/26/2020 1:06:40 PM	137234	1.00000	20200826_033	2.849	25.0000	1.0000	13

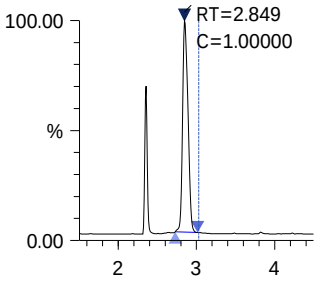
Perchlorate

Conc 46.67683
Area 694738
Q 99.00>83.00 (-) 1.46e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 137234
ISTD 107.00>89.00 (-) 2.84e4



ALS Group Houston

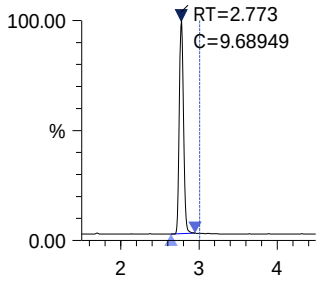
PERCHLORATEICV

Date acquired: 8/26/2020 2:26:45 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_035.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	8/26/2020 2:26:45 PM	257692	9.68949	20200826_035	2.773	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	8/26/2020 2:26:45 PM	245213	1.00000	20200826_035	2.771	25.0000	1.0000	14

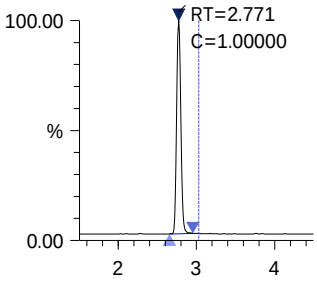
Perchlorate

Conc 9.68949
Area 257692
Q 99.00>83.00 (-) 7.12e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 245213
ISTD 107.00>89.00 (-) 6.83e4



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

20200825

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 7/19/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000022**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	IB		20200825_017	Perchlorate6850b.lcm	1x	☒		8/25/2020 16:49
2	IB		20200825_018	Perchlorate6850b.lcm	1x	☒		8/25/2020 16:57
3	IB		20200825_019	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:05
4	IB		20200825_020	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:13
5	null		20200825_021	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:20
6	null		20200825_022	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:25
7	null		20200825_023	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:30
8	null		20200825_024	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:34
9	IB		20200825_025	Perchlorate6850b.lcm	1x	☒		8/25/2020 17:40
10	IB		20200825_027	Perchlorate6850b.lcm	1x	☒		8/25/2020 18:22
11	PERCHLORATE7		20200825_028	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 18:32
12	LODV		20200825_029	Perchlorate6850b.lcm	1x	☒		8/25/2020 18:40
13	PERCHLORATE7		20200825_030	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 18:48
14	EQ2000359-01		20200825_031	Perchlorate6850b.lcm	1x	☒		8/25/2020 18:56
15	EQ2000359-02		20200825_032	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:04
16	EQ2000359-03		20200825_033	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:12
17	EQ2000359-04		20200825_034	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:19
18	EQ2000359-05		20200825_035	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:27
19	EQ2000359-06		20200825_036	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:35
20	EQ2000359-07		20200825_037	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:43
21	E2000716-001		20200825_038	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:51
22	E2000739-001		20200825_039	Perchlorate6850b.lcm	1x	☒		8/25/2020 19:59
23	E2000740-001		20200825_040	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:07
24	PERCHLORATE7		20200825_041	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 20:15
25	E2000741-001		20200825_042	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:22
26	E2000742-001		20200825_043	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:30
27	E2000742-002		20200825_044	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:38
28	E2000742-003		20200825_045	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:46
29	E2000742-004		20200825_046	Perchlorate6850b.lcm	1x	☒		8/25/2020 20:54
30	E2000742-005		20200825_047	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:02
31	E2000742-006		20200825_048	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:10
32	E2000742-007		20200825_049	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:18
33	E2000742-008		20200825_050	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:26
34	E2000742-009		20200825_051	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:33
35	PERCHLORATE7		20200825_052	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 21:41
36	E2000742-010		20200825_053	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:49
37	E2000742-011		20200825_054	Perchlorate6850b.lcm	1x	☒		8/25/2020 21:57
38	E2000742-012		20200825_055	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:05
39	E2000742-013		20200825_056	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:13
40	E2000742-014		20200825_057	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:21
41	E2000759-001		20200825_058	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:29
42	E2000759-002		20200825_059	Perchlorate6850b.lcm	1x	☒		8/25/2020 22:36
43	PERCHLORATE7		20200825_060	Perchlorate6850b.lcm	1x	☒	3100807-04	8/25/2020 22:44
44								
45								
46								
47								
48								

20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200826_024	Perchlorate6850b.lcm	1x	☒	3100806-05	8/26/2020 11:55
2	PERCHLORATE2		20200826_025	Perchlorate6850b.lcm	1x	☒	3100806-06	8/26/2020 12:03
3	PERCHLORATE3		20200826_026	Perchlorate6850b.lcm	1x	☒	3100806-07	8/26/2020 12:11
4	PERCHLORATE4		20200826_027	Perchlorate6850b.lcm	1x	☒	3100807-01	8/26/2020 12:19
5	PERCHLORATE5		20200826_028	Perchlorate6850b.lcm	1x	☒	3100807-02	8/26/2020 12:27
6	PERCHLORATE6		20200826_029	Perchlorate6850b.lcm	1x	☒	3100807-03	8/26/2020 12:35
7	PERCHLORATE7		20200826_030	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 12:42
8	PERCHLORATE8		20200826_031	Perchlorate6850b.lcm	1x	☒	3100807-05	8/26/2020 12:50
9	PERCHLORATE9		20200826_032	Perchlorate6850b.lcm	1x	☒	3100807-06	8/26/2020 12:58
10	PERCHLORATE10		20200826_033	Perchlorate6850b.lcm	1x	☒	3100807-07	8/26/2020 13:06
11	IB		20200826_034	Perchlorate6850b.lcm	1x	☒		8/26/2020 13:14
12	PERCHLORATEICV		20200826_035	Perchlorate6850b.lcm	1x	☒	3100807-08	8/26/2020 14:26
13	IB		20200826_036	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:34
14	LODV		20200826_037	Perchlorate6850b.lcm	1x	☒		8/26/2020 14:42
15	PERCHLORATE7		20200826_038	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 14:50
16	EQ2000359-01		20200826_039	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:12
17	EQ2000359-02		20200826_040	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:19
18	EQ2000359-03		20200826_041	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:27
19	EQ2000359-02		20200826_042	Perchlorate6850b.lcm	1x	☒		8/26/2020 15:35
20	EQ2000359-04X10		20200826_043	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:43
21	EQ2000359-05X10		20200826_044	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:51
22	EQ2000359-06X10		20200826_045	Perchlorate6850b.lcm	10x	☒		8/26/2020 15:59
23	EQ2000359-07X10		20200826_046	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:07
24	E2000716-001X10		20200826_047	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:15
25	E2000739-001X10		20200826_048	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:23
26	PERCHLORATE7		20200826_049	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 16:30
27	E2000740-001X200		20200826_050	Perchlorate6850b.lcm	200x	☒		8/26/2020 16:38
28	E2000741-001X10		20200826_051	Perchlorate6850b.lcm	10x	☒		8/26/2020 16:46
29	E2000742-001X2		20200826_052	Perchlorate6850b.lcm	2x	☒		8/26/2020 16:54
30	E2000742-002X2		20200826_053	Perchlorate6850b.lcm	2x	☒		8/26/2020 17:02
31	E2000742-003X10		20200826_054	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:10
32	E2000742-004X10		20200826_055	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:18
33	E2000742-006X10		20200826_056	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:26
34	PERCHLORATE7		20200826_057	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 17:33
35	E2000742-009X10		20200826_058	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:41
36	E2000742-010X10		20200826_059	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:49
37	E2000742-011X10		20200826_060	Perchlorate6850b.lcm	10x	☒		8/26/2020 17:57
38	E2000742-012X10		20200826_061	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:05
39	E2000742-013X10		20200826_062	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:13
40	E2000742-014X10		20200826_063	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:21
41	E2000759-001X10		20200826_064	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:29
42	E2000759-002X10		20200826_065	Perchlorate6850b.lcm	10x	☒		8/26/2020 18:36
43	PERCHLORATE7		20200826_066	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 18:44
44	EQ2000369-01		20200826_067	Perchlorate6850b.lcm	1x	☒		8/26/2020 18:52
45	EQ2000369-02		20200826_068	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:00
46	EQ2000369-03		20200826_069	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:08
47	EQ2000369-04		20200826_070	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:16
48	EQ2000369-05		20200826_071	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:24
49	E2000764-001		20200826_072	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:32
50	E2000764-002		20200826_073	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:40
51	E2000764-003		20200826_074	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:47
52	E2000764-004		20200826_075	Perchlorate6850b.lcm	1x	☒		8/26/2020 19:55
53	E2000764-005		20200826_076	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:03
54	PERCHLORATE7		20200826_077	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 20:11
55	E2000764-006		20200826_078	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:19
56	E2000764-007		20200826_079	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:27
57	E2000764-008		20200826_080	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:35
58	E2000764-009		20200826_081	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:43
59	E2000764-010		20200826_082	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:51
60	E2000764-011		20200826_083	Perchlorate6850b.lcm	1x	☒		8/26/2020 20:58
61	E2000764-012		20200826_084	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:06

20200826

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 8/26/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000023**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
62	E2000764-013		20200826_085	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:14
63	E2000764-014		20200826_086	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:22
64	E2000764-015		20200826_087	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:30
65	PERCHLORATE7		20200826_088	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 21:38
66	E2000764-016		20200826_089	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:46
67	E2000764-017		20200826_090	Perchlorate6850b.lcm	1x	☒		8/26/2020 21:54
68	E2000764-018		20200826_091	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:01
69	PERCHLORATE7		20200826_092	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 22:09
70	EQ2000367-01		20200826_093	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:17
71	EQ2000367-02		20200826_094	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:25
72	EQ2000367-03		20200826_095	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:33
73	EQ2000367-04		20200826_096	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:41
74	EQ2000367-05		20200826_097	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:49
75	R2006746-001		20200826_098	Perchlorate6850b.lcm	1x	☒		8/26/2020 22:57
76	R2006746-002		20200826_099	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:04
77	R2006777-001		20200826_100	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:12
78	R2006777-002		20200826_101	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:20
79	R2006777-003		20200826_102	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:28
80	PERCHLORATE7		20200826_103	Perchlorate6850b.lcm	1x	☒	3100807-04	8/26/2020 23:36
81	R2006777-004		20200826_104	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:44
82	R2006777-005		20200826_105	Perchlorate6850b.lcm	1x	☒		8/26/2020 23:52
83	R2006777-006		20200826_106	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:00
84	R2006777-007		20200826_107	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:08
85	R2006777-008		20200826_108	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:15
86	R2006805-001		20200826_109	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:23
87	R2006805-002		20200826_110	Perchlorate6850b.lcm	1x	☒		8/27/2020 0:31
88	PERCHLORATE7		20200826_111	Perchlorate6850b.lcm	1x	☒	3100807-04	8/27/2020 0:39
89								
90								
91								
92								

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/26/20
File ID:	I:\LCMS01\DATA\20200826\20200826_038	**Calibration ID:**	EC2000023
		Analysis Lot:	692775
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.96	0.1085	0.09719	-10.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/26/20
File ID:	I:\LCMS01\DATA\20200826\20200826_049	**Calibration ID:**	EC2000023
		Analysis Lot:	692775
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.65	0.1085	0.1047	-3.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/26/20
File ID:	I:\LCMS01\DATA\20200826\20200826_057	**Calibration ID:**	EC2000023
		Analysis Lot:	692775
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.59	0.1085	0.1040	-4.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/26/20
File ID:	I:\LCMS01\DATA\20200826\20200826_066	**Calibration ID:**	EC2000023
		Analysis Lot:	692775
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.71	0.1085	0.1053	-2.9	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/19/20
File ID:	I:\LCMS01\DATA\20200825\20200825_030	**Calibration ID:**	EC2000022
		Analysis Lot:	692783
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.23	0.1131	0.1043	-7.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/19/20
File ID:	I:\LCMS01\DATA\20200825\20200825_041	**Calibration ID:**	EC2000022
		Analysis Lot:	692783
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.78	0.1131	0.1105	-2.2	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	8/19/20
File ID:	I:\LCMS01\DATA\20200825\20200825_052	**Calibration ID:**	EC2000022
		Analysis Lot:	692783
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.00	0.1131	0.1018	-10.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 14:50

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_038	**Lab Code:**	EQ2000370-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-01	168,655	2.85
Duplicate Lab Control Sample	EQ2000359-03	222,420	2.86
Lab Control Sample	EQ2000359-02	218,301	2.86
Batch QCMS	EQ2000359-04	136,805	2.85
Batch QCDMS	EQ2000359-05	144,861	2.85
16WW57-200817MS	EQ2000359-06	127,802	2.85
16WW57-200817DMS	EQ2000359-07	144,838	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	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 16:30

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_049	**Lab Code:**	EQ2000370-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-02	159,403	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:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 17:33

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_057	**Lab Code:**	EQ2000370-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-03	153,993	2.86
Batch QC	E2000742-012	141,019	2.85
16WW58-200817	E2000759-001	148,816	2.85
16WW57-200817	E2000759-002	131,720	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	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/26/20 18:44

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200826\20200826_066	**Lab Code:**	EQ2000370-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692775
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	175,590	2.85
	Upper Limit ==>	263,385	4.85
	Lower Limit ==>	87,795	0.85
Associated Analyses			
Continuing Calibration Verification	EQ2000370-04	147,883	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:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20 18:48

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200825\20200825_030	**Lab Code:**	EQ2000371-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692783
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	284,293	2.87
	Upper Limit ==>	426,440	4.87
	Lower Limit ==>	142,147	0.87
Associated Analyses			
Continuing Calibration Verification	EQ2000371-01	185,913	2.86
Method Blank	EQ2000359-01	246,634	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:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20 20:15

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200825\20200825_041	**Lab Code:**	EQ2000371-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692783
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	284,293	2.87
	Upper Limit ==>	426,440	4.87
	Lower Limit ==>	142,147	0.87
Associated Analyses			
Continuing Calibration Verification	EQ2000371-02	148,398	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	**Service Request:**	E2000759
Project:	HS20080738	**Date Analyzed:**	8/25/20 21:41

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20200825\20200825_052	**Lab Code:**	EQ2000371-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	692783
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	284,293	2.87
	Upper Limit ==>	426,440	4.87
	Lower Limit ==>	142,147	0.87
Associated Analyses			
Continuing Calibration Verification	EQ2000371-03	176,558	2.85

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group Houston

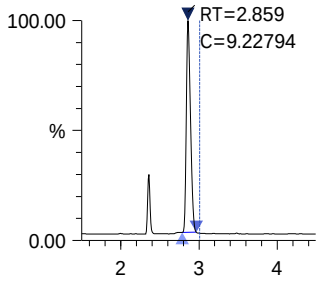
PERCHLORATE7

Date acquired: 8/25/2020 6:48:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_030.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/25/2020 6:48:17 PM	193948	9.22794	20200825_030	2.859	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/25/2020 6:48:17 PM	185913	1.00000	20200825_030	2.859	25.0000	1.0000	4

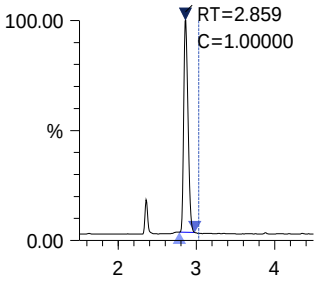
Perchlorate

Conc 9.22794
Area 193948
Q 99.00>83.00 (-) 5.19e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 185913
ISTD 107.00>89.00 (-) 4.80e4



ALS Group Houston

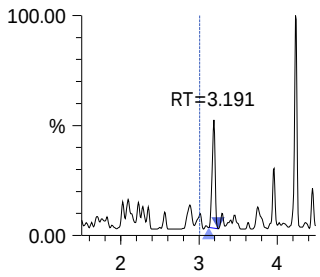
EQ2000359-01

Date acquired: 8/25/2020 6:56:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_031.lcd
Vial: 1 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-01	8/25/2020 6:56:11 PM	----	----	20200825_031	----	25.0000	1.0000	1
Sodium Perchlorate-18O4_IS	EQ2000359-01	8/25/2020 6:56:11 PM	246634	1.00000	20200825_031	2.856	25.0000	1.0000	1

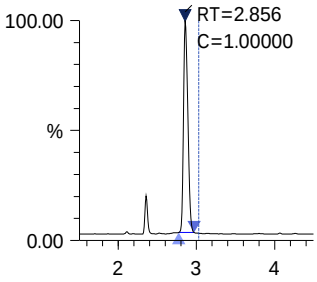
Perchlorate

Conc ----
Area ----
Q 99.00>83.00 (-) 5.44e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 246634
ISTD 107.00>89.00 (-) 6.33e4



ALS Group Houston

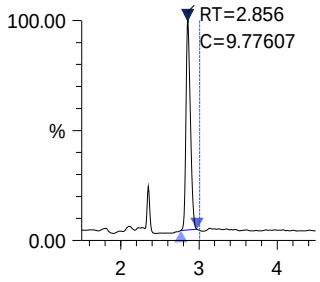
PERCHLORATE7

Date acquired: 8/25/2020 8:15:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_041.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/25/2020 8:15:05 PM	164008	9.77607	20200825_041	2.856	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/25/2020 8:15:05 PM	148398	1.00000	20200825_041	2.853	25.0000	1.0000	4

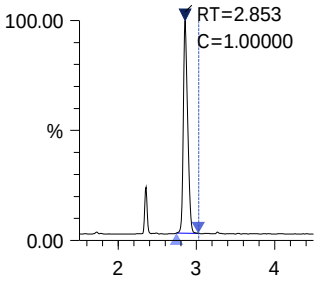
Perchlorate

Conc 9.77607
Area 164008
Q 99.00>83.00 (-) 4.18e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 148398
ISTD 107.00>89.00 (-) 3.81e4



ALS Group Houston

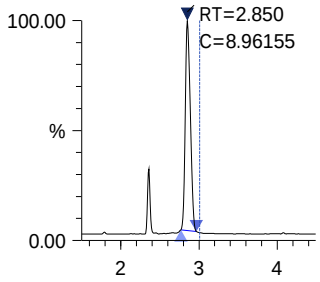
PERCHLORATE7

Date acquired: 8/26/2020 2:50:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_038.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/26/2020 2:50:21 PM	163923	8.96155	20200826_038	2.850	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/26/2020 2:50:21 PM	168655	1.00000	20200826_038	2.849	25.0000	1.0000	4

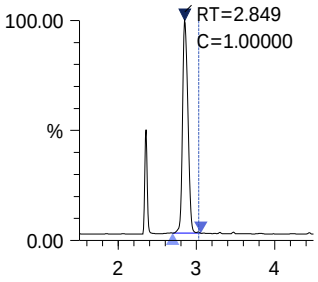
Perchlorate

Conc 8.96155
Area 163923
Q 99.00>83.00 (-) 3.65e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 168655
ISTD 107.00>89.00 (-) 3.46e4



ALS Group Houston

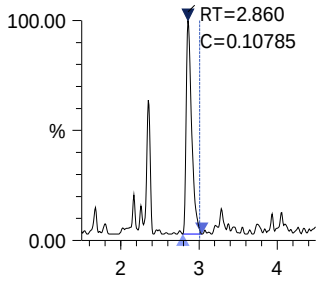
EQ2000359-02

Date acquired: 8/26/2020 3:35:46 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_042.lcd
Vial: 2 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-02	8/26/2020 3:35:46 PM	2554	0.10785	20200826_042	2.860	25.0000	1.0000	2
Sodium Perchlorate-18O4_IS	EQ2000359-02	8/26/2020 3:35:46 PM	218301	1.00000	20200826_042	2.861	25.0000	1.0000	2

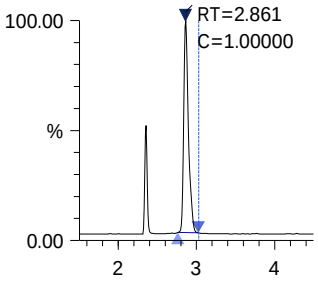
Perchlorate

Conc 0.10785
Area 2554
Q 99.00>83.00 (-) 5.15e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 218301
ISTD 107.00>89.00 (-) 5.16e4



ALS Group Houston

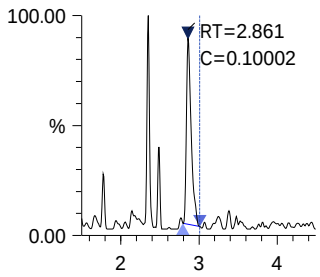
EQ2000359-03

Date acquired: 8/26/2020 3:27:52 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_041.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-03	8/26/2020 3:27:52 PM	2413	0.10002	20200826_041	2.861	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	EQ2000359-03	8/26/2020 3:27:52 PM	222420	1.00000	20200826_041	2.861	25.0000	1.0000	3

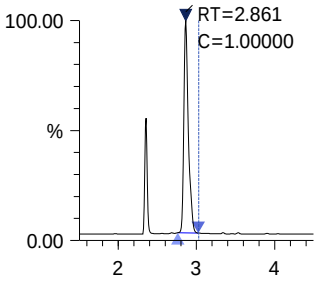
Perchlorate

Conc 0.10002
Area 2413
Q 99.00>83.00 (-) 6.41e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 222420
ISTD 107.00>89.00 (-) 5.49e4



ALS Group Houston

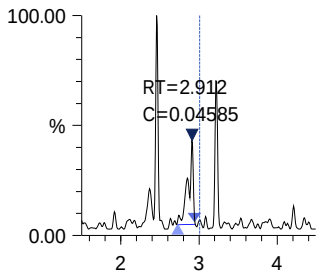
EQ2000359-04X10

Date acquired: 8/26/2020 3:43:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_043.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-04X10	8/26/2020 3:43:38 PM	680	0.04585	20200826_043	2.912	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	EQ2000359-04X10	8/26/2020 3:43:38 PM	136805	1.00000	20200826_043	2.846	25.0000	1.0000	4

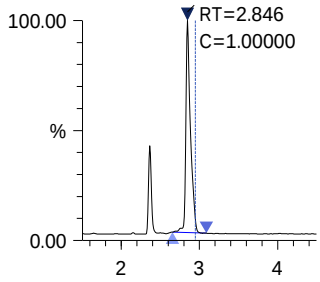
Perchlorate

Conc 0.04585
Area 680
Q 99.00>83.00 (-) 4.91e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 136805
ISTD 107.00>89.00 (-) 3.30e4



ALS Group Houston

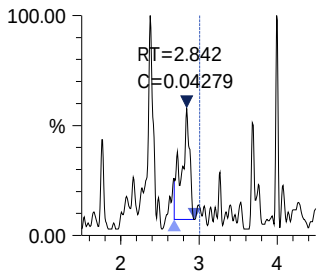
EQ2000359-05X10

Date acquired: 8/26/2020 3:51:31 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_044.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-05X10	8/26/2020 3:51:31 PM	672	0.04279	20200826_044	2.842	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	EQ2000359-05X10	8/26/2020 3:51:31 PM	144861	1.00000	20200826_044	2.847	25.0000	1.0000	5

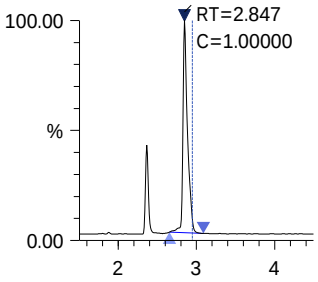
Perchlorate

Conc 0.04279
Area 672
Q 99.00>83.00 (-) 1.77e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144861
ISTD 107.00>89.00 (-) 3.54e4



ALS Group Houston

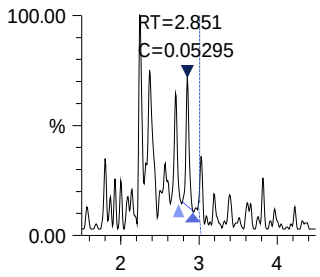
EQ2000359-06X10

Date acquired: 8/26/2020 3:59:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_045.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-06X10	8/26/2020 3:59:24 PM	734	0.05295	20200826_045	2.851	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	EQ2000359-06X10	8/26/2020 3:59:24 PM	127802	1.00000	20200826_045	2.850	25.0000	1.0000	6

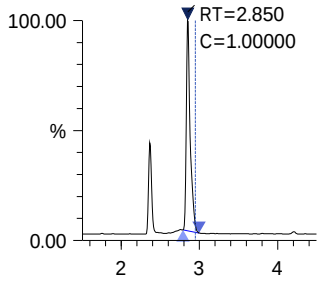
Perchlorate

Conc 0.05295
Area 734
Q 99.00>83.00 (-) 2.12e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 127802
ISTD 107.00>89.00 (-) 3.69e4



ALS Group Houston

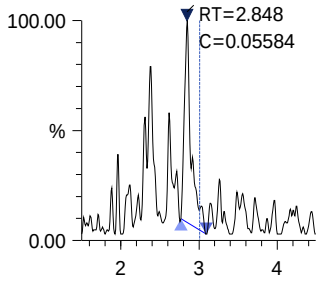
EQ2000359-07X10

Date acquired: 8/26/2020 4:07:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_046.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000359-07X10	8/26/2020 4:07:16 PM	878	0.05584	20200826_046	2.848	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	EQ2000359-07X10	8/26/2020 4:07:16 PM	144838	1.00000	20200826_046	2.851	25.0000	1.0000	7

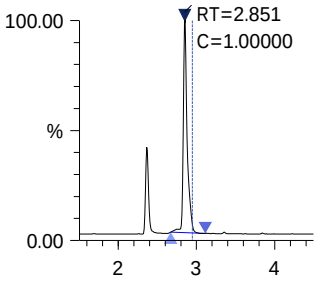
Perchlorate

Conc 0.05584
Area 878
Q 99.00>83.00 (-) 1.53e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144838
ISTD 107.00>89.00 (-) 4.13e4



ALS Group Houston

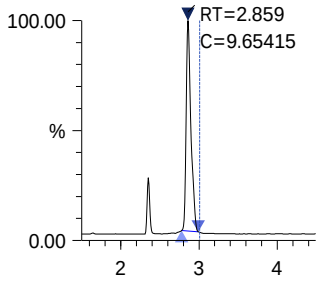
PERCHLORATE7

Date acquired: 8/26/2020 4:30:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_049.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	8/26/2020 4:30:55 PM	166904	9.65415	20200826_049	2.859	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	8/26/2020 4:30:55 PM	159403	1.00000	20200826_049	2.858	25.0000	1.0000	4

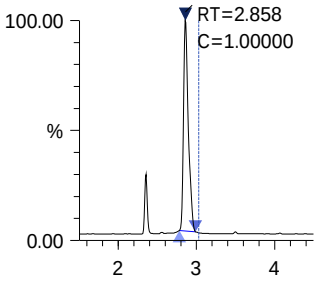
Perchlorate

Conc 9.65415
Area 166904
Q 99.00>83.00 (-) 3.94e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 159403
ISTD 107.00>89.00 (-) 3.71e4



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August 26, 2020

Analytical Report for Service Request No: K2007110

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: ALS Houston DOD TOC

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory August 19, 2020
For your reference, these analyses have been assigned our service request number **K2007110.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
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.
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.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

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ALS Environmental

Client: ALS Environmental - US
Project: ALS Houston DOD TOC
Sample Matrix: Ground Water

Service Request: K2007110
Date Received: 08/19/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Two ground water samples were received for analysis at ALS Environmental on 08/19/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 08/26/2020

Chain of Custody

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K2007110

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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:** **14517**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626 **Phone:** +1 360 501 3312

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@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: HS20080738
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20080738-01**	**16WW58-200817**	**Groundwater**	**17 Aug 2020 08:05**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020
2.	**HS20080738-02**	**16WW57-200817**	**Groundwater**	**17 Aug 2020 09:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20080738-02 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: Date/Time: 8/18/2020 1800

Received By: ALS Kelso Date/Time: 8/19/20 0950

Cooler ID(s): Temperature(s):

PM KL

Cooler Receipt and Preservation Form

Client ALS- Houston Service Request K20 07110

Received: 8/19/20 Opened: 8/19/20 By: Km Unloaded: 8/19/20 By: Km

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N
4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.7	N/A	IR02	14517	N/A	N/A	1891 8879 5111	

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

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www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project:	ALS Houston DOD TOC	**Date Collected:**	08/17/20
Sample Matrix:	Ground Water	**Date Received:**	08/19/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
16WW58-200817	K2007110-001	**4.56**	0.50	0.20	0.07	1	08/20/20 10:28	
16WW57-200817	K2007110-002	**13.2**	0.50	0.20	0.07	1	08/20/20 10:28	
Method Blank	K2007110-MB	ND U	0.50	0.20	0.07	1	08/20/20 10:28	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project	ALS Houston DOD TOC	**Date Collected:**	08/17/20
Sample Matrix:	Ground Water	**Date Received:**	08/19/20
		Date Analyzed:	08/20/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	16WW57-200817	**Units:**	mg/L
Lab Code:	K2007110-002	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2007110-002DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	13.2	13.1	13.1	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project:	ALS Houston DOD TOC	**Date Collected:**	08/17/20
Sample Matrix:	Ground Water	**Date Received:**	08/19/20
		Date Analyzed:	08/20/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	16WW57-200817	**Units:**	mg/L
Lab Code:	K2007110-002	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2007110-002MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	13.2	34.8	25.0	87	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007110
Project:	ALS Houston DOD TOC	**Date Analyzed:**	08/20/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	692111

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2007110-LCS	23.2	25.0	93	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2007110
Project: ALS Houston DOD TOC

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	692111	KQ2011928-09	08/20/20 10:28	25.0	24.4	98	90-110
CCV2	692111	KQ2011928-10	08/20/20 10:28	25.0	24.6	98	90-110
CCV3	692111	KQ2011928-11	08/20/20 10:28	25.0	23.9	96	90-110
CCV4	692111	KQ2011928-12	08/20/20 10:28	25.0	23.4	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: ALS Houston DOD TOC

Service Request:K2007110

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C

Units:mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	692111	KQ2011928-05	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB2	692111	KQ2011928-06	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB3	692111	KQ2011928-07	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB4	692111	KQ2011928-08	08/20/20 10:28	0.50	0.20	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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General Chemistry

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Work Request # 6746 6805 6806 6883 7004 7063 7110 7111 6929

Tier: IV I I II IV II IV IV II

Date Analyzed: 8-20-20 7018 IV 7063 II

Analyst: MK

Run # 692111 692113

Analysis: TOC/DOC

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:
7018-3 needs reanalysis. High RPD 16% due to carryover. LCS/DLCS was ran

Final Approved by: JC Date: 8/26/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692111 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2006746-001	Carbon, Total Organic	N/A		Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2006746-002	Carbon, Total Organic	N/A		Water	2.29 mg/L	10 mL	2.29 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2006805-001	Carbon, Total Organic	N/A		Water	39.91 mg/L	10 mL	39.9 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006806-001	Carbon, Total Organic	N/A		Water	5.63 mg/L	10 mL	5.63 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006806-002	Carbon, Total Organic	N/A		Water	30.77 mg/L	10 mL	30.8 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006806-003	Carbon, Total Organic	N/A		Water	1.02 mg/L	10 mL	1.02 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006883-001	Carbon, Total Organic	N/A		Water	0.43 mg/L	10 mL	0.43 mg/L J	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-002	Carbon, Total Organic	N/A		Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-003	Carbon, Total Organic	N/A		Water	0.70 mg/L	10 mL	0.70 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-004	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-005	Carbon, Total Organic	N/A		Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-006	Carbon, Total Organic	N/A		Water	0.31 mg/L	10 mL	0.31 mg/L J	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006886-001	Carbon, Total Organic	N/A		Reagent Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	I
K2006886-002	Carbon, Total Organic	N/A		Reagent Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	I
K2007004-001	Carbon, Total Organic	N/A		Water	2.11 mg/L	10 mL	2.11 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007063-001	Carbon, Total Organic	N/A		Water	4.20 mg/L	10 mL	4.20 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007063-003	Carbon, Total Organic	N/A		Water	3.18 mg/L	10 mL	3.18 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007110-001	Carbon, Total Organic	N/A		Ground Water	4.56 mg/L	10 mL	4.56 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007110-002	Carbon, Total Organic	N/A		Ground Water	13.18 mg/L	10 mL	13.2 mg/L	1	0.07	0.50			8/20/20 10:28:00	Y	IV
K2007111-001	Carbon, Total Organic	N/A		Water	2.49 mg/L	10 mL	2.49 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011928-01	Carbon, Total Organic	DUP	K2007110-002	Ground Water	13.08 mg/L	10 mL	13.1 mg/L	1	0.07	0.50		<1	8/20/20 10:28:00	N	IV
KQ2011928-02	Carbon, Total Organic	MS	K2007110-002	Ground Water	34.82 mg/L	10 mL	34.8 mg/L	1	0.07	0.50	87		8/20/20 10:28:00	N	IV
KQ2011928-03	Carbon, Total Organic	LCS		Water	23.20 mg/L	10 mL	23.2 mg/L	1	0.07	0.50	93		8/20/20 10:28:00	N	IV
KQ2011928-04	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	IV
KQ2011928-09	Carbon, Total Organic	CCV		Water	24.42 mg/L	10 mL	24.4 mg/L	1					8/20/20 10:28:00	N	IV
KQ2011928-10	Carbon, Total Organic	CCV		Water	24.55 mg/L	10 mL	24.6 mg/L	1					8/20/20 10:28:00	N	IV
KQ2011928-11	Carbon, Total Organic	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					8/20/20 10:28:00	N	IV
KQ2011928-12	Carbon, Total Organic	CCV		Water	23.44 mg/L	10 mL	23.4 mg/L	1					8/20/20 10:28:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692113 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2006883-007	Carbon, Total Organic	N/A		Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006883-008	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50			8/20/20 10:28:00	N	II
K2006929-001	Carbon, Total Organic	N/A		Water	7.61 mg/L	10 mL	7.61 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007018-001	Carbon, Total Organic	N/A		Ground Water	2.31 mg/L	10 mL	2.31 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007018-002	Carbon, Total Organic	N/A		Ground Water	468.90 mg/L	10 mL	4690 mg/L	10	0.7	5.0			8/20/20 10:28:00	N	IV
K2007018-003	Carbon, Total Organic	N/A		Ground Water	3.81 mg/L	10 mL	3.81 mg/L	1	0.07	0.50			8/20/20 10:28:00	Y	IV
K2007018-004	Carbon, Total Organic	N/A		Ground Water	23.77 mg/L	10 mL	23.8 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007018-005	Carbon, Total Organic	N/A		Ground Water	24.16 mg/L	10 mL	24.2 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	IV
K2007063-002	Carbon, Dissolved Organic (DOC)	N/A		Water	5.79 mg/L	10 mL	5.79 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
K2007063-004	Carbon, Dissolved Organic (DOC)	N/A		Water	4.00 mg/L	10 mL	4.00 mg/L	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-01	Carbon, Total Organic	DUP	K2007018-003	Ground Water	4.48 mg/L	10 mL	4.48 mg/L	1	0.07	0.50		16*	8/20/20 10:28:00	N	IV
KQ2011930-02	Carbon, Total Organic	MS	K2007018-003	Ground Water	29.16 mg/L	10 mL	29.2 mg/L	1	0.07	0.50	101		8/20/20 10:28:00	N	IV
KQ2011930-03	Carbon, Dissolved Organic (DOC)	MB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-03	Carbon, Total Organic	MB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-04	Carbon, Dissolved Organic (DOC)	LCS		Water	22.99 mg/L	10 mL	23.0 mg/L	1	0.07	0.50	92		8/20/20 10:28:00	N	II
KQ2011930-04	Carbon, Total Organic	LCS		Water	22.99 mg/L	10 mL	23.0 mg/L	1	0.07	0.50	92		8/20/20 10:28:00	N	II
KQ2011930-05	Carbon, Dissolved Organic (DOC)	DLCS		Water	22.76 mg/L	10 mL	22.8 mg/L	1	0.07	0.50	91	1	8/20/20 10:28:00	N	II
KQ2011930-05	Carbon, Total Organic	DLCS		Water	22.76 mg/L	10 mL	22.8 mg/L	1	0.07	0.50	91	1	8/20/20 10:28:00	N	II
KQ2011930-06	Carbon, Dissolved Organic (DOC)	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-06	Carbon, Total Organic	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-07	Carbon, Dissolved Organic (DOC)	CCV		Water	23.43 mg/L	10 mL	23.4 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-07	Carbon, Total Organic	CCV		Water	23.43 mg/L	10 mL	23.4 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-08	Carbon, Dissolved Organic (DOC)	CCV		Water	23.03 mg/L	10 mL	23.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-08	Carbon, Total Organic	CCV		Water	23.03 mg/L	10 mL	23.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-09	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-09	Carbon, Total Organic	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-10	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692113 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2011930-10	Carbon, Total Organic	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-11	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-11	Carbon, Total Organic	CCB		Water	-0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-12	Carbon, Dissolved Organic (DOC)	CCV		Water	23.98 mg/L	10 mL	24.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-12	Carbon, Total Organic	CCV		Water	23.98 mg/L	10 mL	24.0 mg/L	1					8/20/20 10:28:00	N	II
KQ2011930-13	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II
KQ2011930-13	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/20/20 10:28:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	CCV	1	24.512	0.0969	24.4150	24.415	24.4	
3	CCB	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
4	MB1	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
5	LCS	1	23.302	0.0969	23.2052	23.2052	23.2	
6	ics	1	0.279	0.0969	0.1824	0.1824	<0.5	
7	6886-001	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
8	6886-002	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
9	6746-001	1	1.597	0.0969	1.5001	1.5001	1.50	
10	6746-002	1	2.390	0.0969	2.2928	2.2928	2.29	
11	7004-001	1	2.203	0.0969	2.1060	2.106	2.1	
12	6806-001	1	5.729	0.0969	5.6325	5.6325	5.63	
13	6806-002	1	30.872	0.0969	30.7746	30.7746	30.77	
14	ccv	1	24.532	0.0969	24.4354	24.4354	24.44	
15	ccb	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
16	6806-003	1	1.114	0.0969	1.0175	1.0175	1.0	
17	6805-001	1	40.009	0.0969	39.9118	39.9118	39.91	
18	7110-001	1	4.656	0.0969	4.5594	4.5594	4.6	
19	7110-002	1	13.277	0.0969	13.1801	13.1801	13.2	
20	7110-002d	1	13.179	0.0969	13.0824	13.0824	13.08	
21	7110-002ms	1	34.913	0.0969	34.8164	34.8164	34.82	
22	7111-001	1	2.591	0.0969	2.4943	2.4943	2.5	
23	7063-001	1	4.299	0.0969	4.2020	4.202	4.2	
24	7063-003	1	3.274	0.0969	3.1774	3.1774	3.18	
25	6883-001	1	0.523	0.0969	0.4261	0.4261	<0.5	

date time

Analyzed By:	Date Analyzed
Reviewed By:	Date Reviewed

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	ccv	1	24.012	0.0969	23.9155	23.9155	23.92	
27	ccb	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
28	mb	1	0.000	0.0969	-0.0969	-0.0969	<0.5	
29	lcs	1	23.091	0.0969	22.9945	22.9945	23.0	
30	lcs	1	22.861	0.0969	22.7638	22.7638	22.8	
31	6883-002	1	0.6280	0.0969	0.5311	0.5311	0.5	
32	6883-003	1	0.7920	0.0969	0.6951	0.6951	0.7	
33	6883-004	1	0.7126	0.0969	0.6157	0.6157	0.6	
34	6883-005	1	0.7328	0.0969	0.6359	0.6359	0.6	
35	6883-006	1	0.4024	0.0969	0.3055	0.3055	<0.5	
36	6883-007	1	0.9261	0.0969	0.8292	0.8292	0.8	
37	6883-008	1	0.4861	0.0969	0.3892	0.3892	<0.5	
38	ccv	1	23.5262	0.0969	23.4293	23.4293	23.4	
39	ccb	1	0.0000	0.0969	-0.0969	-0.0969	<0.5	
40	6929-1	10	0.5872	0.0969	0.4903	4.903	4.9	NR
41	7018-001	1	2.4033	0.0969	2.3064	2.3064	2.3	
42	7018-002	1	97.1119	0.0969	97.0150	97.015	97.0	NR
43	7018-003	1	7.3687	0.0969	7.2718	7.2718	nr	NR
44	7018-3d	1	4.5730	0.0969	4.4761	4.4761	4.5	
45	7018-003ms	1	29.2565	0.0969	29.1596	29.1596	29.2	
46	7018-004	1	23.8707	0.0969	23.7738	23.7738	23.8	
47	7018-005	1	24.2526	0.0969	24.1557	24.1557	24.2	
48	7063-002	1	5.8856	0.0969	5.7887	5.7887	5.8	
49	7063-004	1	4.1003	0.0969	4.0034	4.0034	4.0	
50	ccv	1	23.1219	0.0969	23.0250	23.025	23.0	

Analyzed By:	Date Analyzed
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccb	1	0.5558	0.0969	0.4589	0.4589	<0.5	
52	mb	1	0.4627	0.0969	0.3658	0.3658	<0.5	
53	lcs	1	25.5496	0.0969	25.4527	25.4527	25.5	
54	dlcs	1	25.7292	0.0969	25.6323	25.6323	25.6	
55	6929-001	1	7.7110	0.0969	7.6141	7.6141	7.6	
56	7018-002	10	46.9853	0.0969	46.8884	468.884	468.9	
57	7018-003	1	3.9045	0.0969	3.8076	3.8076	3.8	
58	ccv	1	24.0763	0.0969	23.9794	23.9794	24.0	
59	ccb	1	0.0969	0.0969	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By:	Date Analyzed
Reviewed By:	Date Reviewed

Schedule: 082020

Version: 10
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/08/21 10:28 - Friday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Blank)	Blank	Reagent/Acid Blank		1	True	Done
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
3	Sample	K2006886-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
4	Sample	K2006886-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
5	Sample	K2006746-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
6	Sample	K2006746-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
7	Sample	K2007004-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
8	Sample	K2006806-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
9	Sample	K2006806-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
10	Sample	K2006806-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
11	Sample	K2006805-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
12	Sample	K2007110-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
13	Sample	K2007110-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
14	Sample	K2007110-002D	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
15	Sample	K2007110-002MS	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
16	Sample	K2007111-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
17	Sample	K2007063-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
18	Sample	K2007063-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
19	Sample	K2006883-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
22	Sample	K2006883-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
23	Sample	K2006883-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
24	Sample	K2006883-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
25	Sample	K2006883-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
26	Sample	K2006883-006	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
27	Sample	K2006883-007	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
28	Sample	K2006883-008	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Done
29	Sample	K2006929-001 10X	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
30	Sample	K2007018-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
31	Sample	K2007018-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
32	Sample	K2007018-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
33	Sample	K2007018-003D	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
34	Sample	K2007018-003MS	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
35	Sample	K2007018-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
36	Sample	K2007018-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
37	Sample	K2007063-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
38	Sample	K2007063-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Done
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Running

Schedule: 082020

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Pending
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K2006929-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K2007018-002 10X	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K2007018-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample		CAS_salt_010711 (CAS_salt_010711)	1	False	Ready
					False	

Fusion Report - 082020
Thursday, August 20, 2020 11:36 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/08/24 09:32 - Monday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	082020	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v1) Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8) Fusion1 (Fusion1) (v9) Fusion1 (Fusion1) (v10)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/08/20 11:36

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.60	26.95	13.35	49.69	05:30
2	TC Clean	16.57	29.67	13.10	49.70	07:16
3	TC Clean	2.40	15.39	12.99	49.88	07:03
4	TC Clean	0.99	14.20	13.21	49.75	07:03

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/08/20 12:08

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.23	12.89	13.11	49.83	08:00

2	TC Clean	4.24	17.20	12.97	49.91	07:18
3	TC Clean	0.78	13.76	12.98	49.71	07:04
4	TC Clean	0.36	13.36	13.00	49.73	07:02

Sample Type: Clean From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/08/20 12:42

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.05	12.76	12.80	49.67	05:19
2	TC Clean	3.48	16.54	13.07	49.72	07:15
3	TC Clean	0.78	13.80	13.02	49.73	06:58
4	TC Clean	0.47	13.41	12.94	49.84	07:01

Sample Type: Blank (Creating v1436) From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2020/08/20 13:13

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.18	12.77	12.95	49.84	08:00
2	TC Clean	4.11	16.89	12.78	49.87	07:15
3	TC Clean	0.70	13.73	13.04	49.78	07:00
4	TC Clean	0.39	13.32	12.93	49.71	07:03
5	Reagent Blank	4.21	17.15	12.94	49.86	08:12
6	Acid Blank	0.23	13.15	12.92	49.87	08:00

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.0418 ppm	0.0000 ppm	0.0000%	2020/08/20 14:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0418	0.4184	9.48	22.67	13.19	49.96	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5119 ppm (PASS)	0.0000 ppm	0%	2020/08/20 14:20

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5119	245.1193	181.84	194.84	13.00	49.89	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/20 14:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.09	21.89	12.80	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/20 14:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.57	21.49	12.92	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS — From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	23.3021 ppm (PASS)	0.0000 ppm	0%	2020/08/20 15:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.3021	233.0207	173.35	186.31	12.96	49.90	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.2793 ppm	0.0000 ppm	0.0000%	2020/08/20 15:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2793	2.7933	11.14	24.06	12.92	49.94	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K2006886-001	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/20 15:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.49	21.38	12.88	49.91	10:29
2	TOC	0.0000	0.0000	8.61	21.52	12.91	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2006886-002	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/20 16:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.36	21.30	12.95	49.93	10:31
2	TOC	0.0000	0.0000	8.06	21.04	12.98	49.92	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K2006746-001	1.5970 ppm	0.0385 ppm	2.4100%	2020/08/20 16:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5697	15.6974	20.19	33.24	13.04	49.93	10:25
2	TOC	1.6242	16.2420	20.58	33.48	12.90	49.88	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2006746-002	2.3897 ppm	0.0540 ppm	2.2600%	2020/08/20 16:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3515	23.5152	25.68	38.58	12.90	49.96	10:31
2	TOC	2.4279	24.2793	26.21	39.04	12.83	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2007004-001	2.2029 ppm	0.0211 ppm	0.9600%	2020/08/20 17:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1880	21.8801	24.53	37.65	13.11	49.95	10:30
2	TOC	2.2178	22.1780	24.74	37.46	12.72	49.96	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2006806-001	5.7294 ppm	0.0040 ppm	0.0700%	2020/08/20 17:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.7322	57.3221	49.39	62.24	12.85	49.95	10:27
2	TOC	5.7265	57.2651	49.35	62.31	12.96	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2006806-002	30.8715 ppm	0.0903 ppm	0.2900%	2020/08/20 18:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.8077	308.0767	225.29	238.33	13.03	50.06	10:26
2	TOC	30.9354	309.3540	226.19	239.30	13.11	50.16	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5323 ppm (PASS)	0.0000 ppm	0%	2020/08/20 18:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5323	245.3232	181.98	194.98	13.00	50.10	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/20 19:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.80	22.74	12.94	50.07	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K2006806-003	1.1144 ppm	0.0101 ppm	0.9000%	2020/08/20 19:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1216	11.2155	17.05	30.13	13.08	50.21	10:25
2	TOC	1.1073	11.0730	16.95	29.91	12.96	50.12	10:26

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2006805-001	40.0087 ppm	0.4426 ppm	1.1100%	2020/08/20 19:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	40.3217	403.2167	292.03	305.07	13.04	50.08	10:29
2	TOC	39.6957	396.9571	287.64	300.54	12.89	50.22	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2007110-001	4.6563 ppm	0.1970 ppm	4.2300%	2020/08/20 20:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7956	47.9563	42.82	55.78	12.96	50.04	10:24
2	TOC	4.5171	45.1707	40.87	53.90	13.03	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2007110-002	13.2770 ppm	0.1438 ppm	1.0800%	2020/08/20 20:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.1753	131.7531	101.61	114.52	12.92	49.87	10:27
2	TOC	13.3787	133.7873	103.03	115.88	12.84	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2007110-002D	13.1793 ppm	0.1365 ppm	1.0400%	2020/08/20 21:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.2758	132.7581	102.31	115.16	12.85	49.88	10:29
2	TOC	13.0828	130.8279	100.96	113.87	12.91	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K2007110-002MS	34.9133 ppm	0.5447 ppm	1.5600%	2020/08/20 21:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	35.2984	352.9845	256.80	269.65	12.85	49.87	10:31
2	TOC	34.5281	345.2808	251.39	264.23	12.84	49.83	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K2007111-001	2.5912 ppm	0.0951 ppm	3.6700%	2020/08/20 22:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6584	26.5844	27.83	40.81	12.98	49.91	10:28
2	TOC	2.5240	25.2401	26.89	39.81	12.92	49.87	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2007063-001	4.2989 ppm	0.0922 ppm	2.1500%	2020/08/20 22:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2337	42.3367	38.88	51.93	13.05	49.81	10:28
2	TOC	4.3641	43.6411	39.80	52.62	12.83	49.90	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2007063-003	3.2743 ppm	0.0023 ppm	0.0700%	2020/08/20 23:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2760	32.7599	32.16	45.10	12.93	49.84	10:27
2	TOC	3.2727	32.7271	32.14	44.98	12.83	50.00	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2006883-001	0.5230 ppm	0.0016 ppm	0.3100%	2020/08/20 23:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5218	5.2182	12.84	25.81	12.97	49.86	10:25
2	TOC	0.5241	5.2410	12.86	25.94	13.08	49.84	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC)	CAS_salt_010711	CAS_salt_010711

(v1436) (v4) (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0124 ppm (PASS)	0.0000 ppm	0%	2020/08/20 23:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0124	240.1242	178.33	191.21	12.88	49.93	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/21 00:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.90	21.92	13.02	49.86	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/21 00:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.11	21.07	12.96	49.94	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	23.0914 ppm (PASS)	0.0000 ppm	0%	2020/08/21 00:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.0914	230.9137	171.87	184.62	12.74	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	22.8607 ppm (PASS)	0.0000 ppm	0%	2020/08/21 00:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	22.8607	228.6071	170.26	183.33	13.08	49.92	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K2006883-002	0.6280 ppm	0.0527 ppm	8.4000%	2020/08/21 01:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6652	6.6523	13.85	26.73	12.88	49.95	10:27
2	TOC	0.5907	5.9068	13.33	26.21	12.88	49.85	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K2006883-003	0.7920 ppm	0.0757 ppm	9.5600%	2020/08/21 01:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7385	7.3851	14.36	27.23	12.87	49.98	10:27
2	TOC	0.8456	8.4556	15.11	28.10	12.99	49.91	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K2006883-004	0.7126 ppm	0.0096 ppm	1.3400%	2020/08/21 02:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7059	7.0586	14.13	27.31	13.18	50.04	10:30
2	TOC	0.7194	7.1940	14.23	27.30	13.07	49.97	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K2006883-005	0.7328 ppm	0.0488 ppm	6.6600%	2020/08/21 02:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7673	7.6730	14.57	27.51	12.95	49.88	10:27
2	TOC	0.6983	6.9830	14.08	27.23	13.15	49.99	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K2006883-006	0.4024 ppm	0.0026 ppm	0.6500%	2020/08/21 03:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4005	4.0051	11.99	25.13	13.14	49.91	10:26
2	TOC	0.4042	4.0421	12.02	25.07	13.06	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K2006883-007	0.9261 ppm	0.0369 ppm	3.9800%	2020/08/21 03:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9000	9.0002	15.50	28.52	13.02	49.93	10:30
2	TOC	0.9522	9.5220	15.86	28.80	12.93	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K2006883-008	0.4861 ppm	0.0084 ppm	1.7200%	2020/08/21 04:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4802	4.8020	12.55	25.76	13.20	49.95	10:26

2	TOC	0.4920	4.9203	12.64	25.80	13.16	49.93	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.5262 ppm (PASS)	0.0000 ppm	0%	2020/08/21 04:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.5262	235.2616	174.92	187.91	12.99	49.99	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/08/21 04:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.96	21.91	12.95	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K2006929-001 10X	0.5872 ppm	0.0408 ppm	6.9500%	2020/08/21 04:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5583	5.5832	13.10	26.27	13.17	49.99	10:25
2	TOC	0.6161	6.1605	13.50	26.43	12.93	49.92	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◆	30	TOC	K2007018-001	2.4033 ppm	0.0459 ppm	1.9100%	2020/08/21 05:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3709	23.7090	25.82	38.92	13.11	49.99	10:24
2	TOC	2.4358	24.3577	26.27	39.20	12.93	49.95	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K2007018-002	97.1119 ppm	1.3734 ppm	1.4100%	2020/08/21 05:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	98.0830	980.8304	697.22	710.23	13.01	50.00	10:27
2	TOC	96.1407	961.4072	683.59	697.36	13.77	49.92	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	32	TOC	K2007018-003	7.3687 ppm	2.6382 ppm	35.8000%	2020/08/21 06:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2342	92.3422	73.96	87.68	13.72	50.00	10:28
2	TOC	5.5033	55.0327	47.79	60.91	13.13	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K2007018-003D	4.5753 ppm	0.3918 ppm	8.5600%	2020/08/21 06:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8524	48.5236	43.22	56.16	12.93	49.97	10:29
2	TOC	4.2983	42.9825	39.33	52.30	12.97	50.10	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K2007018-003MS	29.2565 ppm	0.1532 ppm	0.5200%	2020/08/21 07:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.3649	293.6487	215.17	228.41	13.24	49.95	10:29
2	TOC	29.1482	291.4819	213.65	226.91	13.26	50.02	10:27

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K2007018-004	23.8707 ppm	0.5947 ppm	2.4900%	2020/08/21 07:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	23.4501	234.5011	173.68	186.59	12.90	50.07	10:30
2	TOC	24.2912	242.9119	179.58	192.65	13.07	49.97	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K2007018-005	24.2526 ppm	0.0925 ppm	0.3800%	2020/08/21 08:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.1871	241.8713	178.85	191.97	13.11	50.02	10:25
2	TOC	24.3180	243.1799	179.77	192.98	13.21	50.07	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K2007063-002	5.8856 ppm	0.7693 ppm	13.0700%	2020/08/21 08:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4296	64.2959	54.29	67.26	12.98	49.96	10:29
2	TOC	5.3416	53.4161	46.65	59.71	13.06	50.05	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K2007063-004	4.1003 ppm	0.0134 ppm	0.3300%	2020/08/21 09:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1098	41.0979	38.01	51.09	13.08	50.10	10:27
2	TOC	4.0908	40.9083	37.88	50.85	12.97	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.1219 ppm (PASS)	0.0000 ppm	0%	2020/08/21 10:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.1219	231.2188	172.09	185.09	13.01	49.98	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.5558 ppm (PASS)	0.0000 ppm	0%	2020/08/21 10:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.5558	5.5582	13.79	26.93	13.14	50.01	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 10

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.4627 ppm	0.0000 ppm	0.0000%	2020/08/21 10:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4627	4.6266	12.43	25.52	13.09	50.12	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.5496 ppm (PASS)	0.0000 ppm	0%	2020/08/21 11:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.5496	255.4959	189.12	202.09	12.97	50.03	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Check Standard --> LCS

From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.7292 ppm (PASS)	0.0000 ppm	0%	2020/08/21 11:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.7292	257.2921	190.38	203.40	13.02	49.96	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample

From Schedule Version 10

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K2006929-001	7.7110 ppm	0.0183 ppm	0.2400%	2020/08/21 11:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.7240	77.2400	63.37	76.45	13.09	50.07	10:26
2	TOC	7.6980	76.9805	63.18	76.02	12.83	50.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K2007018-002 10X	46.9853 ppm	0.2265 ppm	0.4800%	2020/08/21 12:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	46.8252	468.2518	337.65	350.55	12.90	49.97	10:26
2	TOC	47.1455	471.4550	339.90	353.06	13.16	50.07	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K2007018-003	3.9045 ppm	0.3744 ppm	9.5900%	2020/08/21 12:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1692	41.6924	38.43	51.54	13.11	49.94	10:27
2	TOC	3.6398	36.3979	34.72	47.72	13.01	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.1835 (IC) (v1436)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0763 ppm (PASS)	0.0000 ppm	0%	2020/08/21 13:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0763	240.7628	178.78	191.91	13.12	50.05	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 10

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0969 ppm (PASS)	0.0000 ppm	0%	2020/08/21 13:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0969	0.9693	10.57	23.46	12.88	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1435	1.3927	0.5240	0.0000	0.0000	0.0000	2020/08/17 12:16	Fusion1 (Fusion1)

v1436	1.4033	0.2300	0.0000	0.0000	0.0000	2020/08/20 14:05	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v38

Ver Creation: 2020/06/13 16:40

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type TOC

Calibration curve formula: TOC: y = 7.015x + 9.892

r^2 value: TOC: r^2 = 0.99974

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	9.5750	0.0000		2020/06/13 15:13
0.500 ppm	12.9010	0.5000		2020/06/13 15:28
1.0 ppm	15.6320	1.0000		2020/06/13 15:42
5.0 ppm	43.2510	5.0000		2020/06/13 15:56
10 ppm	82.4040	10.0000		2020/06/13 16:11
25 ppm	188.6880	25.0000		2020/06/13 16:25
50 ppm	358.6500	50.0000		2020/06/13 16:39

Methods

Name: CAS_salt_010711 (TOC)

Version: v4

Ver Creation: 2019/02/21 17:57

Comment:

Operator: Fusion1 (Fusion1)

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5

SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/08/21 13:34

0.556				OBSERVATIONS	9	ABOVE
0.463				STD Deviation	0.22197	ABOVE
0.097	0.097	######	######	AVERAGE	0.12393	0.0969
0.000				UCL	0.34590	0
0.000				LCL	-0.09803	0
0.000						0
0.000						0
0.000				OBSERVATIONS	1	0
0.000				STD Deviation	~~#DIV/0!~~	0
				AVERAGE	0.09690	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
						0
						0
						0
						0
						0
						0

ALS Environmental

StarLIMS Run: 692111/392113

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 19-GEN-8-15-C 50 ppm LCS: 19-GEN-8-31I 25.0 ppm

ICAL Date: 6/16/2020

ICAL ID: 19-GEN-8-22-G

ICS ID: 19-GEN-8-35-J

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 19-GEN-8-15-B 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-38-B

21 % H3PO4: 19-GEN-08-38-A

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By:	MMC	Date Analyzed:	8/20/20
Reviewed By:	JC	Date Reviewed:	8/26/20

HS20080738 8260_W_DOD Raw Data

ALS WO# HS20080738

MSVOA06 -Logbook

Batch: 41322 **Analyst:** Presenta Cabascango

Date: 08-03-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	08-03-2020 11:16 am	1.00	50 mL	50 mL	X080301.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	08-03-2020 11:40 am	1.00	50 mL	50 mL	X080302.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	08-03-2020 12:04 pm	1.00	50 mL	50 mL	X080303.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	08-03-2020 12:52 pm	1.00	50 mL	50 mL	X080304.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	08-03-2020 01:16 pm	1.00	50 mL	50 mL	X080305.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	08-03-2020 01:40 pm	1.00	50 mL	50 mL	X080306.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	08-03-2020 02:04 pm	1.00	50 mL	50 mL	X080307.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	08-03-2020 02:28 pm	1.00	50 mL	50 mL	X080308.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	08-03-2020 02:52 pm	1.00	50 mL	50 mL	X080309.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	08-03-2020 03:16 pm	1.00	50 mL	50 mL	X080310.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	08-03-2020 03:40 pm	1.00	50 mL	50 mL	X080311.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	08-03-2020 04:04 pm	1.00	50 mL	50 mL	X080312.D	Liquid	Y	NA
13	BLANK	SAMP	08-03-2020 04:28 pm	1.00	50 mL	50 mL	X080313.D	Liquid	Y	NA
14	ICV	CCV	08-03-2020 04:51 pm	1.00	50 mL	50 mL	X080314.D	Liquid	Y	NA
	10 uL ical std/50 mL DI									
15	BLANK	SAMP	08-03-2020 05:16 pm	1.00	50 mL	50 mL	X080315.D	Liquid	Y	NA
16	VLCSW-200803	LCS	08-03-2020 05:39 pm	1.00	50 mL	50 mL	X080316.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
17	BLANK	SAMP	08-03-2020 06:04 pm	1.00	50 mL	50 mL	X080317.D	Liquid	Y	NA
18	BLANK	SAMP	08-03-2020 06:28 pm	1.00	50 mL	50 mL	X080318.D	Liquid	Y	NA
19	VBLKW-200803	MBLK	08-03-2020 06:52 pm	1.00	50 mL	50 mL	X080319.D	Liquid	Y	NA
20	HS20070575-13	SAMP	08-03-2020 07:16 pm	1.00	50 mL	50 mL	X080320.D	Liquid	Y	NA
21	HS20070575-14	SAMP	08-03-2020 07:40 pm	1.00	50 mL	50 mL	X080321.D	Liquid	Y	NA
22	HS20070575-15	SAMP	08-03-2020 08:03 pm	1.00	50 mL	50 mL	X080322.D	Liquid	Y	NA
23	HS20070575-16	SAMP	08-03-2020 08:27 pm	1.00	50 mL	50 mL	X080323.D	Liquid	Y	NA
24	HS20070984-02	SAMP	08-03-2020 08:51 pm	1.00	50 mL	50 mL	X080324.D	Liquid	Y	<2
25	HS20070984-01	SAMP	08-03-2020 09:15 pm	1.00	50 mL	50 mL	X080325.D	Liquid	Y	<2
26	HS20070984-01MS	MS	08-03-2020 09:39 pm	1.00	50 mL	50 mL	X080326.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
27	HS20070984-01MSD	MSD	08-03-2020 10:04 pm	1.00	50 mL	50 mL	X080327.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
28	CCV-END	CCV	08-03-2020 10:27 pm	1.00	50 mL	50 mL	X080328.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-38-06
IS ID	31106-38-06
CAL STD ID	31106-41-01/02
BFB ID	31106-38-06
pH Paper	634-64-10

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Vinyl Chloride	50.00	50.76	102	80-120
Methylene Chloride	50.00	49.00	98	80-120
1,1-Dichloroethene	50.00	51.26	102	80-120
1,2-Dichloroethane	50.00	48.99	98	80-120
cis-1,2-Dichloroethene	50.00	48.89	98	80-120
1,1,2-Trichloroethane	50.00	47.70	95	80-120
Trichloroethene	50.00	50.56	101	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Lab File ID: X080301 BFB Injection Date: 08/03/20

Instrument ID: VOA6 BFB Injection Time: 1116

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.4
75	30.0 - 60.0% of mass 95	50.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.4 (0.6)1
174	Greater than 50.0% of mass 95	67.3
175	5.0 - 9.0% of mass 174	5.2 (7.8)1
176	95.0 - 101.0% of mass 174	64.3 (95.6)1
177	5.0 - 9.0% of mass 176	4.7 (7.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X080302	08/03/20	1140
02	VSTD000.5	VSTD000.5	X080303	08/03/20	1204
03	VSTD001	VSTD001	X080304	08/03/20	1252
04	VSTD002	VSTD002	X080305	08/03/20	1316
05	VSTD005	VSTD005	X080306	08/03/20	1340
06	VSTD020	VSTD020	X080307	08/03/20	1404
07	VSTD050	VSTD050	X080308	08/03/20	1428
08	VSTD100	VSTD100	X080309	08/03/20	1452
09	VSTD150	VSTD150	X080310	08/03/20	1516
10	VSTD200	VSTD200	X080311	08/03/20	1540
11	ICV	ICV	X080314	08/03/20	1651
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Instrument ID: VOA6 Calibration Date(s): 08/03/20 08/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1140 1540

LAB FILE ID: RF0.25: X080302 RF0.5: X080303 RF1: X080304
RF2: X080305 RF5: X080306 RF20: X080307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Vinyl Chloride		0.723	0.546	0.596	0.557	0.633
Methylene Chloride		13006	14851	20318	36047	113086
1,1-Dichloroethene		0.394	0.380	0.377	0.362	0.406
1,2-Dichloroethane		0.539	0.434	0.491	0.490	0.473
cis-1,2-Dichloroethene		0.641	0.522	0.524	0.547	0.541
1,1,2-Trichloroethane		0.347	0.256	0.311	0.288	0.272
Trichloroethene		0.395	0.297	0.346	0.339	0.352
Dibromofluoromethane		0.528	0.509	0.451	0.514	0.476
1,2-Dichloroethane-d4		0.669	0.575	0.501	0.605	0.564
Toluene-d8		1.258	1.357	1.124	1.218	1.201
4-Bromofluorobenzene		0.521	0.535	0.447	0.454	0.451

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2008073

Instrument ID: VOA6 Calibration Date(s): 08/03/20 08/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1140 1540

LAB FILE ID: RF50: X080308 RF100: X080309 RF150: X080310
RF200: X080311

COMPOUND	RF50	RF100	RF150	RF200
Vinyl Chloride	0.647	0.674	0.698	0.718
Methylene Chloride	256910	487953	693942	915440
1,1-Dichloroethene	0.398	0.410	0.417	0.422
1,2-Dichloroethane	0.471	0.484	0.487	0.487
cis-1,2-Dichloroethene	0.529	0.542	0.551	0.556
1,1,2-Trichloroethane	0.268	0.271	0.272	0.274
Trichloroethene	0.353	0.369	0.366	0.371
Dibromofluoromethane	0.468	0.486	0.491	0.494
1,2-Dichloroethane-d4	0.554	0.583	0.594	0.593
Toluene-d8	1.182	1.197	1.182	1.196
4-Bromofluorobenzene	0.446	0.454	0.449	0.453

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2008073

Instrument ID: VOA6 Calibration Date(s): 08/03/20 08/03/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1140 1540

COMPOUND	CURVE	COEFFICENTS A0	A1	%RSD OR R^2	MAX %RSD OR R^2
Vinyl Chloride	AVRG		0.64360842	10.284	15.000
Methylene Chloride	LINR	-2.76e-002	1.99382468	0.9998680	0.9900000
1,1-Dichloroethene	AVRG		0.39616599	5.052	15.000
1,2-Dichloroethane	AVRG		0.48410523	5.599	15.000
cis-1,2-Dichloroethene	AVRG		0.55037038	6.534	15.000
1,1,2-Trichloroethane	AVRG		0.28450466	9.857	15.000
Trichloroethene	AVRG		0.35435187	7.661	15.000
Dibromofluoromethane	AVRG		0.49101450	4.895	15.000
1,2-Dichloroethane-d4	AVRG		0.58201048	7.676	15.000
Toluene-d8	AVRG		1.21277844	5.331	15.000
4-Bromofluorobenzene	AVRG		0.46785309	7.389	15.000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080301.D

Date : 03-AUG-2020 11:16

Client ID: BFB

Instrument: voa6.i

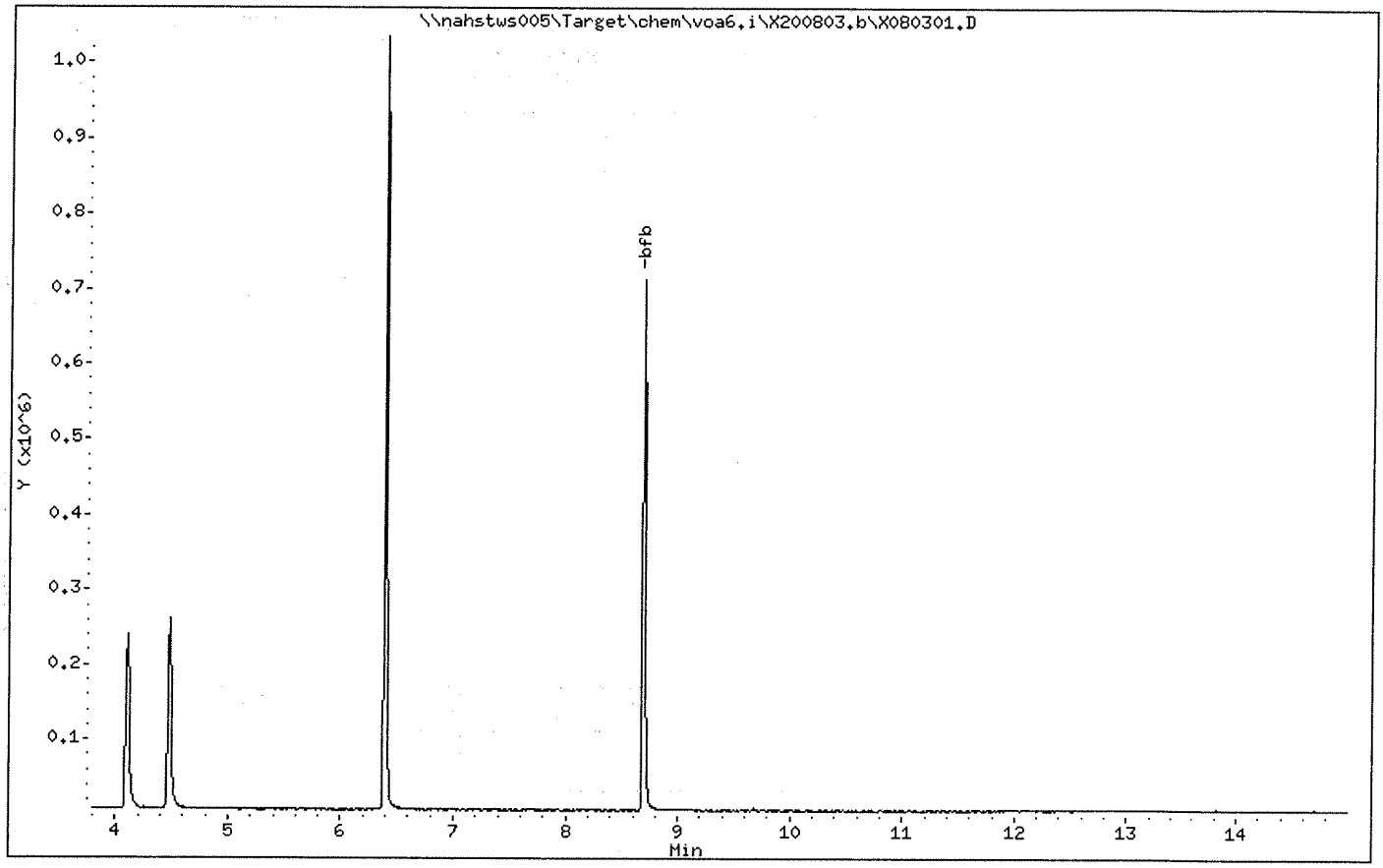
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080301.D

Date : 03-AUG-2020 11:16

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

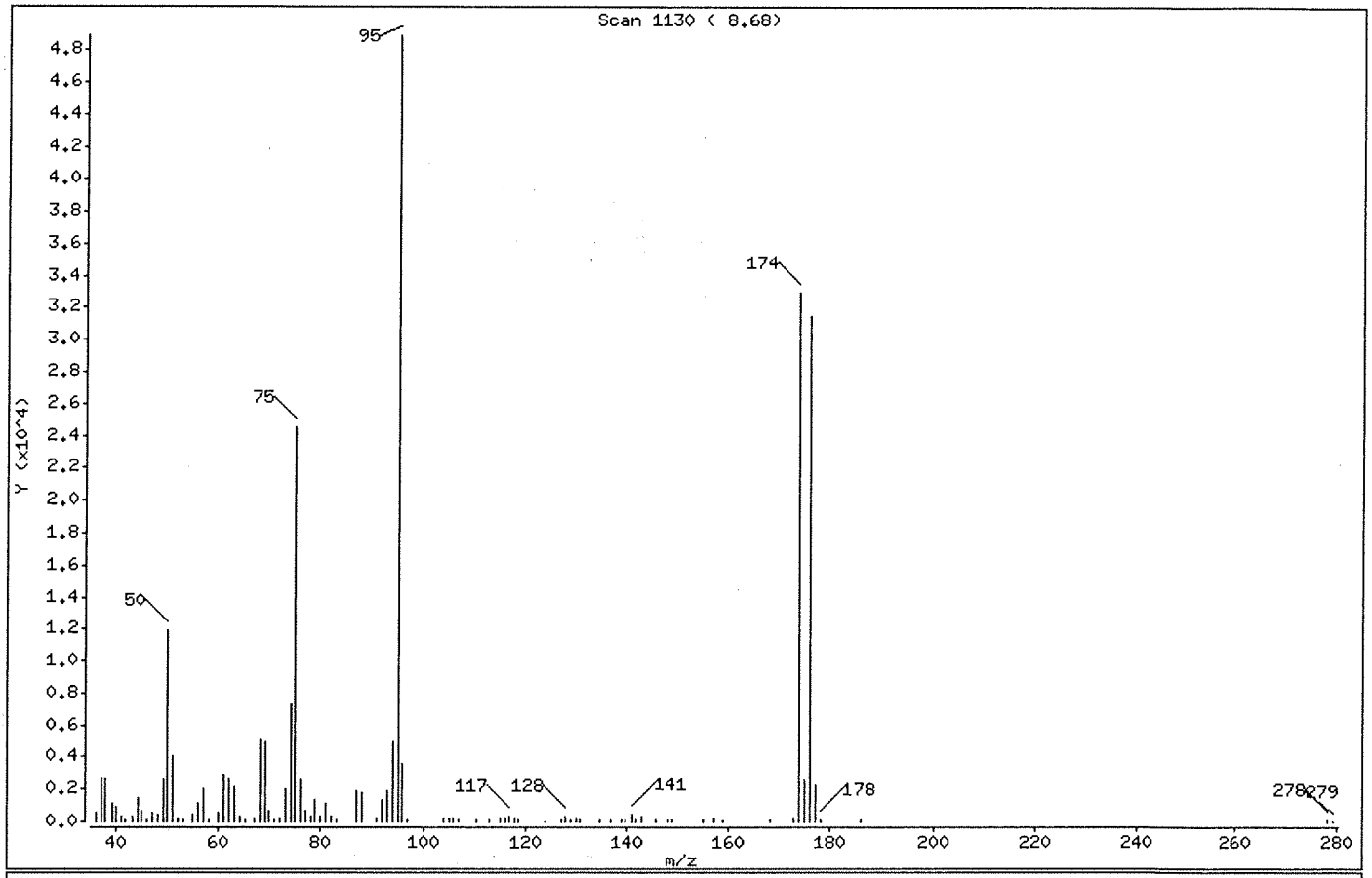
Volume Injected (uL): 2.0

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	24.40
75	30.00 - 60.00% of mass 95	50.11
96	5.00 - 9.00% of mass 95	7.35
173	Less than 2.00% of mass 174	0.43 (0.63)
174	Greater than 50.00% of mass 95	67.28
175	5.00 - 9.00% of mass 174	5.25 (7.80)
176	95.00 - 101.00% of mass 174	64.32 (95.60)
177	5.00 - 9.00% of mass 176	4.66 (7.25)

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080301.D

Date : 03-AUG-2020 11:16

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: X080301.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 94

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	531	62.00	2722	92.00	1357	136.80	58
37.00	2708	63.00	2090	93.00	1937	139.00	114
38.00	2689	64.10	333	94.00	5003	139.80	109
39.10	1102	65.10	152	95.00	48920	141.00	492
39.90	914	67.00	172	96.00	3597	141.70	68
41.00	390	68.00	5065	97.10	159	142.90	325
41.80	147	69.00	4934	104.10	247	145.60	116
43.10	318	70.00	640	105.00	192	148.00	163
44.10	1442	71.10	132	105.90	238	149.00	64
44.90	624	71.90	198	107.00	73	155.00	128
46.10	63	73.00	2073	110.60	59	156.90	179
47.00	559	74.00	7325	113.00	90	159.00	102
48.00	397	75.00	24512	114.90	227	168.00	114
49.10	2563	76.00	2607	116.00	174	172.90	208
50.00	11935	76.90	632	116.80	351	173.90	32912
51.00	4006	78.00	348	117.80	175	174.90	2566
52.10	210	78.90	1387	118.70	154	175.90	31464
53.00	122	79.90	370	123.90	56	176.90	2280
55.00	461	80.90	1139	127.10	81	178.00	150
56.10	1076	81.90	296	127.90	291	186.00	89
57.00	2018	82.90	133	128.80	113	277.90	149
58.20	143	87.00	1966	129.90	205	279.20	55
60.00	526	87.90	1834	130.90	98		
61.00	2907	91.00	222	134.80	63		

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080302.D Page 1
Report Date: 15-Sep-2020 17:39

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080302.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 03-AUG-2020 11:40
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:39 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 15:40 Cal File: X080311.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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

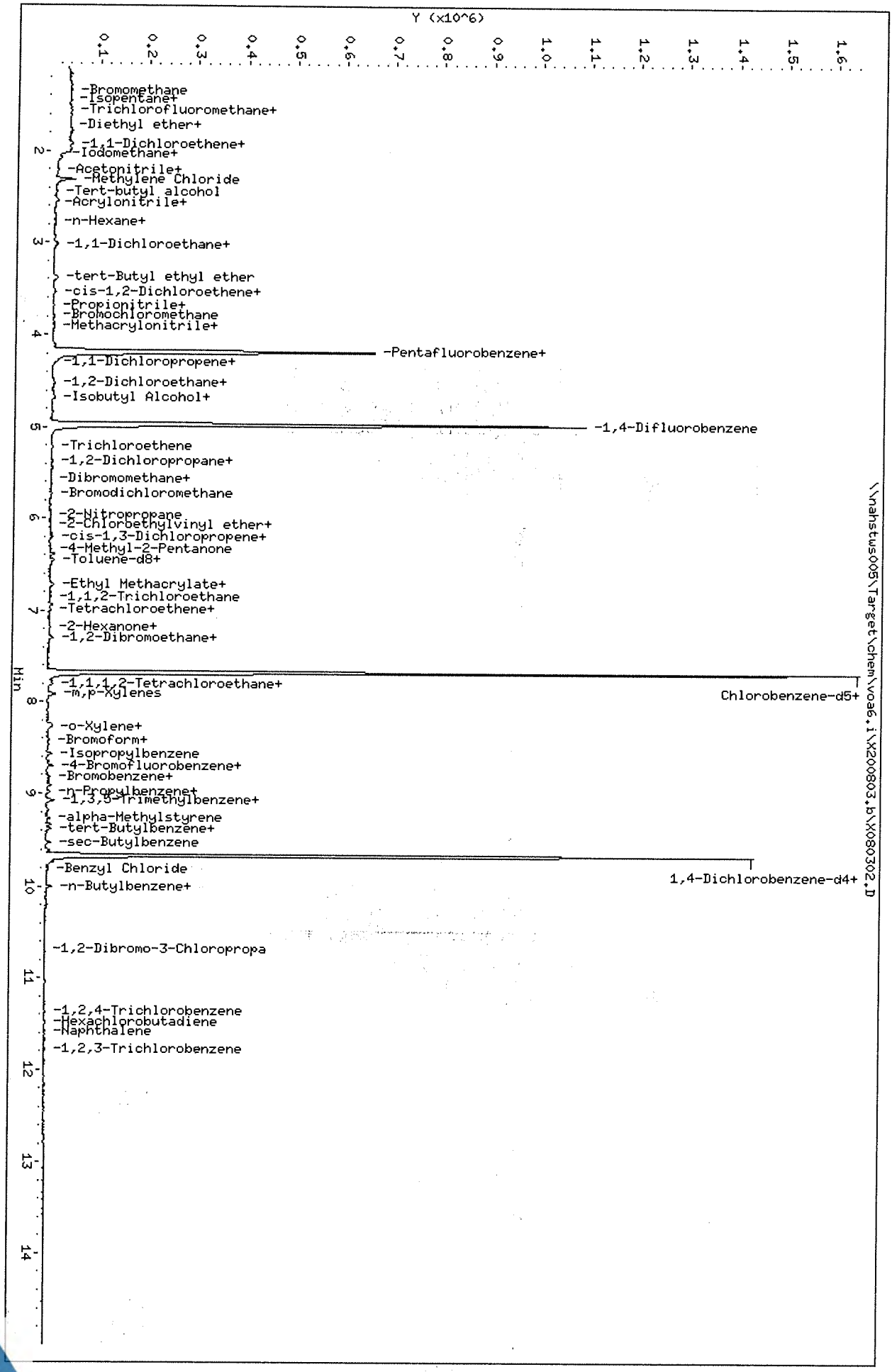
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	572408	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	867920	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	763638	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	355732	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	1662	0.25000	0.29
$ 35 1,2-Dichloroethane-d4	65	4.490	4.490	(1.072)	2175	0.25000	0.32(T)
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	6945	0.25000	0.37
$ 69 4-Bromofluorobenzene	95	8.702	8.702	(1.134)	3200	0.25000	0.44(M)
53 1,1,2-Trichloroethane	83	6.854	6.854	(0.894)	1511	0.25000	0.34(aM)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1378	0.25000	0.30(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	2225	0.25000	0.26(a)
27 cis-1,2-Dichloroethene	96	3.545	3.545	(0.846)	1634	0.25000	0.25
17 Methylene Chloride	84	2.313	2.313	(0.552)	13192	0.25000	0.91(aM)
38 Trichloroethene	130	5.214	5.214	(1.049)	1542	0.25000	0.25
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1889	0.25000	0.25

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\voa6.i\X200803.b\X080302.D
Date : 03-AUG-2020 11:40
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\X200803.b\X080303.D Page 1
Report Date: 15-Sep-2020 17:39

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 03-AUG-2020 12:04
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:39 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 11:40 Cal File: X080302.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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

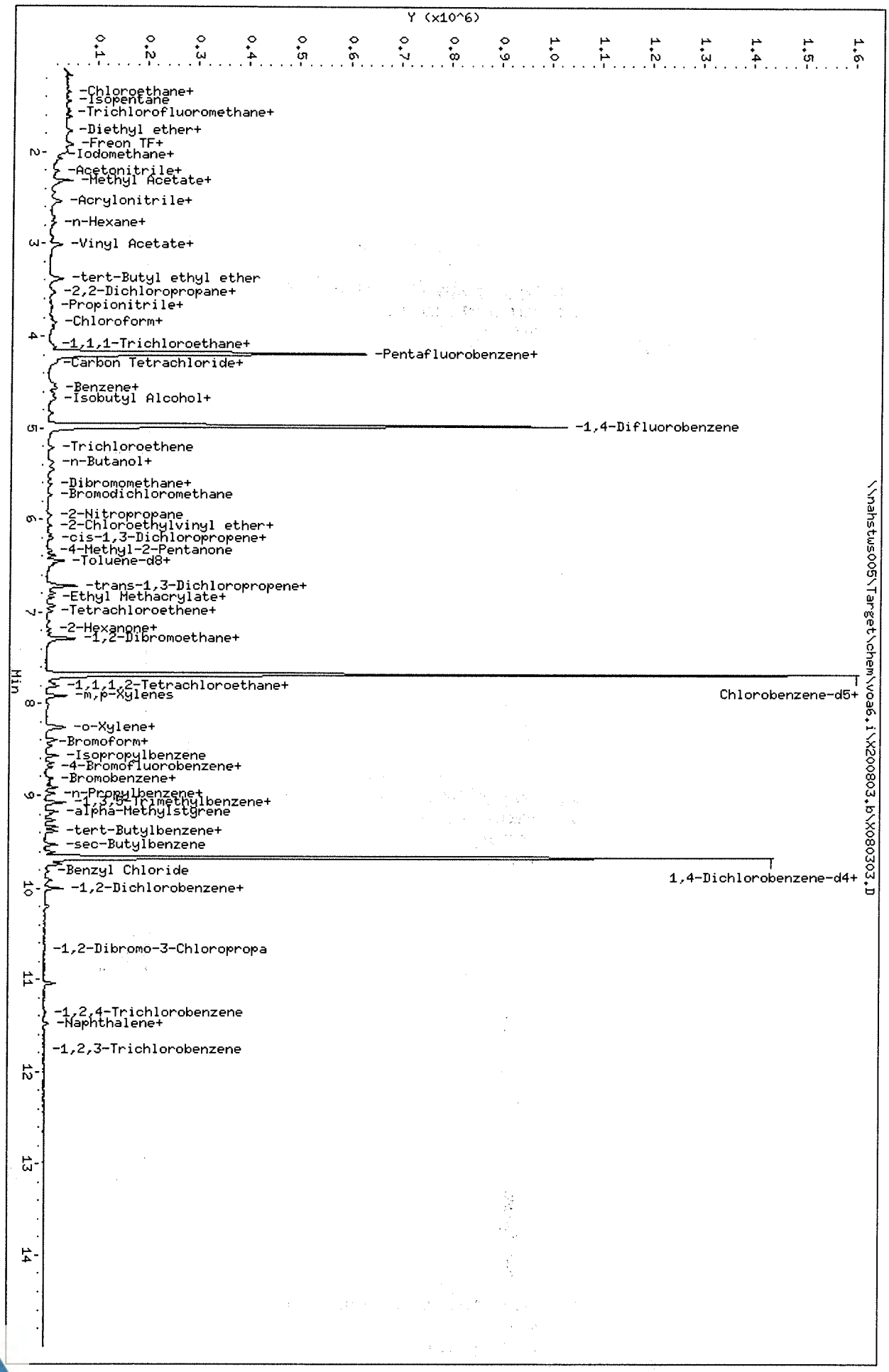
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	544079	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	825062	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	734728	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	351808	50.0000	
$ 30 Dibromofluoromethane	113	4.110	4.110	(0.981)	2875	0.50000	0.53
$ 35 1,2-Dichloroethane-d4	65	4.490	4.490	(1.072)	3638	0.50000	0.57(M)
$ 48 Toluene-d8	98	6.395	6.395	(0.834)	9247	0.50000	0.51
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3831	0.50000	0.55
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2550	0.50000	0.60(aM)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2144	0.50000	0.49(aM)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	4445	0.50000	0.55(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	3487	0.50000	0.58(M)
17 Methylene Chloride	84	2.305	2.305	(0.550)	13006	0.50000	1.00(aM)
38 Trichloroethene	130	5.214	5.214	(1.049)	3262	0.50000	0.55
5 Vinyl Chloride	62	1.145	1.145	(0.273)	3935	0.50000	0.56

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\X200803.b\X080303.D
Date : 03-AUG-2020 12:04
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



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080304.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 03-AUG-2020 12:52
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:39 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 12:04 Cal File: X080303.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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

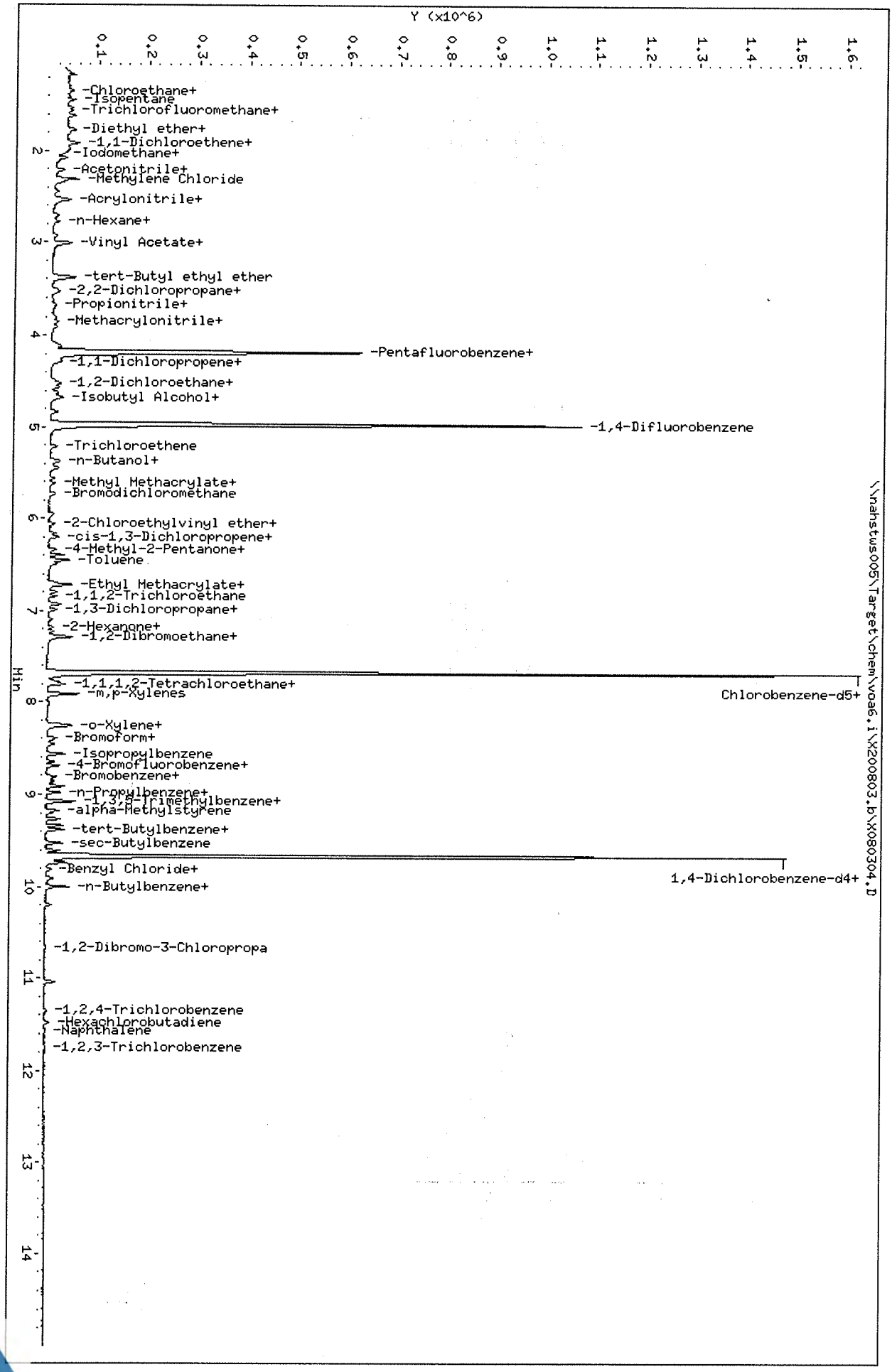
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	539031	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	824218	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	742459	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	360447	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	5491	1.00000	1.03
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	6204	1.00000	0.98
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	20151	1.00000	1.11
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	7948	1.00000	1.14
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3800	1.00000	0.89(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4098	1.00000	0.95(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	7158	1.00000	0.89(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	5626	1.00000	0.94
17 Methylene Chloride	84	2.306	2.306	(0.550)	14851	1.00000	1.36(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4900	1.00000	0.83
5 Vinyl Chloride	62	1.145	1.145	(0.273)	5889	1.00000	0.84

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

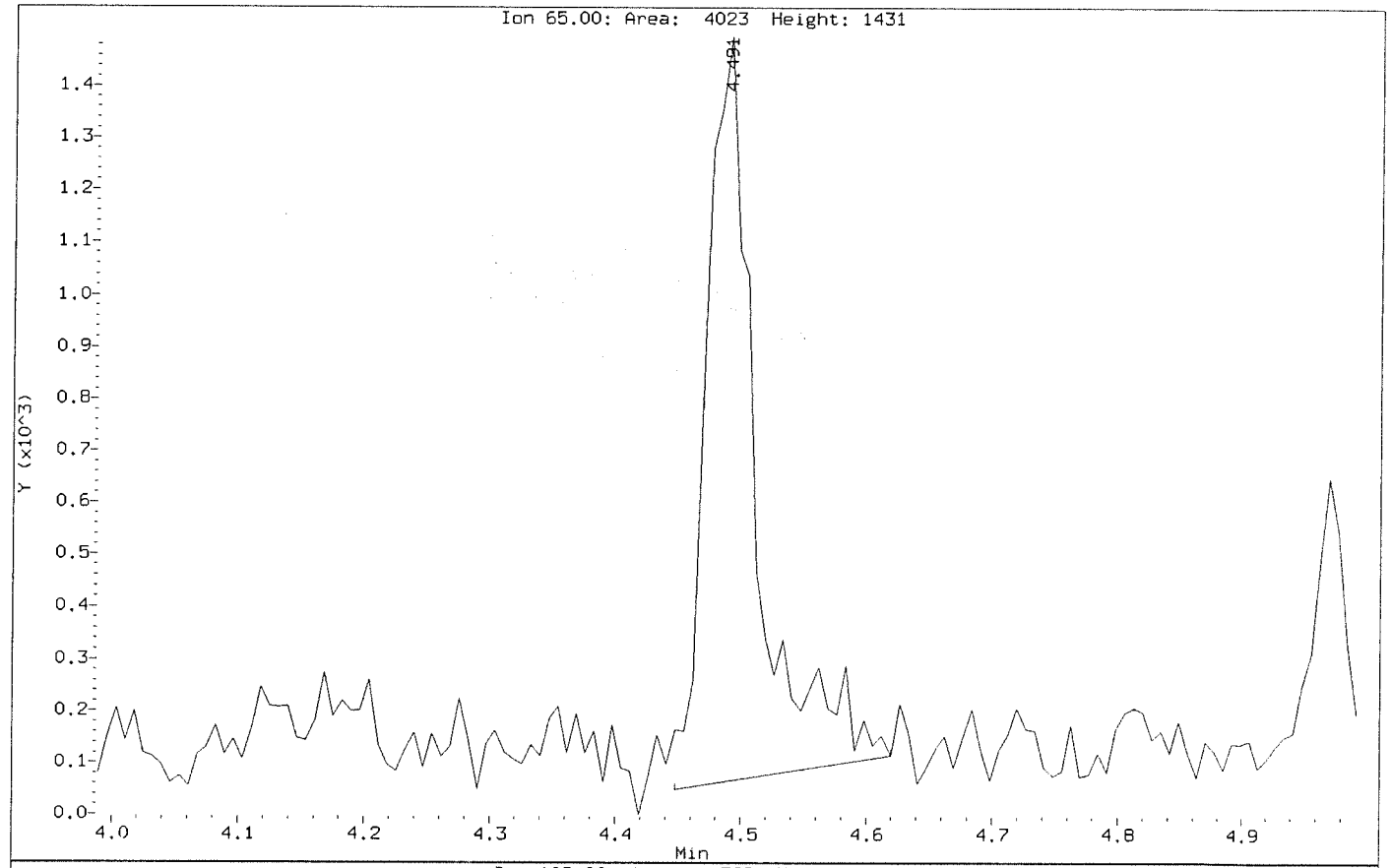
Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080304.D
Date : 03-AUG-2020 12:52
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;;
Purge Volume: 5.0
Column phase: DB624

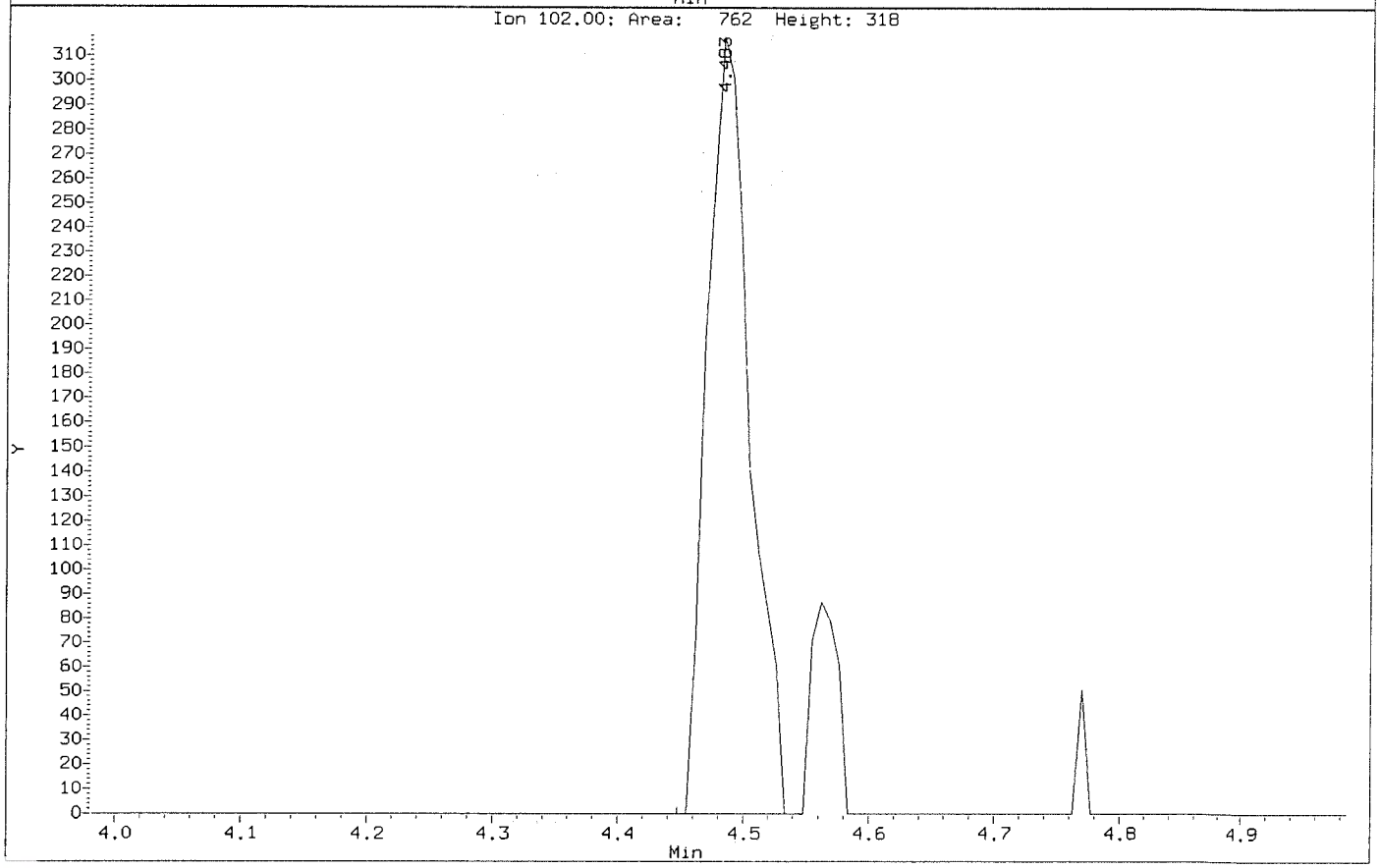
Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\Before4\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

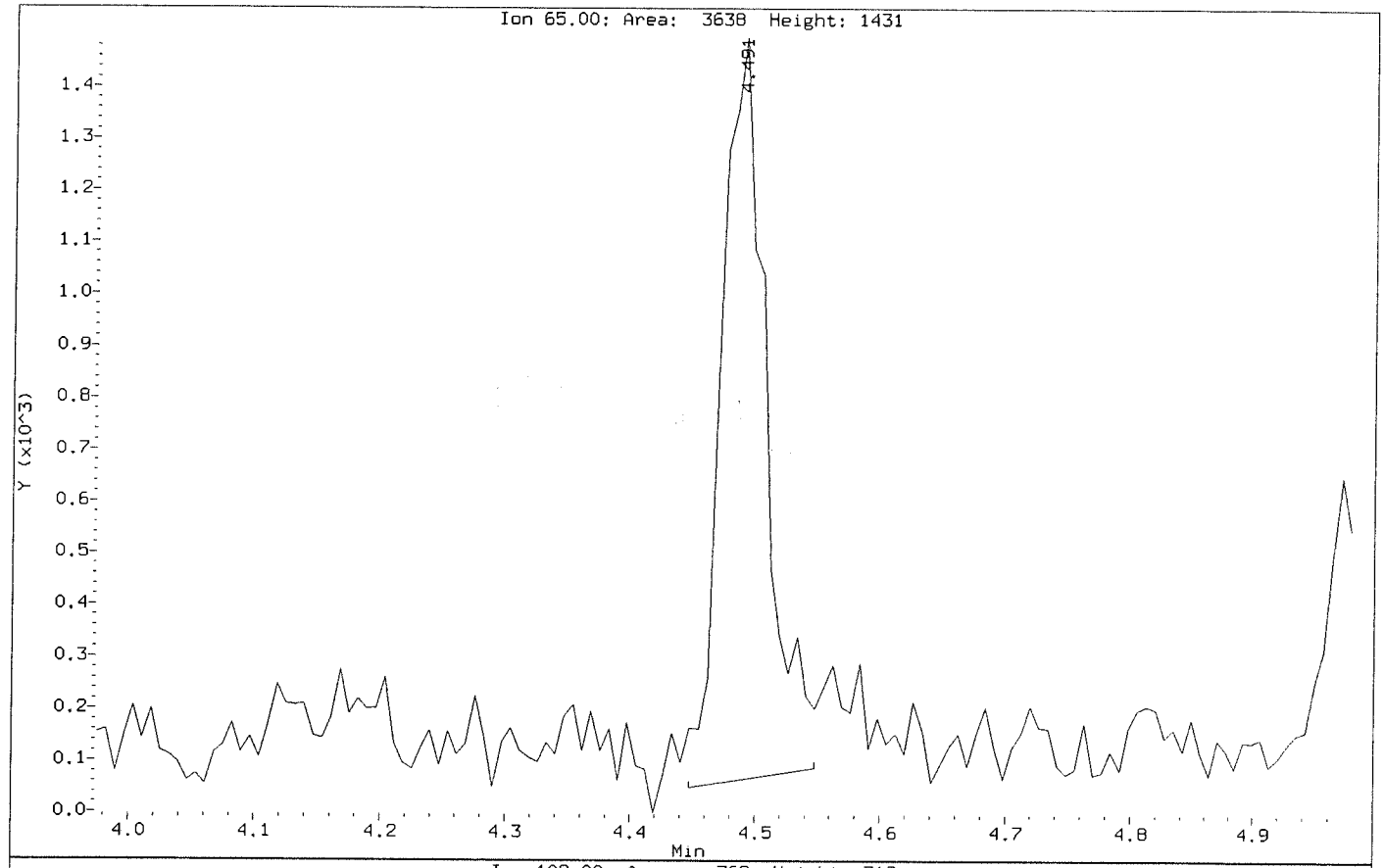
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

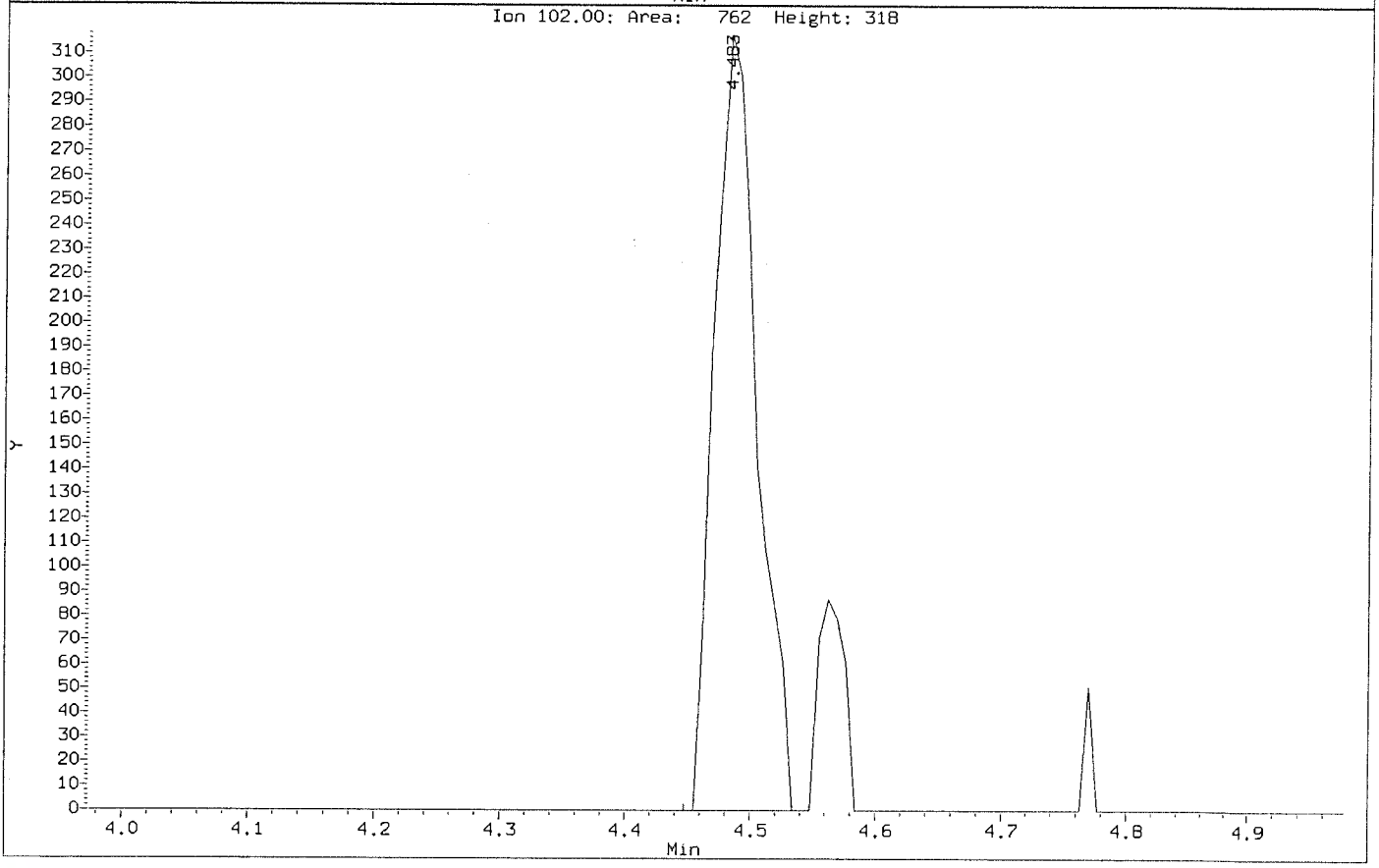




Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

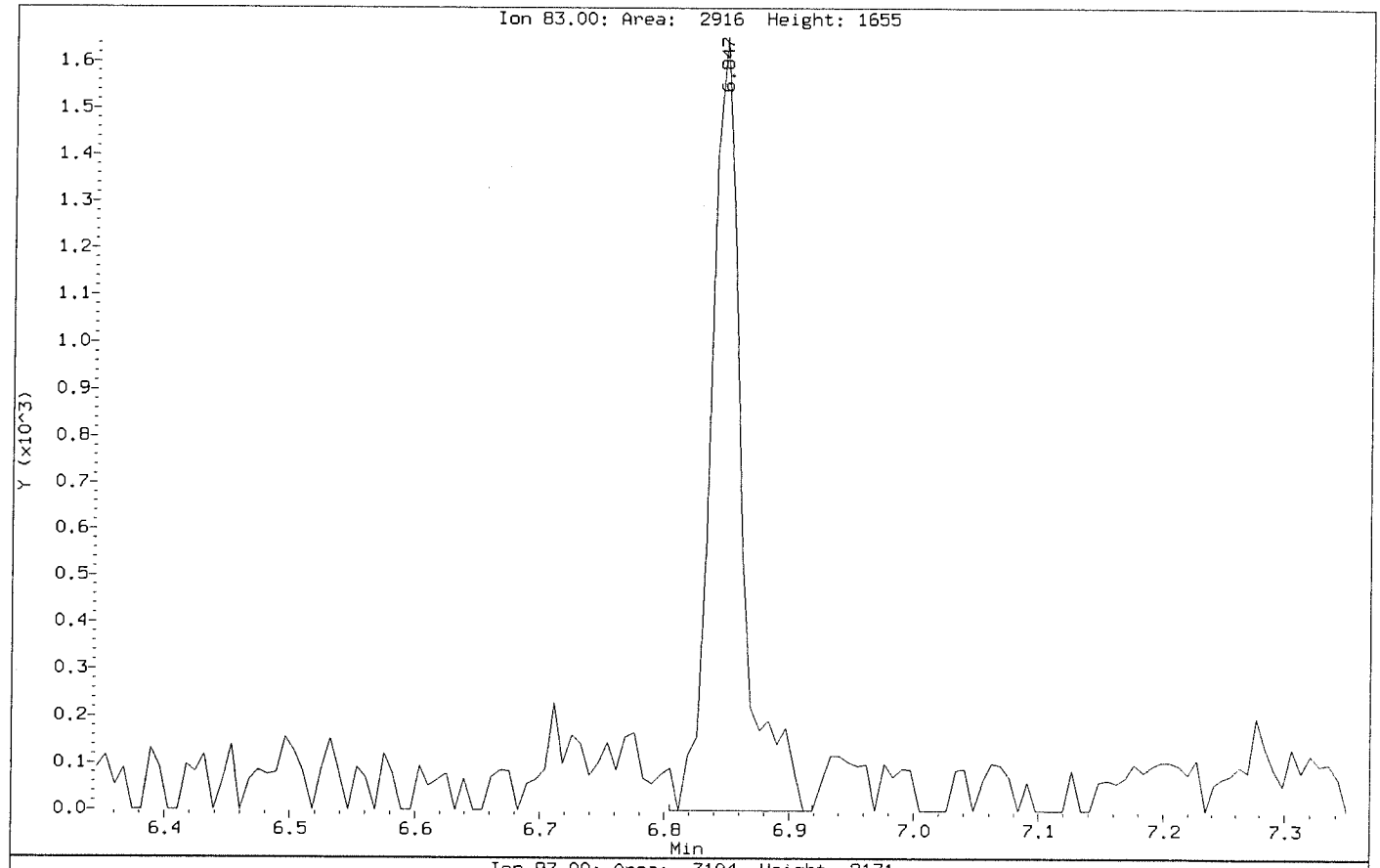
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

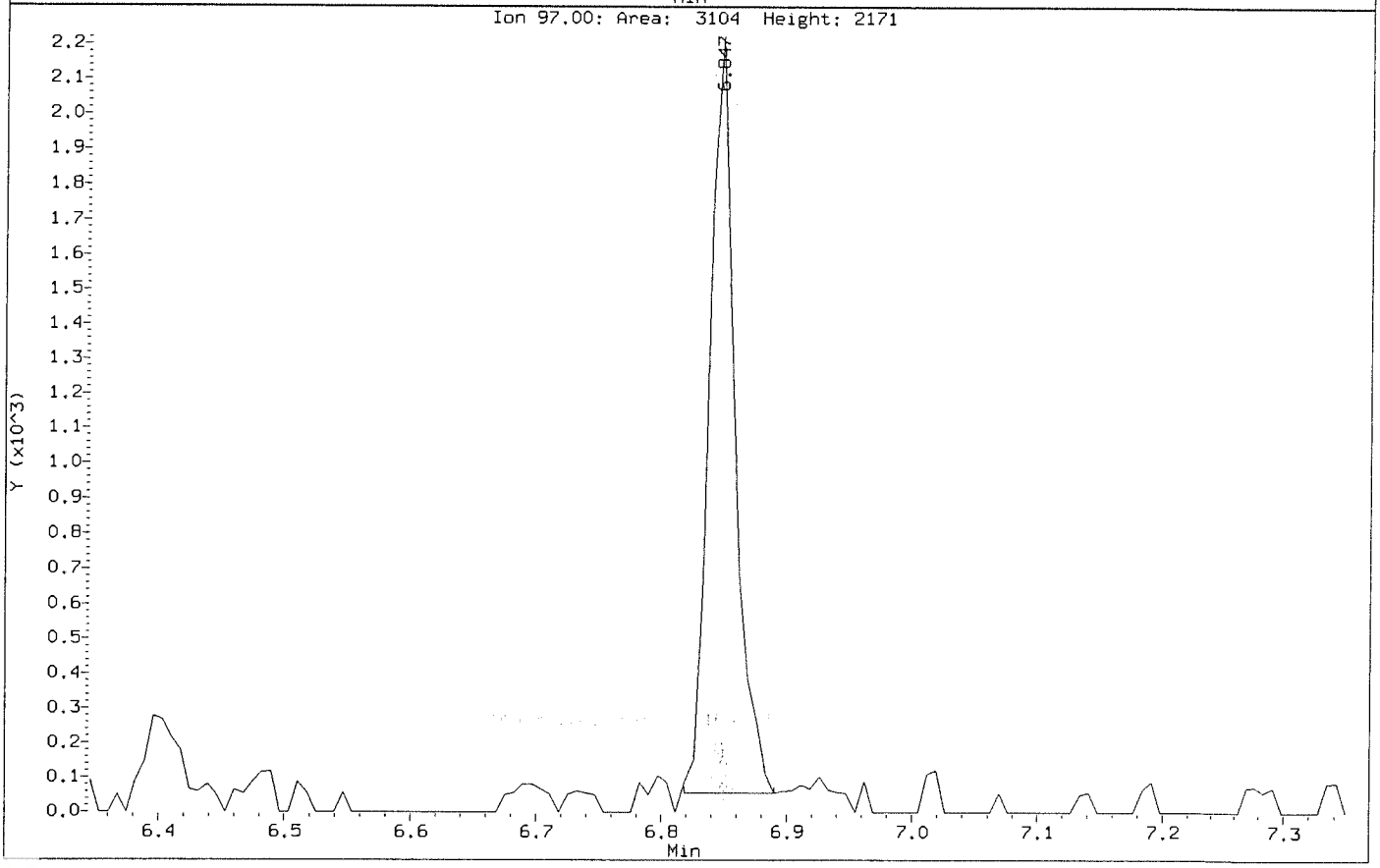




Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\Before4\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

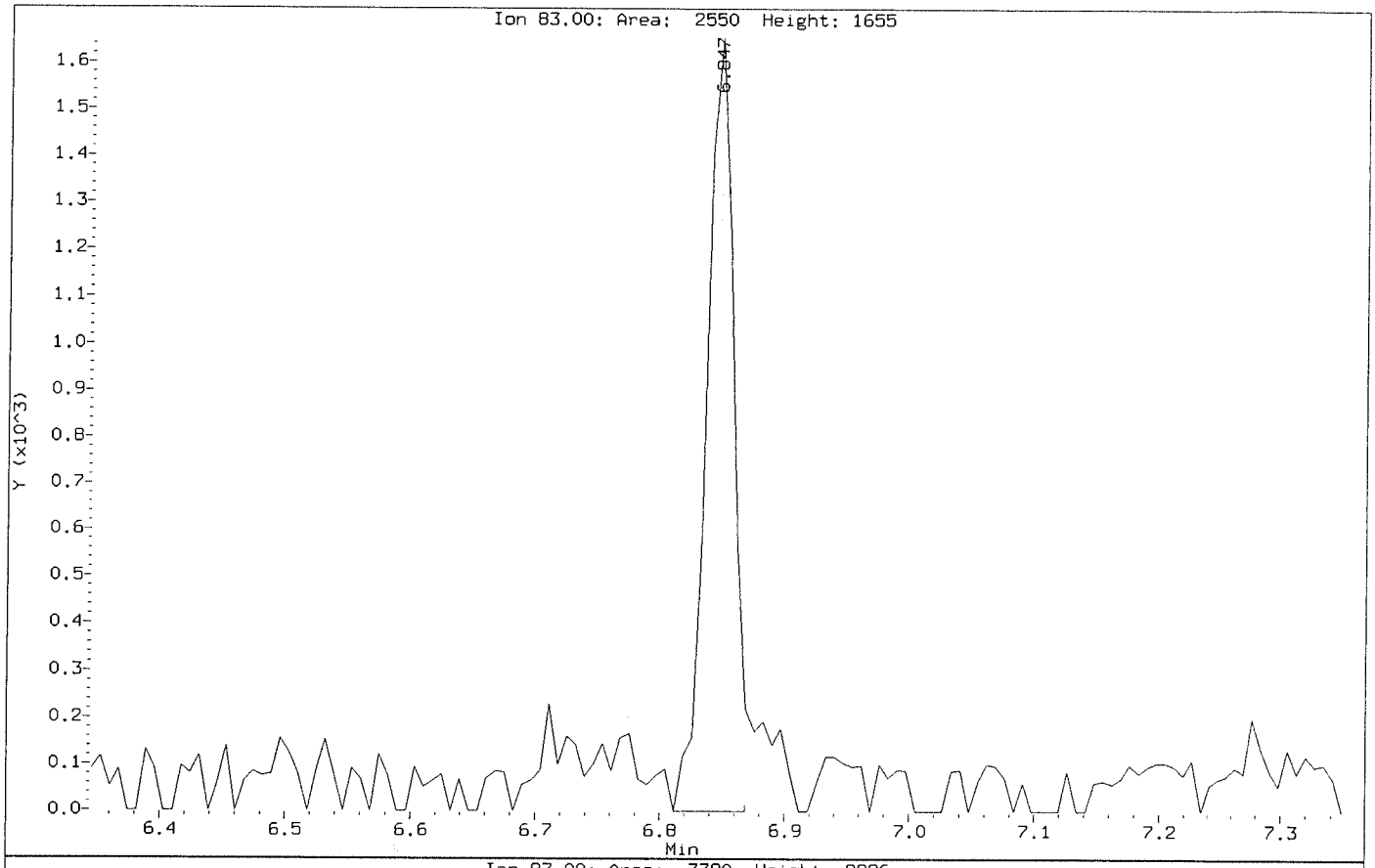
Compound: 1,1,2-Trichloroethane
CAS Number: 79-00-5

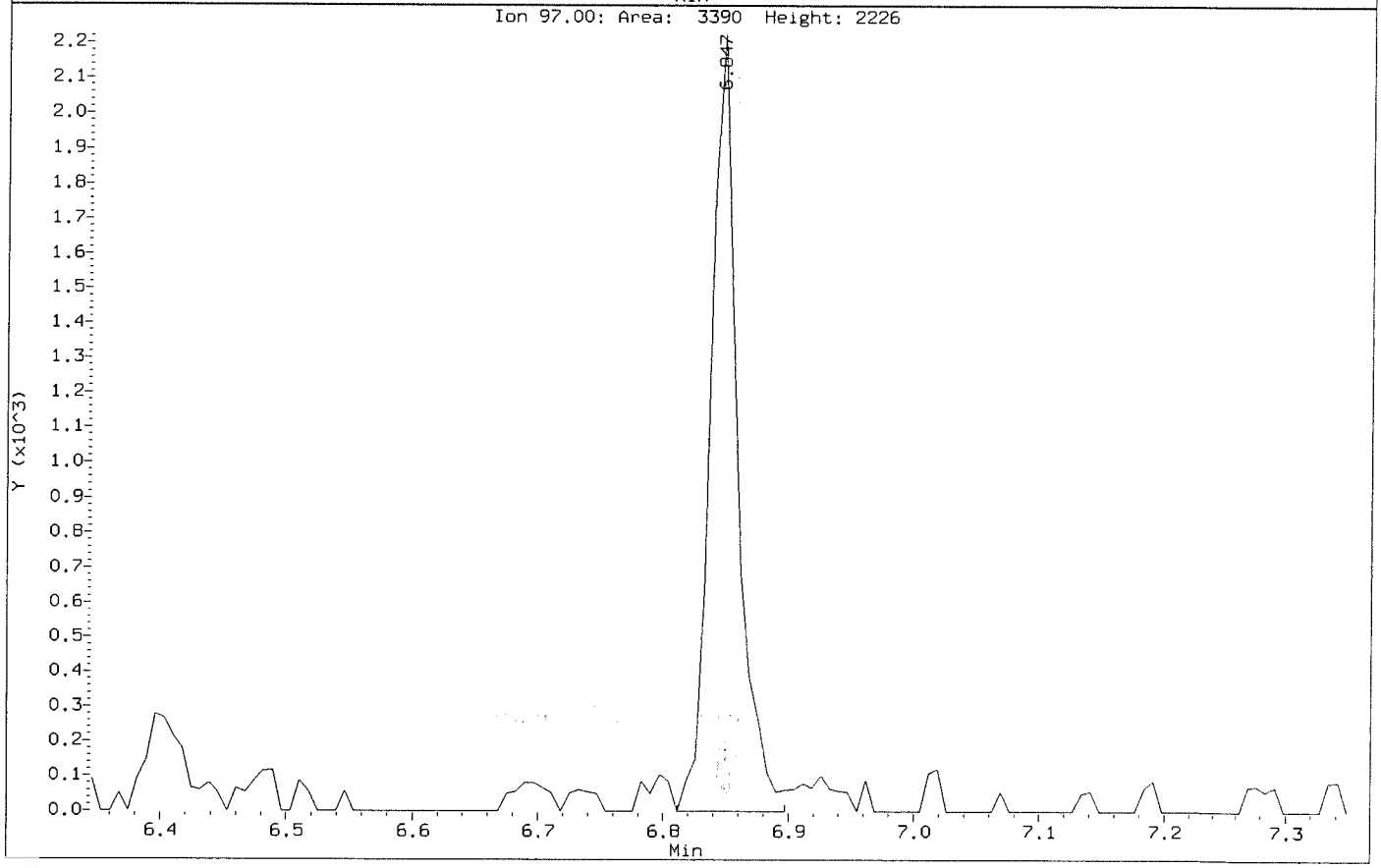




Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

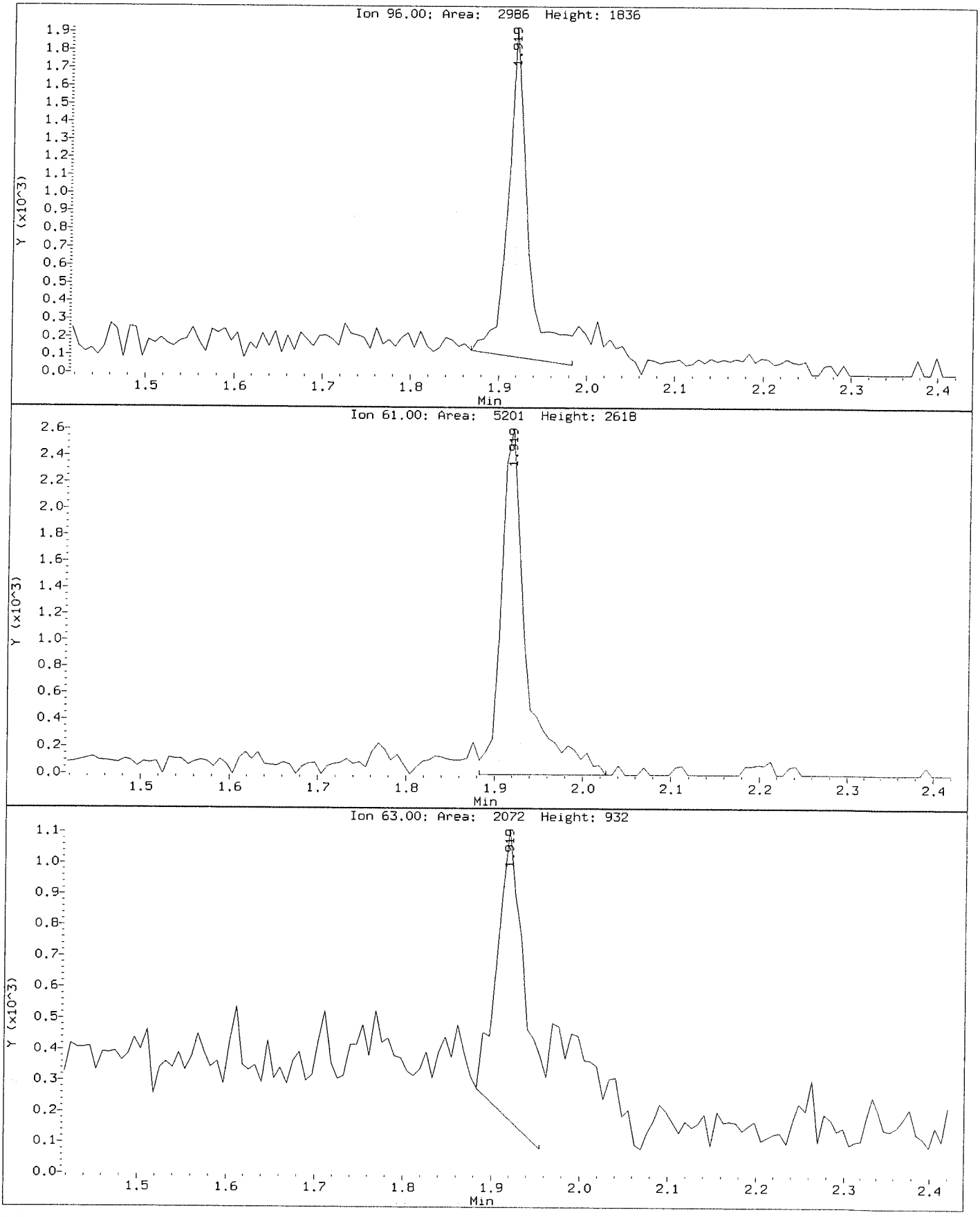
Compound: 1,1,2-Trichloroethane
CAS Number: 79-00-5





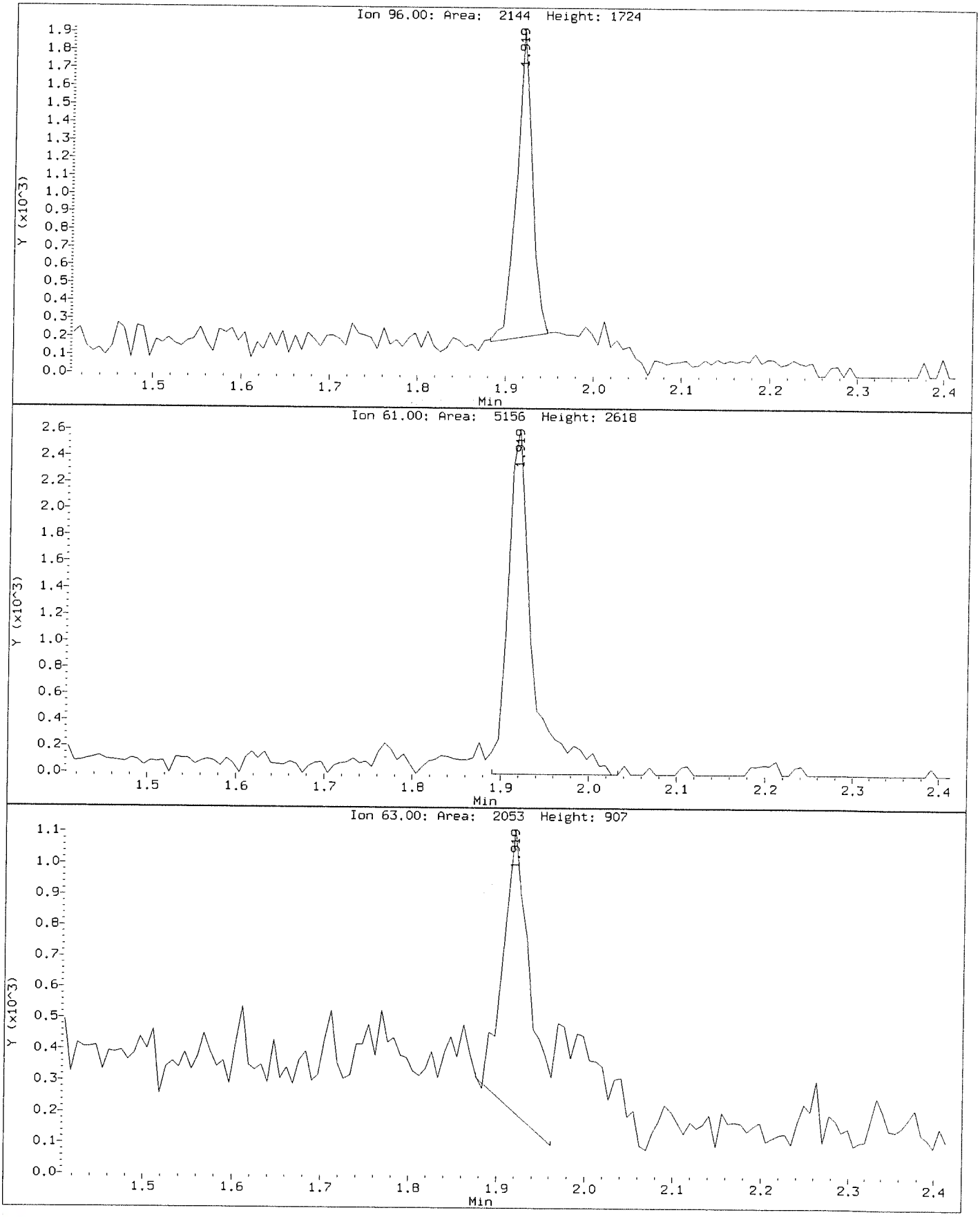
Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\Before4\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



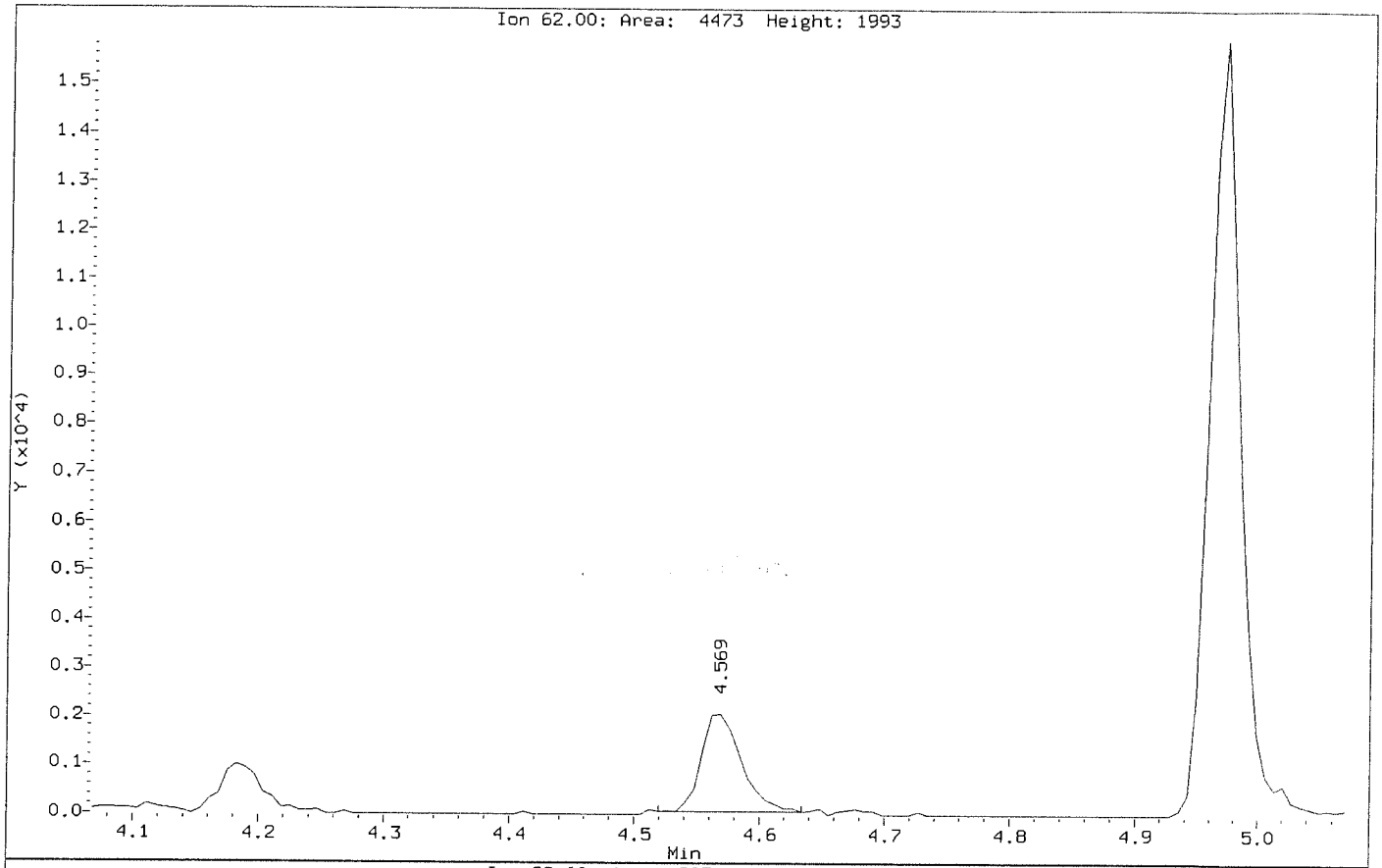
Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

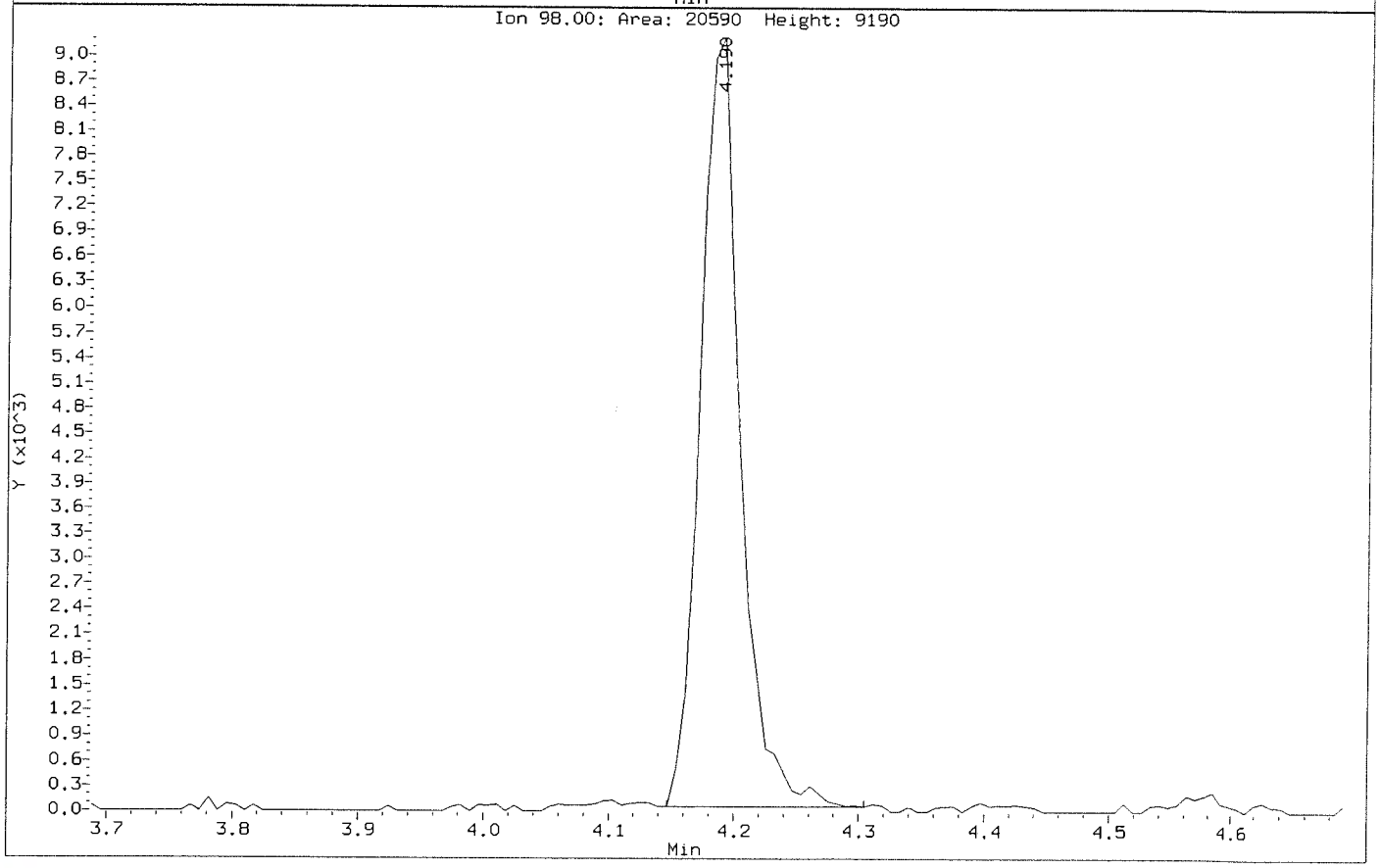
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\Before4\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

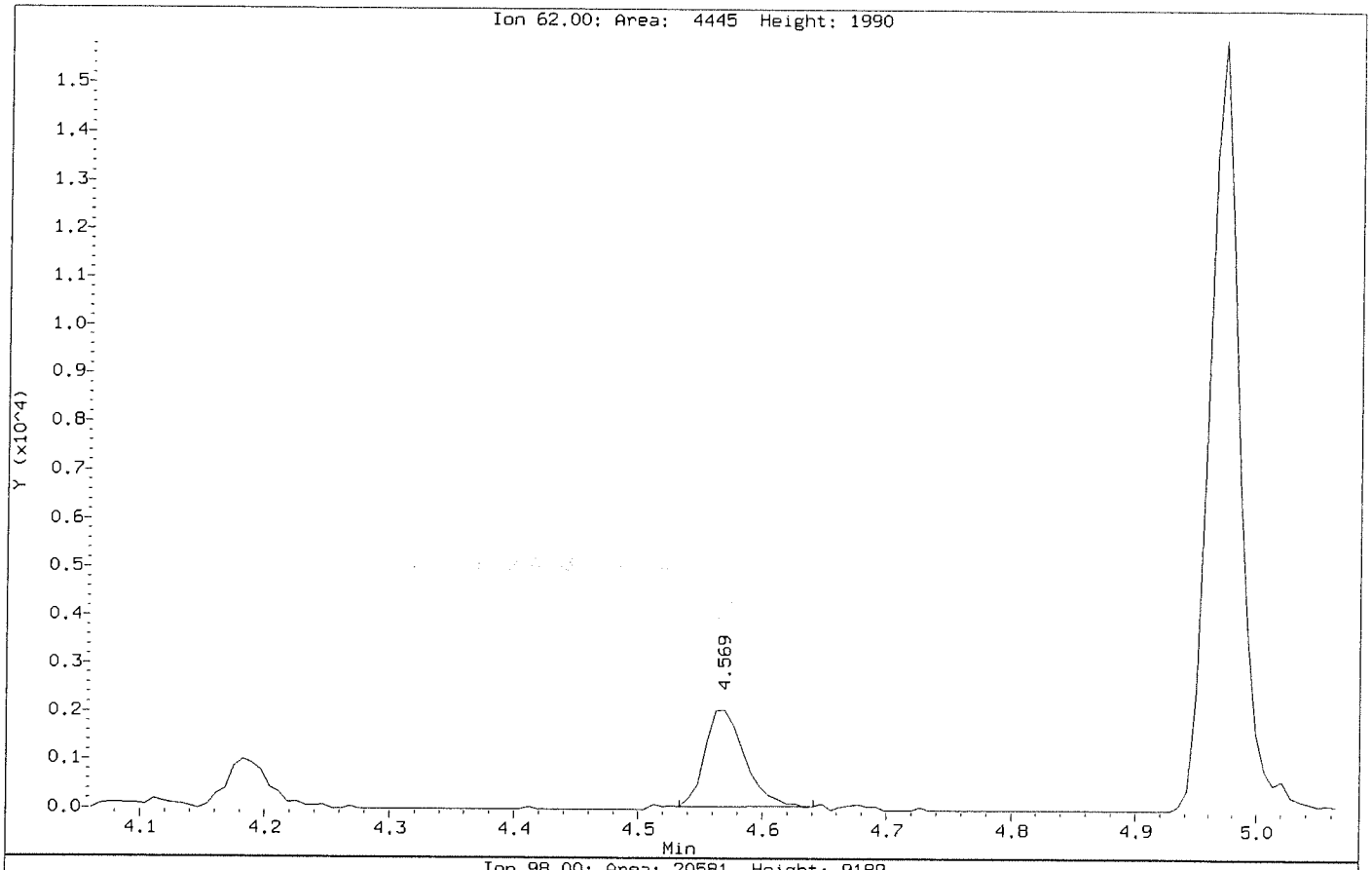
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

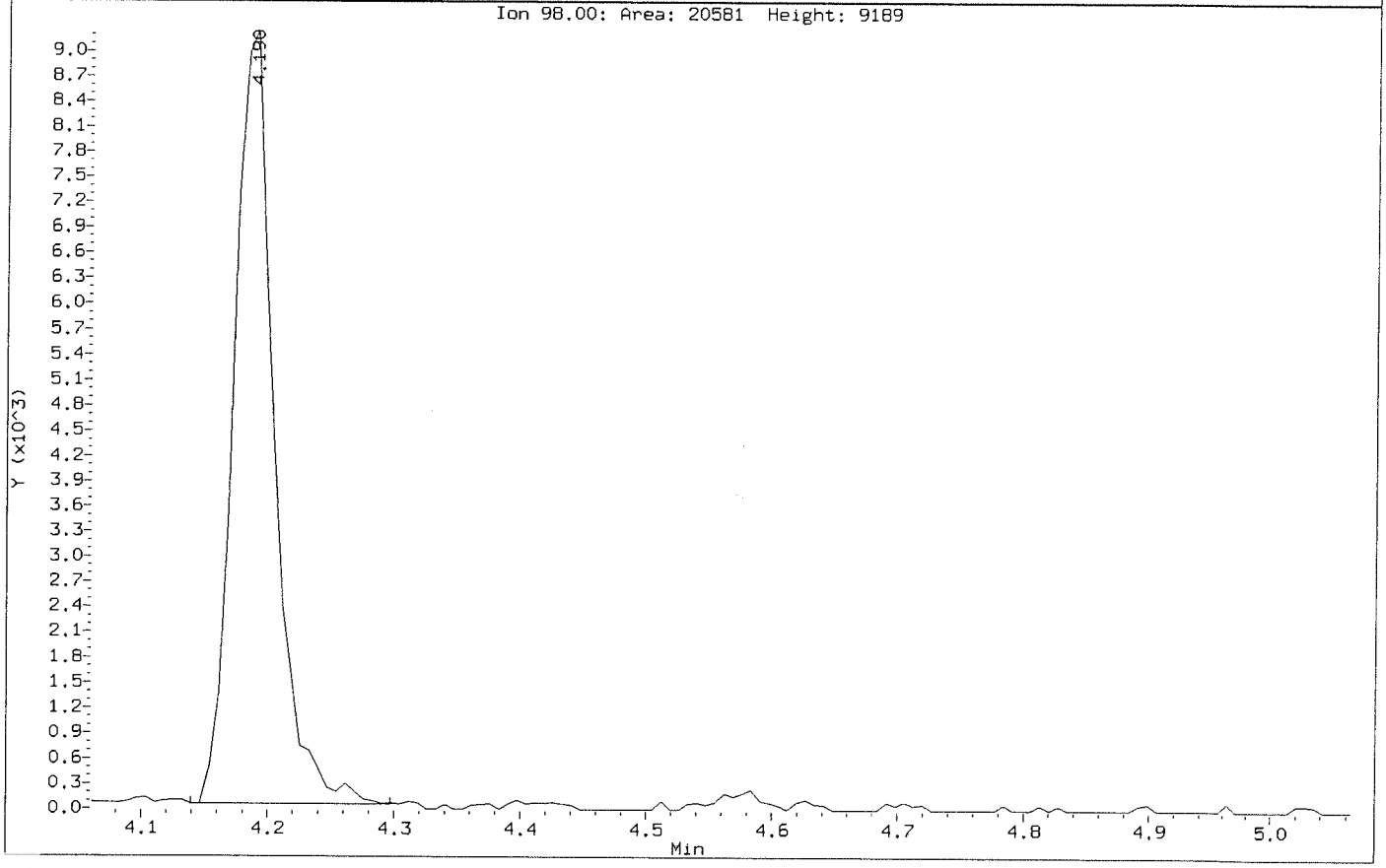




Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

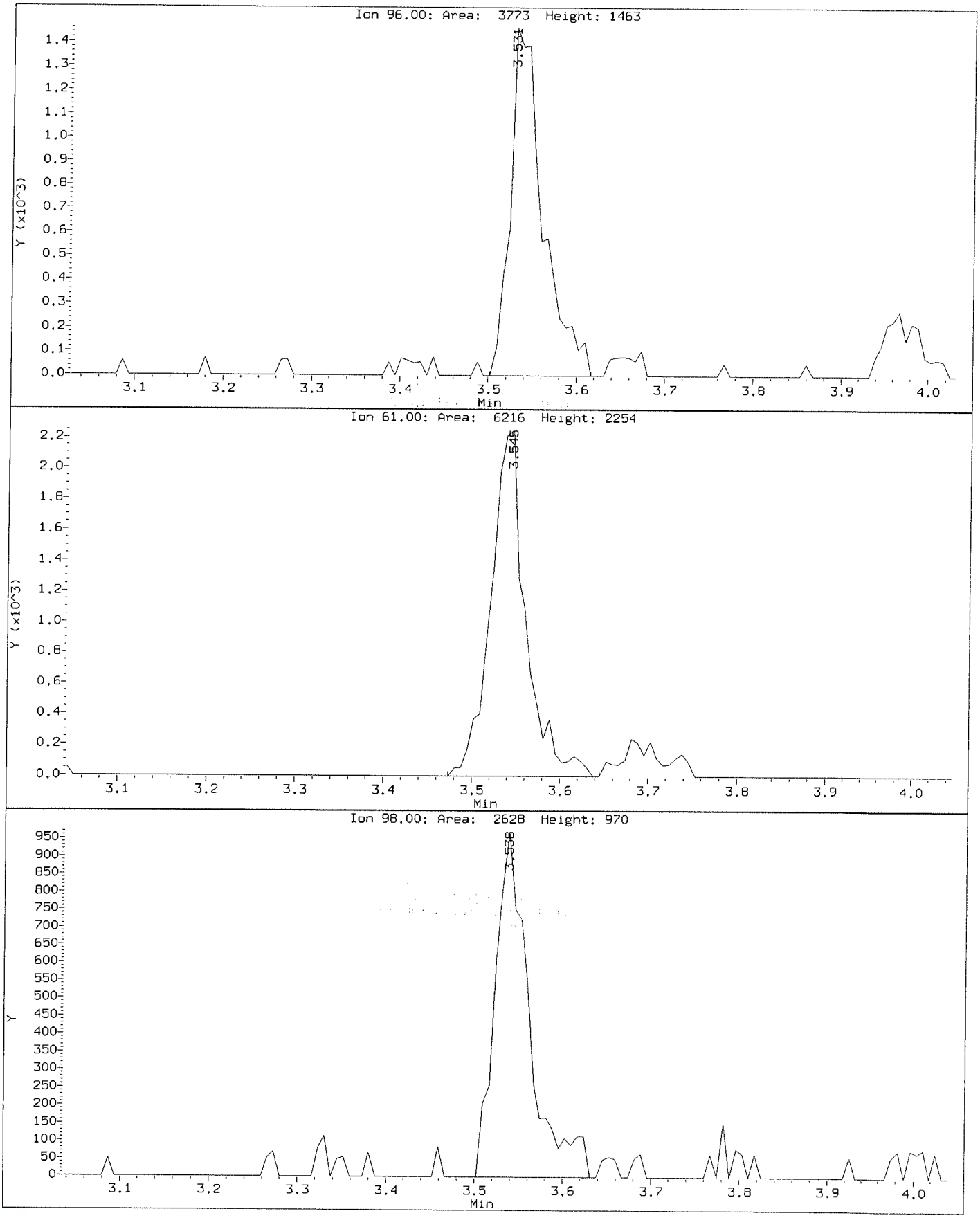
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





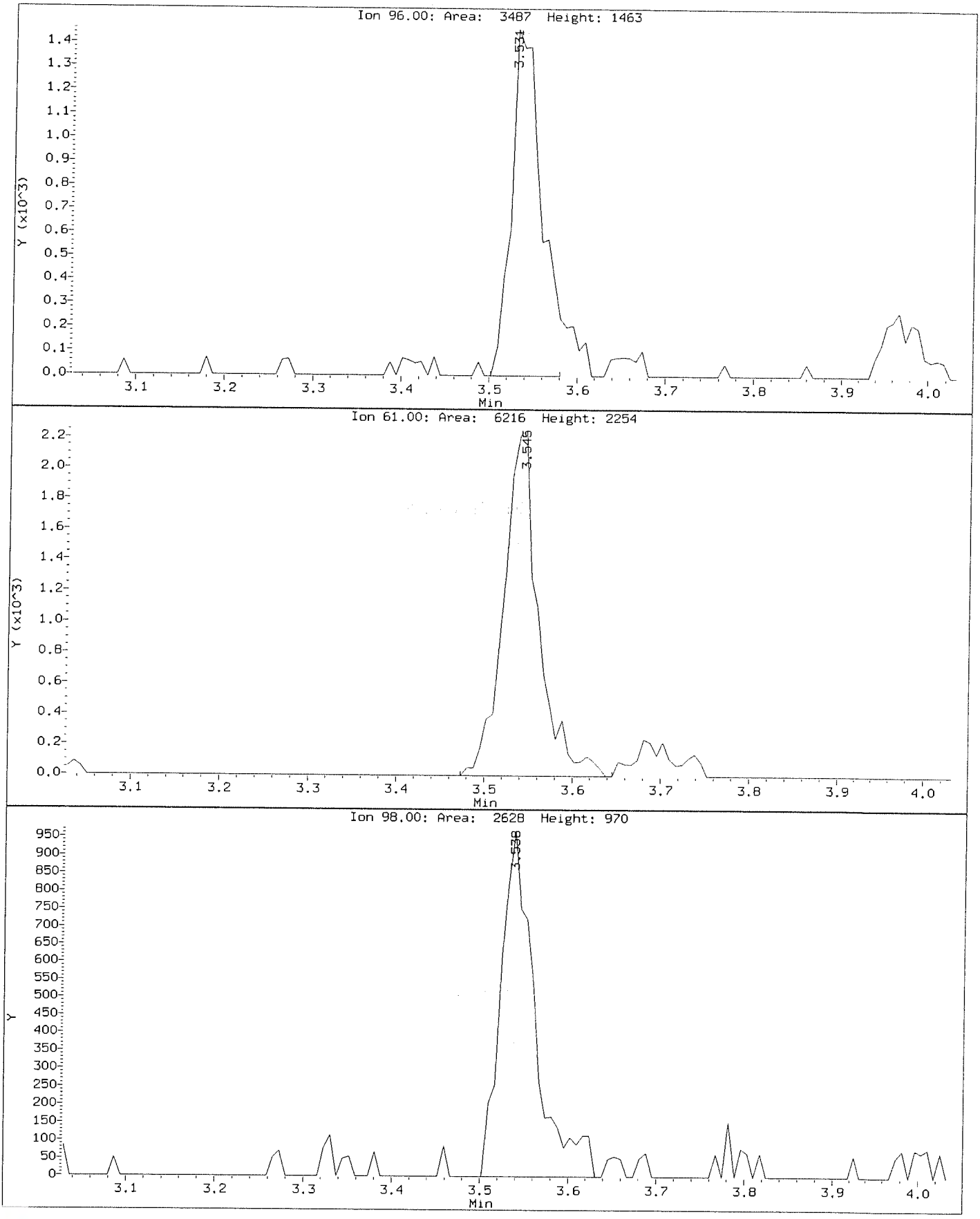
Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\Before4\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: cis-1,2-Dichloroethene
CAS Number: 156-59-2



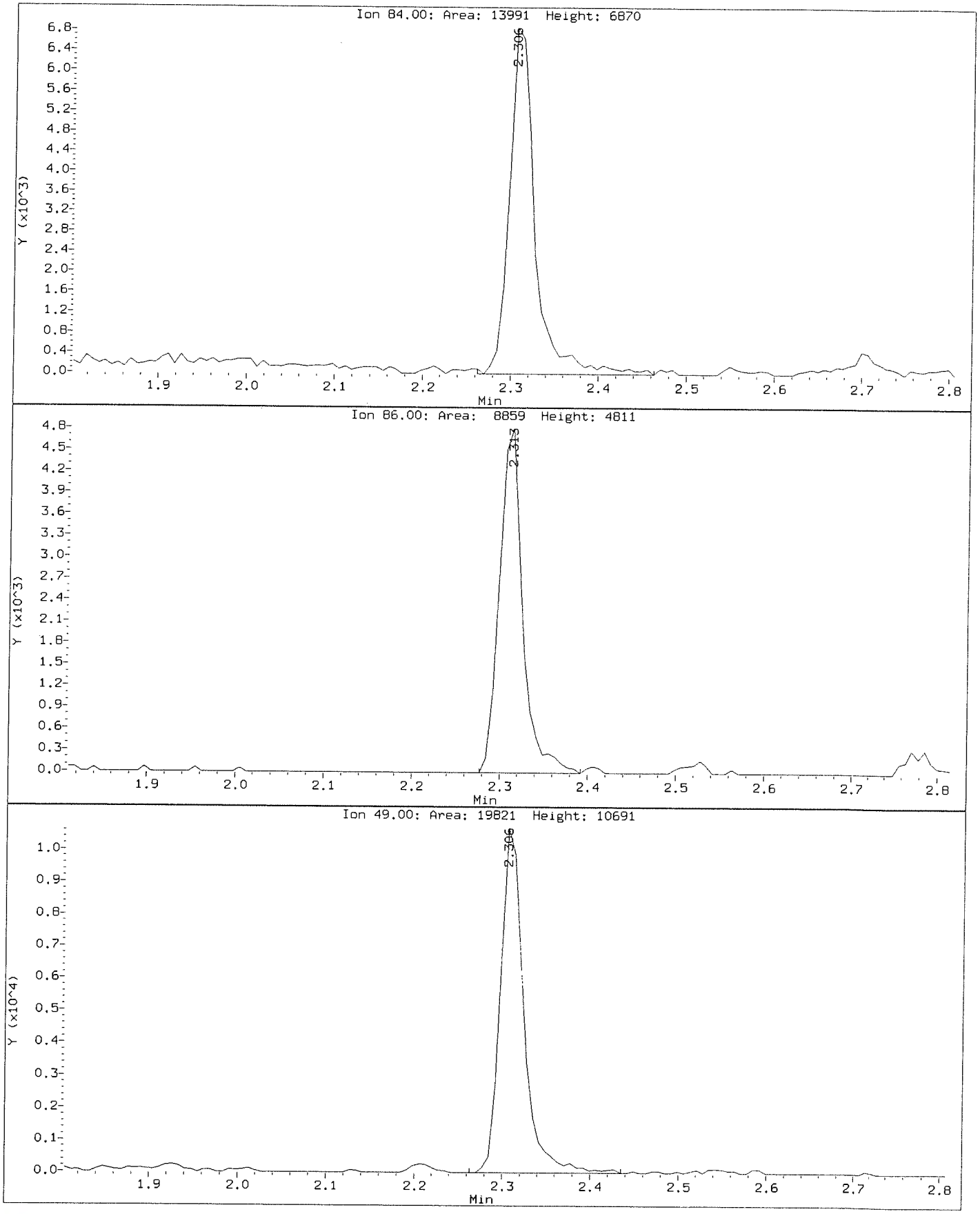
Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: cis-1,2-Dichloroethene
CAS Number: 156-59-2



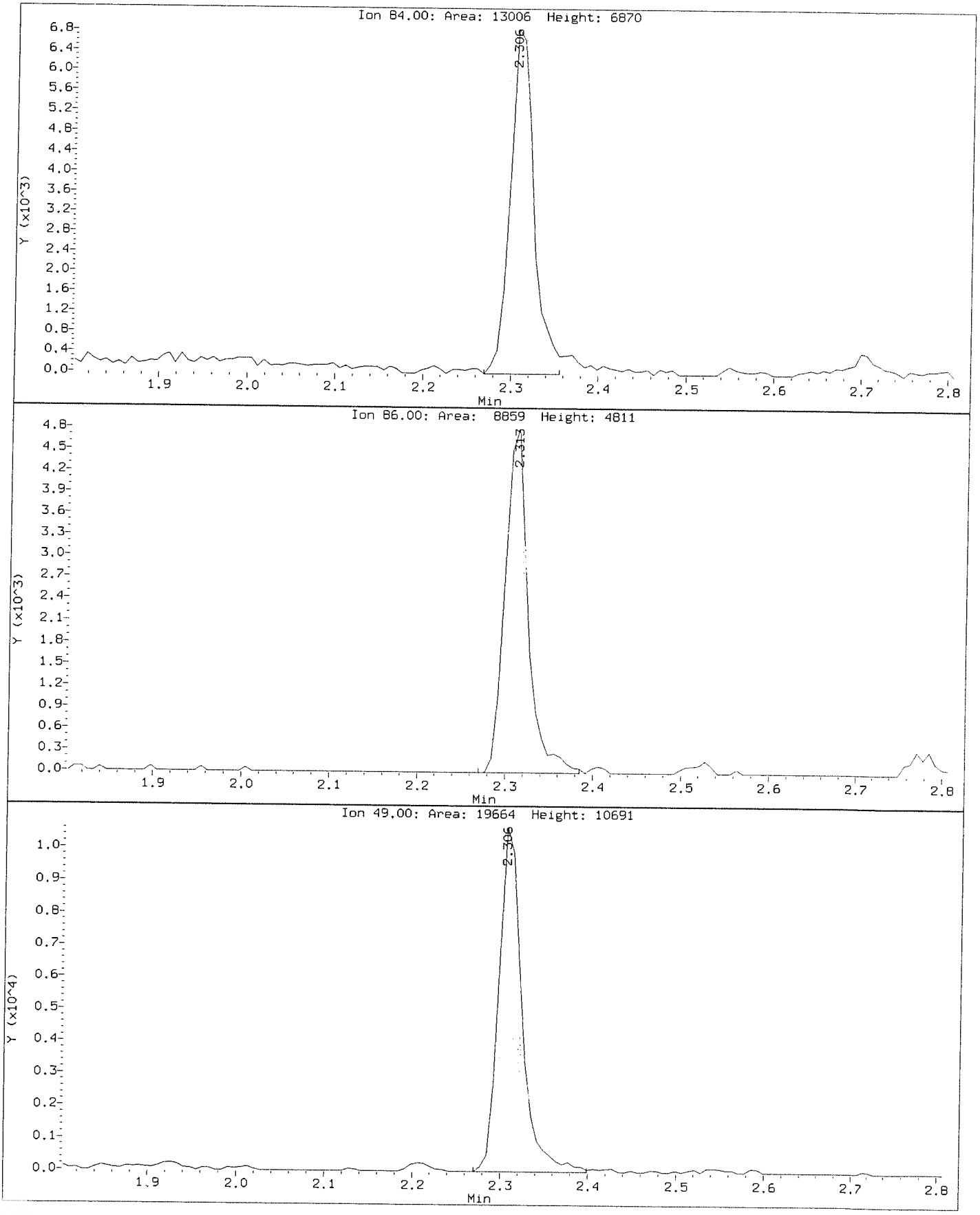
Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\Before4\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080303.D
Injection Date: 03-AUG-2020 12:04
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



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Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080305.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 03-AUG-2020 13:16
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:39 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 12:52 Cal File: X080304.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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

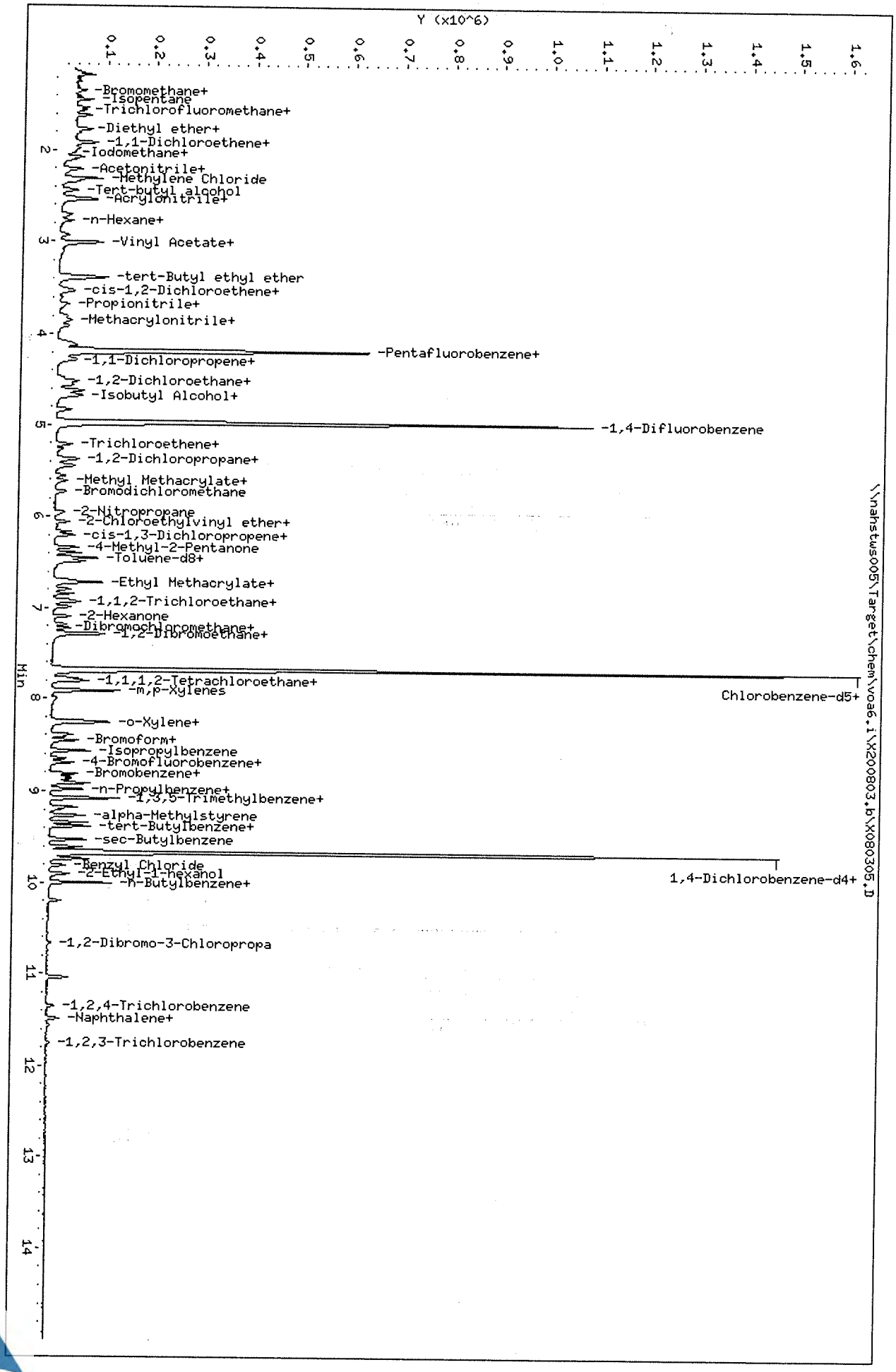
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.190	4.190	(1.000)	543911	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	829677	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	750905	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	351595	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	9821	2.00000	1.83
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	10904	2.00000	1.72
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	33751	2.00000	1.85
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	13431	2.00000	1.91
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	9338	2.00000	2.18(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	8194	2.00000	1.90(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	16305	2.00000	2.02(a)
27 cis-1,2-Dichloroethene	96	3.531	3.531	(0.843)	11409	2.00000	1.90
17 Methylene Chloride	84	2.306	2.306	(0.550)	20318	2.00000	2.34(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	11482	2.00000	1.95
5 Vinyl Chloride	62	1.145	1.145	(0.273)	12969	2.00000	1.85

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080305.D
Date : 03-AUG-2020 13:16
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



Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080306.D Page 1
Report Date: 15-Sep-2020 17:39

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Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080306.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 03-AUG-2020 13:40
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:39 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 13:16 Cal File: X080305.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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

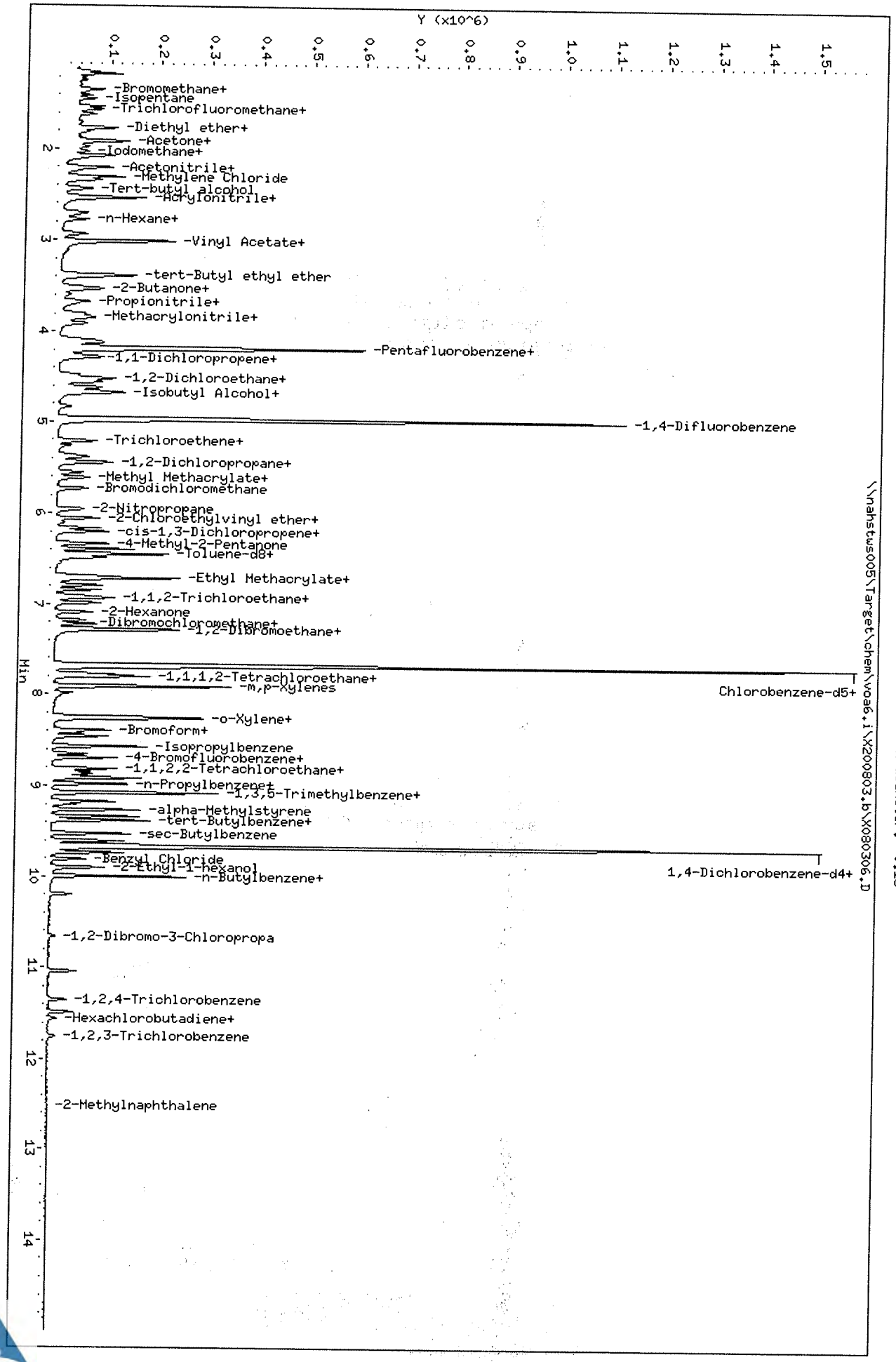
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	516466	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	799737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	721427	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	341252	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	26560	5.00000	5.23
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	31226	5.00000	5.19
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	87842	5.00000	5.01
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	32773	5.00000	4.85
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	20819	5.00000	5.07
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	18682	5.00000	4.56(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	39206	5.00000	5.06
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	28232	5.00000	4.96
17 Methylene Chloride	84	2.306	2.306	(0.550)	36047	5.00000	5.57
38 Trichloroethene	130	5.214	5.214	(1.049)	27117	5.00000	4.78
5 Vinyl Chloride	62	1.145	1.145	(0.273)	28782	5.00000	4.32

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080306.D
Date : 03-AUG-2020 13:40
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\X200803.b\X080307.D Page 1
Report Date: 15-Sep-2020 17:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080307.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 03-AUG-2020 14:04
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:40 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 13:40 Cal File: X080306.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

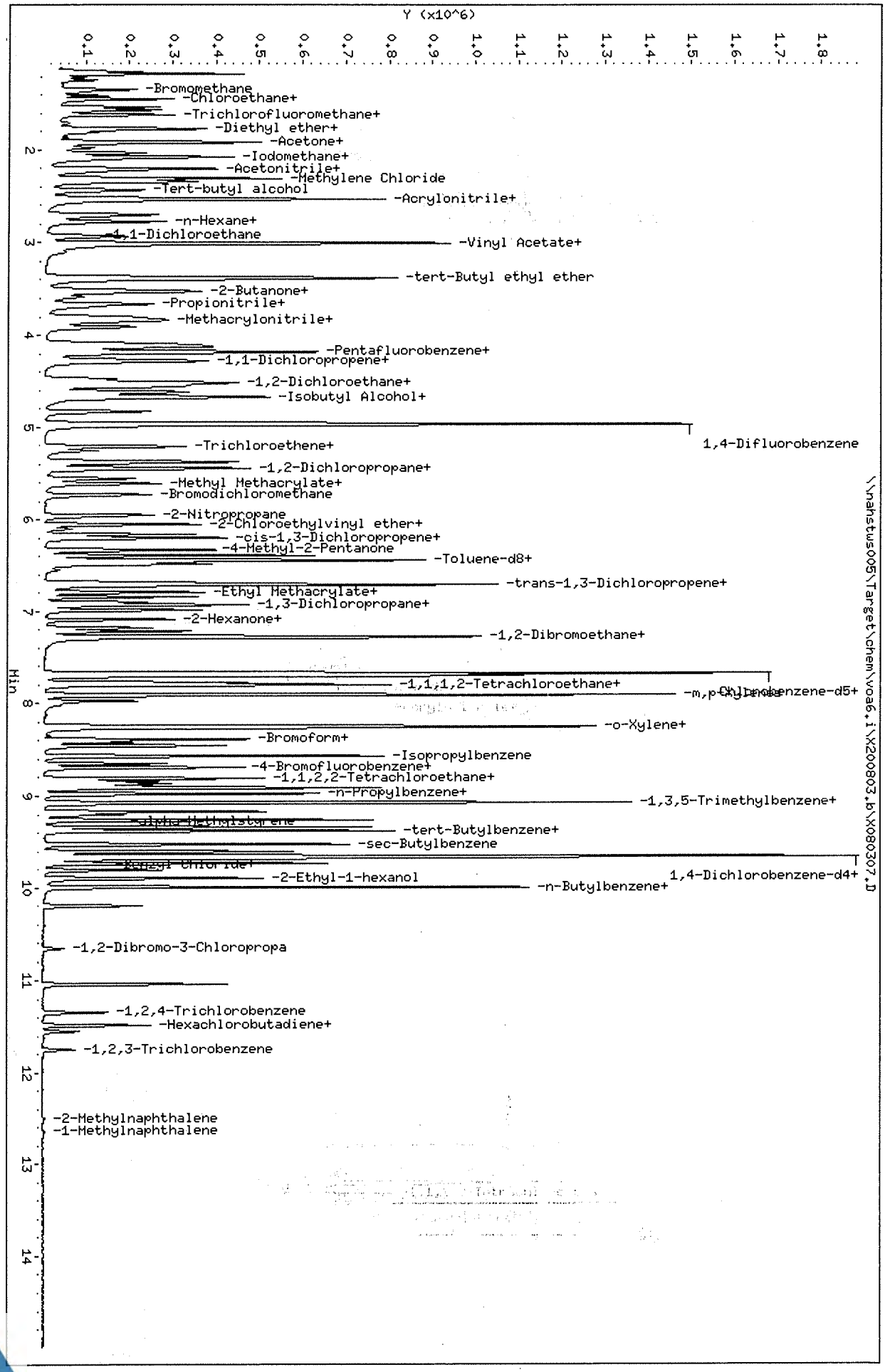
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	527399	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	802950	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	728191	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	344410	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	100526	20.0000	19.40
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	118997	20.0000	19.38
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	349779	20.0000	19.80
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	131285	20.0000	19.26
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	79259	20.0000	19.12
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	85725	20.0000	20.51
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	151794	20.0000	19.52
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	114120	20.0000	19.65
17 Methylene Chloride	84	2.306	2.306	(0.550)	113086	20.0000	19.99
38 Trichloroethene	130	5.214	5.214	(1.049)	113040	20.0000	19.86
5 Vinyl Chloride	62	1.145	1.145	(0.273)	133473	20.0000	19.66

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080307.D
Date : 03-AUG-2020 14:04
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\X200803.b\X080308.D Page 1
Report Date: 15-Sep-2020 17:40

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Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080308.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 03-AUG-2020 14:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:40 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:04 Cal File: X080307.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

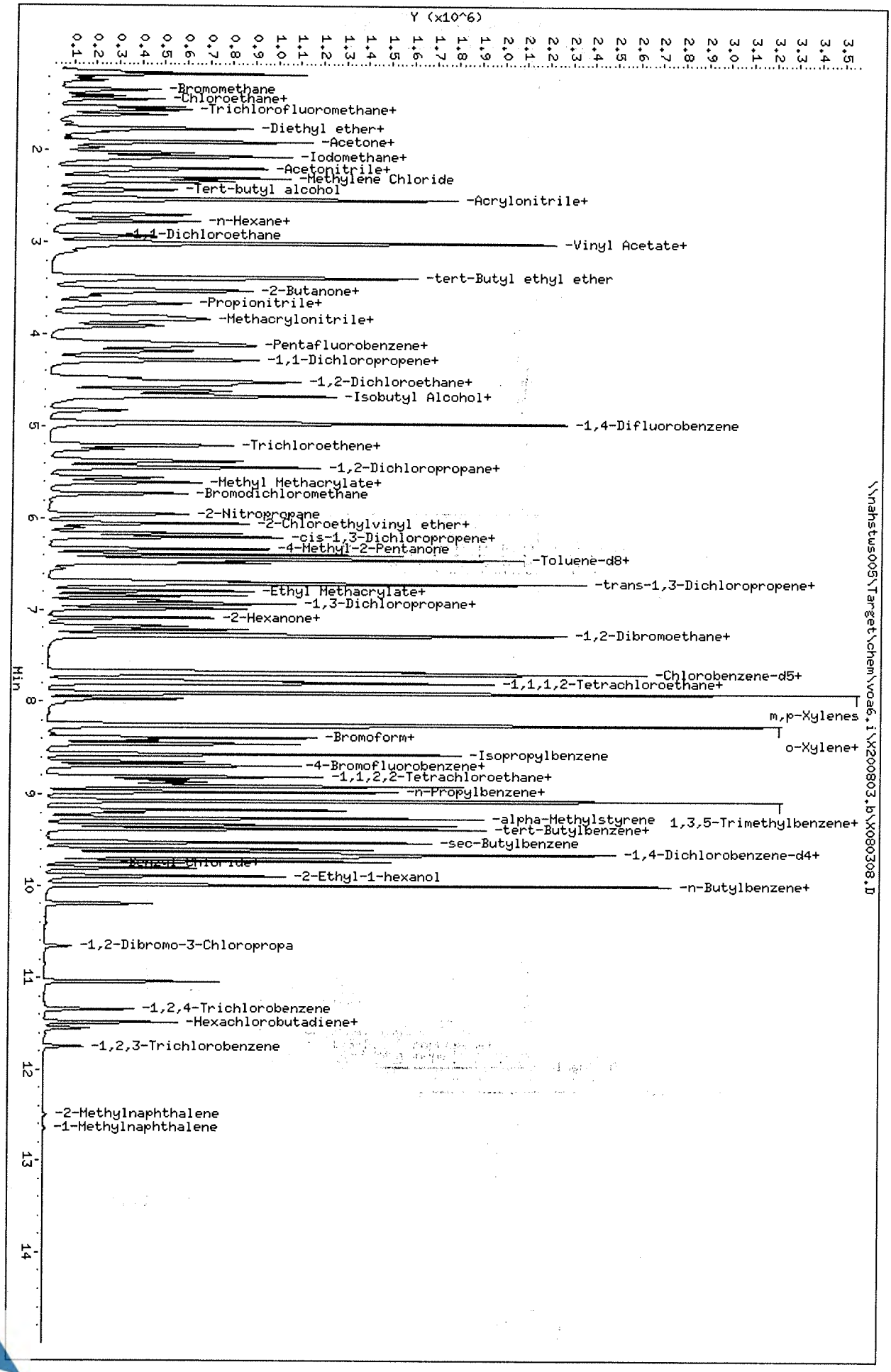
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	511920	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	771177	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	702771	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	336517	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	239584	50.0000	47.65
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	283572	50.0000	47.58
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	830682	50.0000	48.73
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	313797	50.0000	47.71
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	188669	50.0000	47.18
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	203794	50.0000	50.24
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	363525	50.0000	48.68
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	270912	50.0000	48.07
17 Methylene Chloride	84	2.306	2.306	(0.550)	256910	50.0000	48.65
38 Trichloroethene	130	5.207	5.207	(1.048)	272294	50.0000	49.82
5 Vinyl Chloride	62	1.145	1.145	(0.273)	331269	50.0000	50.27

Data File: \\nahstus005\Target\chem\voa6.i\X200803.b\X080308.D
Date : 03-AUG-2020 14:28
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



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Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080309.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 03-AUG-2020 14:52
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:40 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

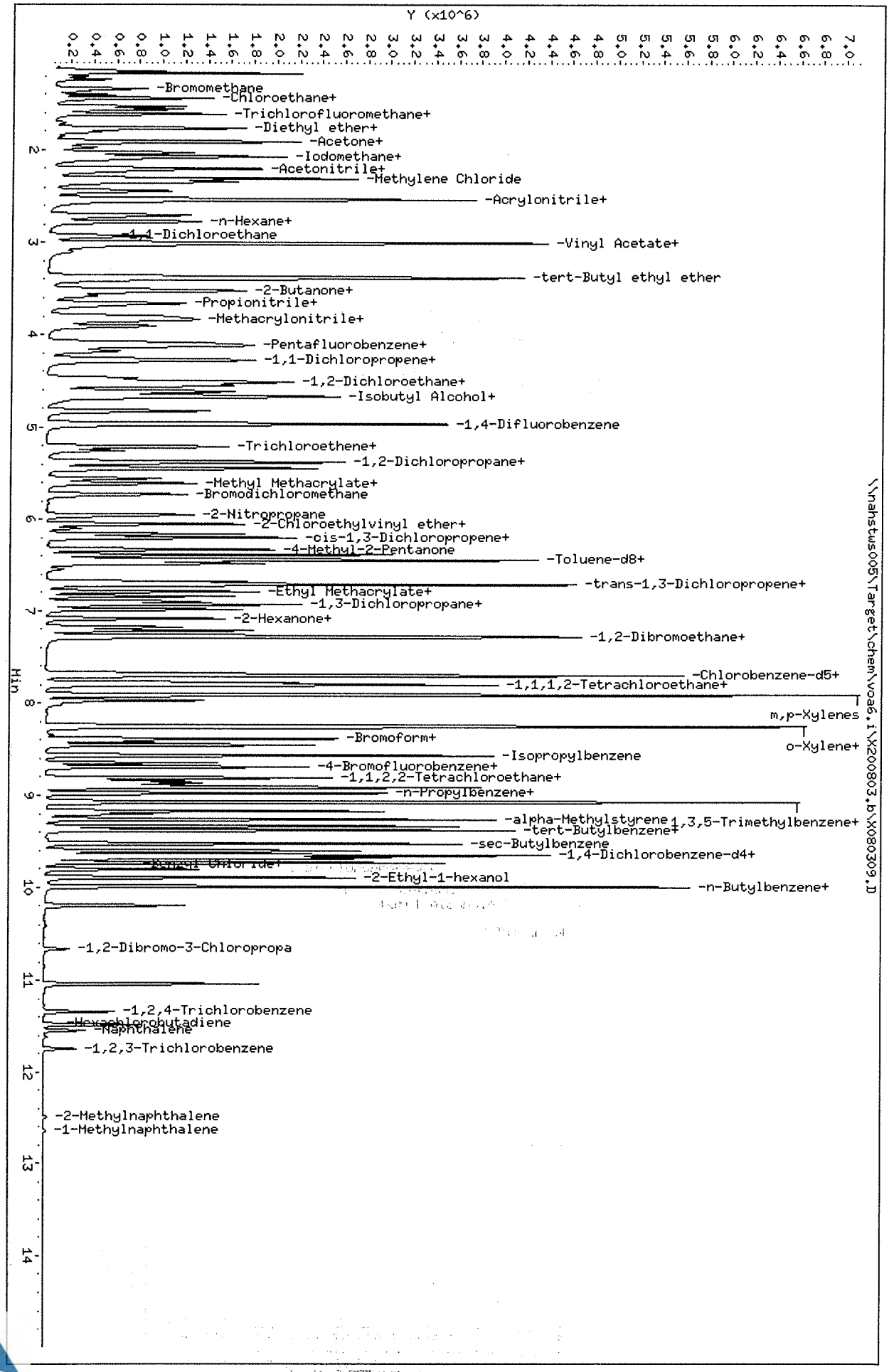
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	486833	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	732825	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	684816	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	323663	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	473016	100.000	98.93
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	567807	100.000	100.19
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1639713	100.000	98.71
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	621420	100.000	96.97
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	371422	100.000	95.31
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	399194	100.000	103.48
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	709131	100.000	99.94
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	527504	100.000	98.43
17 Methylene Chloride	84	2.305	2.305	(0.550)	487953	100.000	98.54
38 Trichloroethene	130	5.214	5.214	(1.049)	540855	100.000	104.13
5 Vinyl Chloride	62	1.145	1.145	(0.273)	656263	100.000	104.72

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080309.D
Date : 03-AUG-2020 14:52
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



Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080310.D Page 1
Report Date: 15-Sep-2020 17:40

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Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080310.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 03-AUG-2020 15:16
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:40 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:52 Cal File: X080309.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Houll.sub
Target Version: 4.14
Processing Host: NAHSTW7056

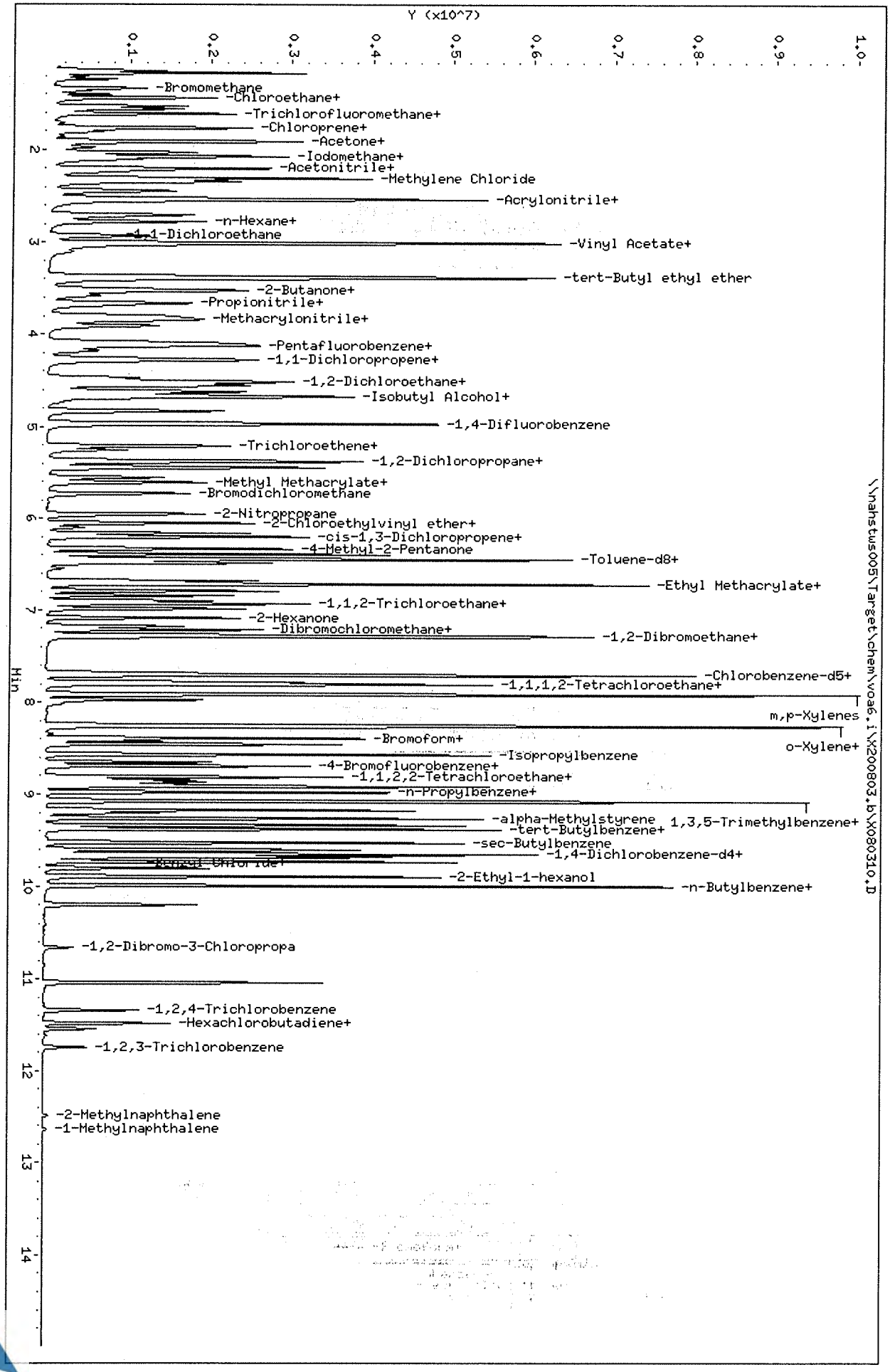
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	457081	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	697946	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	658557	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	308838	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	673356	150.000	150.01
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	814725	150.000	153.12
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2334447	150.000	146.14
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	886803	150.000	143.91
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	538173	150.000	143.61
11 1,1-Dichloroethene	96	1.912	1.912	(0.456)	571714	150.000	157.86
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1020218	150.000	150.97
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	755671	150.000	150.19
17 Methylene Chloride	84	2.306	2.306	(0.550)	693942	150.000	149.97
38 Trichloroethene	130	5.214	5.214	(1.049)	766453	150.000	154.95
5 Vinyl Chloride	62	1.145	1.145	(0.273)	956993	150.000	162.65

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080310.D
Date : 03-AUG-2020 15:16
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



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080311.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 03-AUG-2020 15:40
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:40 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 15:16 Cal File: X080310.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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

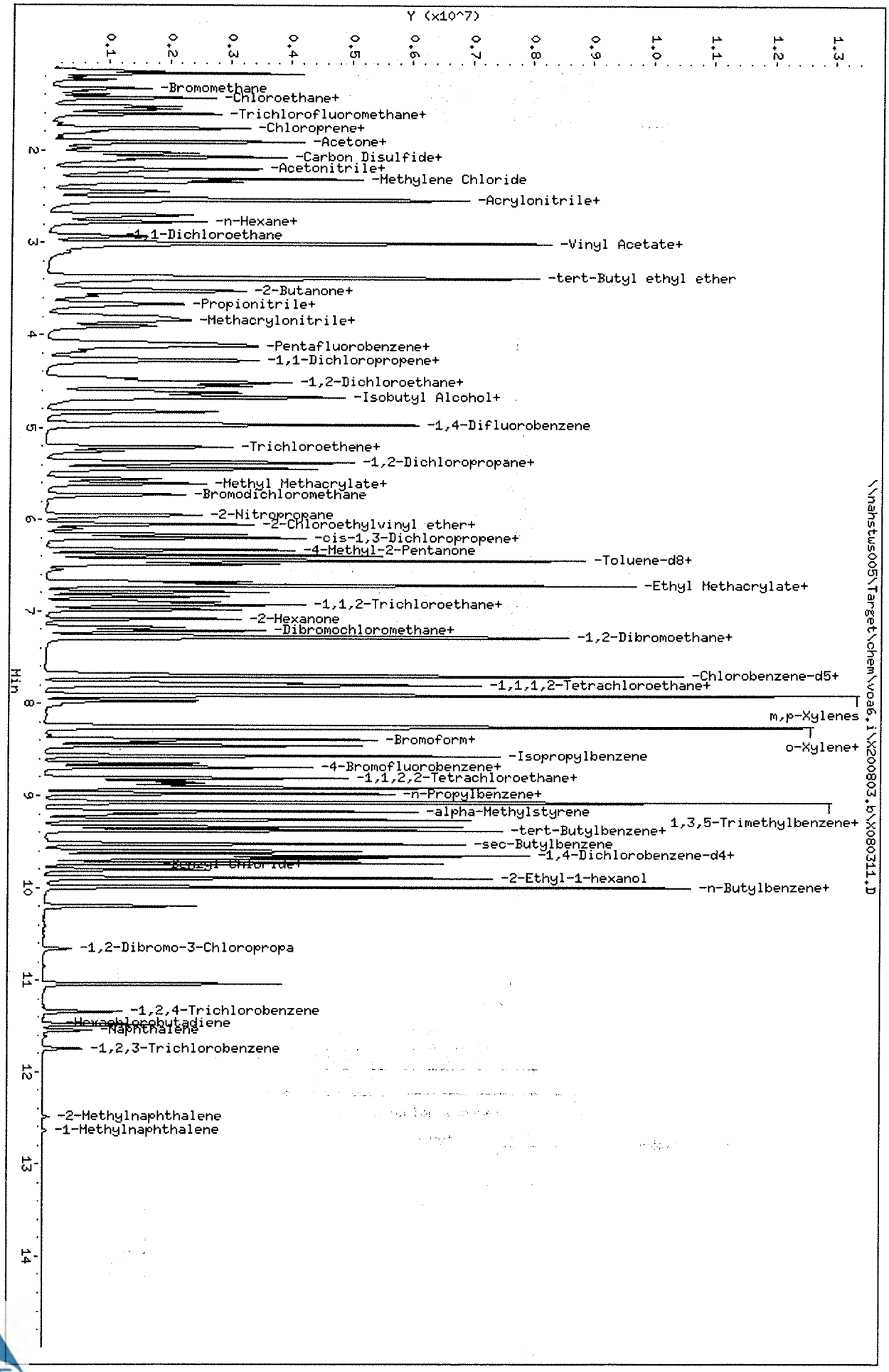
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	450865	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	691821	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	647390	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	303189	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	891470	200.000	201.34(A)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	1069168	200.000	203.72(A)
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	3098306	200.000	197.30
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	1172448	200.000	193.54
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	709380	200.000	192.57
11 1,1-Dichloroethene	96	1.912	1.912	(0.456)	760300	200.000	212.82(A)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1348617	200.000	201.33(A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	1003656	200.000	202.23(A)
17 Methylene Chloride	84	2.306	2.306	(0.550)	915440	200.000	201.03(A)
38 Trichloroethene	130	5.207	5.207	(1.048)	1027730	200.000	209.61(A)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1294651	200.000	223.07(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080311.D
Date : 03-AUG-2020 15:40
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\X200803.b\X080314.D Page 1
Report Date: 15-Sep-2020 17:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200803.b\X080314.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 03-AUG-2020 16:51
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200803.b\8260W.m
Meth Date : 15-Sep-2020 17:40 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 15:40 Cal File: X080311.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

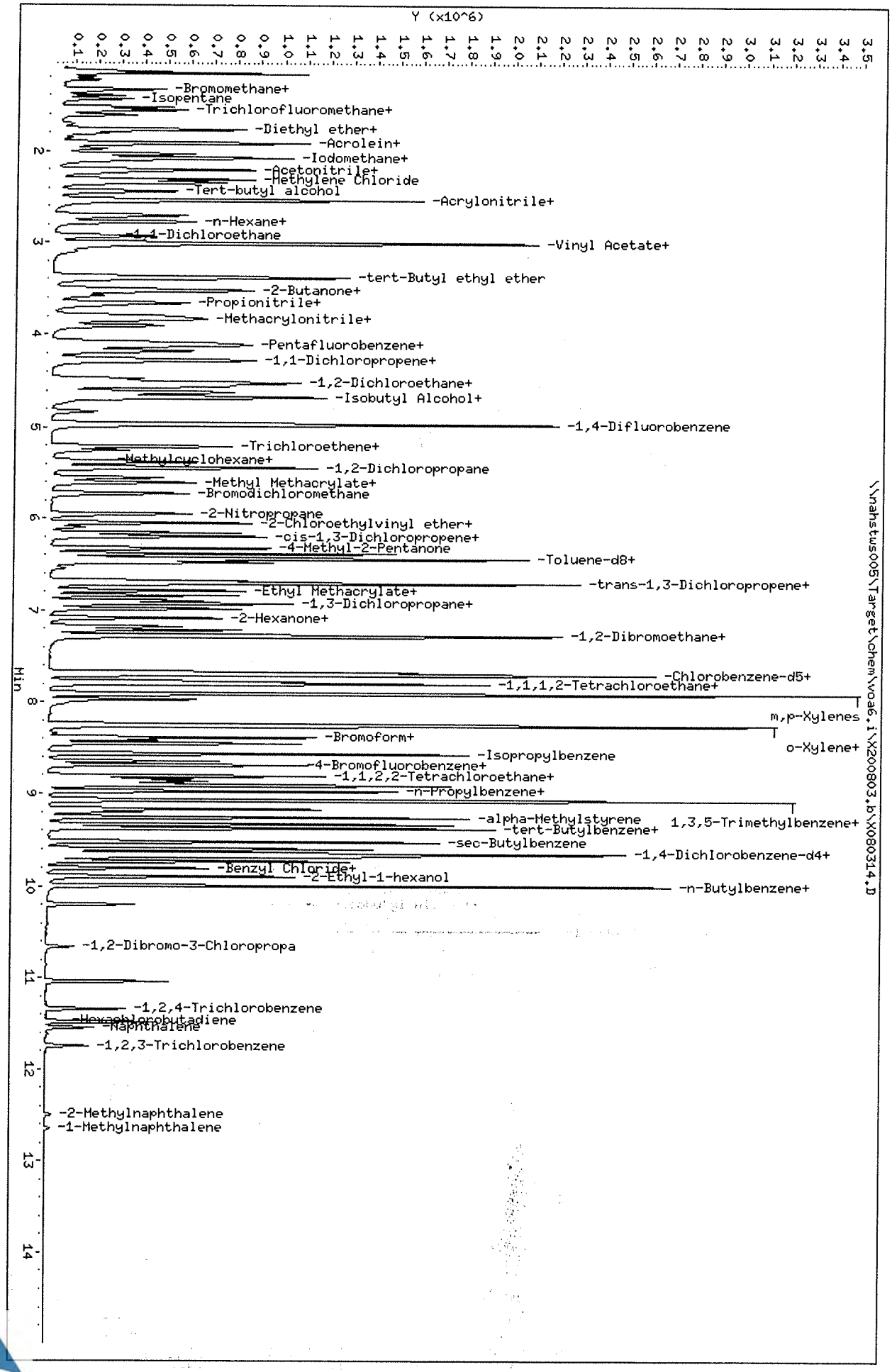
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	487811	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	737194	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	676175	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	325984	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	235982	49.2610	49.26
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	277053	48.7922	48.79
$ 48 Toluene-d8	98	6.388	6.389	(0.833)	810392	49.4111	49.41
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	309544	48.9242	48.92
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	183527	47.7003	47.70
11 1,1-Dichloroethene	96	1.919	1.912	(0.458)	198134	51.2626	51.26
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	349700	48.9941	48.99
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	262524	48.8914	48.89
17 Methylene Chloride	84	2.305	2.306	(0.550)	246540	49.0057	49.00
38 Trichloroethene	130	5.214	5.207	(1.049)	264166	50.5627	50.56
5 Vinyl Chloride	62	1.145	1.145	(0.273)	318745	50.7622	50.76

Data File: \\nahstws005\Target\chem\voa6.i\X200803.b\X080314.D
Date : 03-AUG-2020 16:51
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



MSVOA06 -Logbook

Batch: 41506 **Analyst:** Presenta Cabascango
Date: 08-19-2020 **Reviewer:**
Method: 8260 **Laboratory:** Houston
Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	08-19-2020 09:40 am	1.00	50 mL	50 mL	X081901a.D	Liquid	Y	NA
	Auto find/ purged									
2	BFB	TUNE	08-19-2020 10:04 am	1.00	50 mL	50 mL	X081902.D	Liquid	Y	NA
	Auto find/ purged									
3	CCV	CCV	08-19-2020 10:28 am	1.00	50 mL	50 mL	X081903.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	08-19-2020 10:52 am	1.00	50 mL	50 mL	X081904.D	Liquid	Y	NA
5	VLCSW-200819	LCS	08-19-2020 11:16 am	1.00	50 mL	50 mL	X081905.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLANK	SAMP	08-19-2020 11:40 am	1.00	50 mL	50 mL	X081906.D	Liquid	Y	NA
7	VBLKW-200819	MBLK	08-19-2020 12:04 pm	1.00	50 mL	50 mL	X081907.D	Liquid	Y	NA
8	HS20080738-03	SAMP	08-19-2020 12:28 pm	1.00	50 mL	50 mL	X081908.D	Liquid	Y	<2
9	HS20080738-02	SAMP	08-19-2020 12:52 pm	1.00	50 mL	50 mL	X081909.D	Liquid	Y	<2
10	HS20080738-01	SAMP	08-19-2020 01:16 pm	5.00	10 mL	50 mL	X081910.D	Liquid	Y	<2
11	HS20080738-02MS	MS	08-19-2020 01:40 pm	1.00	50 mL	50 mL	X081911.D	Liquid	Y	<2
	3.5 uL cal std/50 mL DI									
12	HS20080738-02MSD	MSD	08-19-2020 02:04 pm	1.00	50 mL	50 mL	X081912.D	Liquid	Y	<2
	3.5 uL cal std/50 mL DI									
13	HS20080738-01	SAMP	08-19-2020 02:28 pm	50.00	1 mL	50 mL	X081913.D	Liquid	Y	<2
14	HS20080614-06	SAMP	08-19-2020 02:52 pm	1.00	50 mL	50 mL	X081914.D	Liquid	Y	<2
15	HS20080737-11	SAMP	08-19-2020 03:16 pm	1.00	50 mL	50 mL	X081915.D	Liquid	Y	<2
16	MBLK-156479	MBLK	08-19-2020 03:40 pm	20.00	2.5 mL	50 mL	X081916.D	Liquid	Y	<2
	tclps									
17	HS20080741-02	SAMP	08-19-2020 04:05 pm	20.00	2.5 mL	50 mL	X081917.D	Liquid	Y	<2
18	HS20080741-03	SAMP	08-19-2020 04:29 pm	20.00	2.5 mL	50 mL	X081918.D	Liquid	Y	<2
19	HS20080741-06	SAMP	08-19-2020 04:53 pm	20.00	2.5 mL	50 mL	X081919.D	Liquid	Y	<2
20	HS20080741-04	SAMP	08-19-2020 05:17 pm	50.00	1 mL	50 mL	X081920.D	Liquid	Y	<2
21	HS20080741-07	SAMP	08-19-2020 05:41 pm	500.0(	100 µL	50 mL	X081921.D	Liquid	Y	<2
22	HS20080760-01	SAMP	08-19-2020 06:05 pm	500.0(	100 µL	50 mL	X081922.D	Liquid	Y	<2
23	CCVEND	CCV	08-19-2020 06:29 pm	1.00	50 mL	50 mL	X081923.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
24	HS20080737-01	SAMP	08-19-2020 06:53 pm	1.00	50 mL	50 mL	X081924.D	Liquid	Y	<2
25	HS20080737-02	SAMP	08-19-2020 07:17 pm	1.00	50 mL	50 mL	X081925.D	Liquid	Y	<2
26	MBLK-156478	MBLK	08-19-2020 07:41 pm	20.00	2.5 mL	50 mL	X081926.D	Liquid	Y	<2
	TCLPS									
27	HS20080716-01	SAMP	08-19-2020 08:05 pm	20.00	2.5 mL	50 mL	X081927.D	Liquid	Y	<2
28	HS20080717-01	SAMP	08-19-2020 08:29 pm	20.00	2.5 mL	50 mL	X081928.D	Liquid	Y	<2
29	HS20080615-09	SAMP	08-19-2020 08:53 pm	1.00	50 mL	50 mL	X081929.D	Liquid	Y	<2
30	HS20080615-10	SAMP	08-19-2020 09:17 pm	1.00	50 mL	50 mL	X081930.D	Liquid	Y	<2
31	HS20080615-11	SAMP	08-19-2020 09:41 pm	1.00	50 mL	50 mL	X081931.D	Liquid	Y	<2
32	BFB	TUNE	08-19-2020 10:05 pm	1.00	50 mL	50 mL	Y081901.D	Liquid	Y	na
	Auto find/ purged									
33	CCV	CCV	08-19-2020 10:29 pm	1.00	50 mL	50 mL	Y081902a.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
34	CCV	CCV	08-19-2020 10:53 pm	1.00	50 mL	50 mL	Y081903.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
35	CCB	SAMP	08-19-2020 11:17 pm	1.00	50 mL	50 mL	Y081904.D	Liquid	Y	na

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	VLCSW-200819	LCS	08-19-2020 11:41 pm	1.00	50 mL	50 mL	Y081905.D	Liquid	Y	na
	4.0 uL cal std/50 mL DI									
37	BLANK	SAMP	08-20-2020 12:05 am	1.00	50 mL	50 mL	Y081906.D	Liquid	Y	na
38	VBLKW-200819	MBLK	08-20-2020 12:29 am	1.00	50 mL	50 mL	Y081907.D	Liquid	Y	na
39	HS20080616-29	SAMP	08-20-2020 12:53 am	1.00	50 mL	50 mL	Y081908.D	Liquid	Y	<2
40	HS20080616-30	SAMP	08-20-2020 01:17 am	1.00	50 mL	50 mL	Y081909.D	Liquid	Y	<2
41	HS20080737-03	SAMP	08-20-2020 01:41 am	1.00	50 mL	50 mL	Y081910.D	Liquid	Y	<2
42	HS20080615-02	SAMP	08-20-2020 02:05 am	1.00	50 mL	50 mL	Y081911.D	Liquid	Y	<2
43	HS20080737-03MS	MS	08-20-2020 02:29 am	1.00	50 mL	50 mL	Y081912.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
44	HS20080737-03MSD	MSD	08-20-2020 02:53 am	1.00	50 mL	50 mL	Y081913.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
45	HS20080615-04	SAMP	08-20-2020 03:18 am	5.00	10 mL	50 mL	Y081914.D	Liquid	Y	<2
46	HS20080615-12	SAMP	08-20-2020 03:42 am	5.00	10 mL	50 mL	Y081915.D	Liquid	Y	<2
47	HS20080615-01	SAMP	08-20-2020 04:06 am	5.00	10 mL	50 mL	Y081916.D	Liquid	Y	<2
48	HS20080662-01	SAMP	08-20-2020 04:30 am	50.00	1 mL	50 mL	Y081917.D	Liquid	Y	<2
49	HS20080616-24	SAMP	08-20-2020 04:54 am	1.00	50 mL	50 mL	Y081918.D	Liquid	Y	<2
50	HS20080616-20	SAMP	08-20-2020 05:18 am	1.00	50 mL	50 mL	Y081919.D	Liquid	Y	<2
51	HS20080616-04	SAMP	08-20-2020 05:42 am	10.00	5 mL	50 mL	Y081920.D	Liquid	Y	<2
52	HS20080616-04	SAMP	08-20-2020 06:06 am	100.0(	500 µL	50 mL	Y081921.D	Liquid	Y	<2
53	HS20080616-08	SAMP	08-20-2020 06:30 am	10.00	5 mL	50 mL	Y081922.D	Liquid	Y	<2
54	HS20080616-08	SAMP	08-20-2020 06:54 am	100.0(	500 µL	50 mL	Y081923.D	Liquid	Y	<2
55	HS20080616-12	SAMP	08-20-2020 07:18 am	10.00	5 mL	50 mL	Y081924.D	Liquid	Y	<2
56	HS20080616-12	SAMP	08-20-2020 07:42 am	100.0(	500 µL	50 mL	Y081925.D	Liquid	Y	<2
57	HS20080616-16	SAMP	08-20-2020 08:07 am	10.00	5 mL	50 mL	Y081926.D	Liquid	Y	<2
58	HS20080616-16	SAMP	08-20-2020 08:31 am	100.0(	500 µL	50 mL	Y081927.D	Liquid	Y	<2
59	HS20080616-28	SAMP	08-20-2020 08:55 am	10.00	5 mL	50 mL	Y081928.D	Liquid	Y	<2
60	HS20080616-28	SAMP	08-20-2020 09:19 am	50.00	1 mL	50 mL	Y081929.D	Liquid	Y	<2
61	BLANK	SAMP	08-20-2020 09:43 am	1.00	50 mL	50 mL	Y081930.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	31106-42-06
IS ID	31106-42-06
CAL STD ID	31106-43-01/02
BFB ID	31106-42-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-200819	95	93	97	94	0
02	VBLKW-200819	92	88	106	95	0
03	HS20080738-03	92	88	107	98	0
04	HS20080738-02	92	88	106	96	0
05	HS20080738-01	92	88	105	95	0
06	HS20080738-02	94	90	105	96	0
07	HS20080738-02	92	88	105	96	0
08	HS20080738-01	94	90	105	97	0
09						
10						
11						
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27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(0-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200819

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Lab File ID: X081907 Lab Sample ID: VBLKW-200819

Date Analyzed: 08/19/20 Time Analyzed: 1204

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-200819	VLCSW-200819	X081905	1116
02	HS20080738-0	HS20080738-03	X081908	1228
03	HS20080738-0	HS20080738-02	X081909	1252
04	HS20080738-0	HS20080738-01	X081910	1316
05	HS20080738-0	HS20080738-02M	X081911	1340
06	HS20080738-0	HS20080738-02M	X081912	1404
07	HS20080738-0	HS20080738-01	X081913	1428
08				
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COMMENTS:

FORM IV VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Lab File ID: X081902 BFB Injection Date: 08/19/20

Instrument ID: VOA6 BFB Injection Time: 1004

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.1
75	30.0 - 60.0% of mass 95	47.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.4 (0.6)1
174	Greater than 50.0% of mass 95	66.6
175	5.0 - 9.0% of mass 174	5.3 (7.9)1
176	95.0 - 101.0% of mass 174	63.8 (95.7)1
177	5.0 - 9.0% of mass 176	4.9 (7.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X081903	08/19/20	1028
02	VLCSW-200819	VLCSW-200819	X081905	08/19/20	1116
03	VBLKW-200819	VBLKW-200819	X081907	08/19/20	1204
04	HS20080738-0	HS20080738-03	X081908	08/19/20	1228
05	HS20080738-0	HS20080738-02	X081909	08/19/20	1252
06	HS20080738-0	HS20080738-01	X081910	08/19/20	1316
07	HS20080738-0	HS20080738-02M	X081911	08/19/20	1340
08	HS20080738-0	HS20080738-02M	X081912	08/19/20	1404
09	HS20080738-0	HS20080738-01	X081913	08/19/20	1428
10	CCV	CCV	X081923	08/19/20	1829
11					
12					
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15					
16					
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18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Instrument ID: VOA6 Calibration Date: 08/19/20 Time: 1028

Lab File ID: X081903 Init. Calib. Date(s): 08/03/20 08/03/20

Init. Calib. Times: 1140 1540

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6440000	0.6635682	0.6635682	0.1	-3.04	20.00	AVRG
Methylene Chloride	51.554646	50.000000	0.5309686	0.1	-3.11	20.00	LINR
1,1-Dichloroethene	0.3960000	0.4232992	0.4232992	0.1	-6.89	20.00	AVRG
1,2-Dichloroethane	0.4840000	0.4943643	0.4943643	0.1	-2.14	20.00	AVRG
cis-1,2-Dichloroethene	0.5500000	0.5865755	0.5865755	0.1	-6.65	20.00	AVRG
1,1,2-Trichloroethane	0.2840000	0.2894213	0.2894213	0.1	-1.91	20.00	AVRG
Trichloroethene	0.3540000	0.3735020	0.3735020	0.2	-5.51	20.00	AVRG
Dibromofluoromethane	0.4910000	0.4750881	0.4750881	0.1	3.24	20.00	AVRG
1,2-Dichloroethane-d4	0.5820000	0.5457437	0.5457437	0.1	6.23	20.00	AVRG
Toluene-d8	1.2130000	1.1962114	1.1962114	0.1	1.38	20.00	AVRG
4-Bromofluorobenzene	0.4680000	0.4429474	0.4429474	0.1	5.35	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Instrument ID: VOA6 Calibration Date: 08/19/20 Time: 1829

Lab File ID: X081923 Init. Calib. Date(s): 08/03/20 08/03/20

Init. Calib. Times: 1140 1540

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6440000	0.6000835	0.6000835	0.1	6.82	50.00	AVRG
Methylene Chloride	49.740194	50.000000	0.5127679	0.1	0.52	50.00	LINR
1,1-Dichloroethene	0.3960000	0.3844195	0.3844195	0.1	2.92	50.00	AVRG
1,2-Dichloroethane	0.4840000	0.4533787	0.4533787	0.1	6.33	50.00	AVRG
cis-1,2-Dichloroethene	0.5500000	0.5455258	0.5455258	0.1	0.81	50.00	AVRG
1,1,2-Trichloroethane	0.2840000	0.2699129	0.2699129	0.1	4.96	50.00	AVRG
Trichloroethene	0.3540000	0.3311159	0.3311159	0.2	6.46	50.00	AVRG
Dibromofluoromethane	0.4910000	0.4938617	0.4938617	0.1	-0.58	50.00	AVRG
1,2-Dichloroethane-d4	0.5820000	0.5646397	0.5646397	0.1	2.98	50.00	AVRG
Toluene-d8	1.2130000	1.1976533	1.1976533	0.1	1.26	50.00	AVRG
4-Bromofluorobenzene	0.4680000	0.4501389	0.4501389	0.1	3.82	50.00	AVRG

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Lab File ID (Standard): X081903 Date Analyzed: 08/19/20

Instrument ID: VOA6 Time Analyzed: 1028

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	435054	4.19	659817	4.97	605923	7.67
	UPPER LIMIT	870108	4.69	1319634	5.47	1211846	8.17
	LOWER LIMIT	217527	3.69	329909	4.47	302962	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-200819	457231	4.19	697166	4.97	627300	7.67
02	VBLKW-200819	466826	4.19	691547	4.97	601989	7.67
03	HS20080738-03	473685	4.19	697768	4.97	603637	7.67
04	HS20080738-02	466703	4.19	692711	4.97	596950	7.67
05	HS20080738-01	472916	4.19	700622	4.97	586203	7.67
06	HS20080738-02	428977	4.19	632449	4.97	552111	7.67
07	HS20080738-02	424198	4.19	631160	4.97	558331	7.67
08	HS20080738-01	452517	4.19	671814	4.97	592165	7.67
09							
10							
11							
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16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Lab File ID (Standard): X081903 Date Analyzed: 08/19/20

Instrument ID: VOA6 Time Analyzed: 1028

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	274611	9.66				
	UPPER LIMIT	549222	10.16				
	LOWER LIMIT	137306	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-200819	296309	9.66				
02	VBLKW-200819	269796	9.67				
03	HS20080738-03	279796	9.67				
04	HS20080738-02	271864	9.67				
05	HS20080738-01	252710	9.67				
06	HS20080738-02	249295	9.66				
07	HS20080738-02	256432	9.67				
08	HS20080738-01	264435	9.67				
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081902.D

Date : 19-AUG-2020 10:04

Client ID: BFB

Instrument: voa6.i

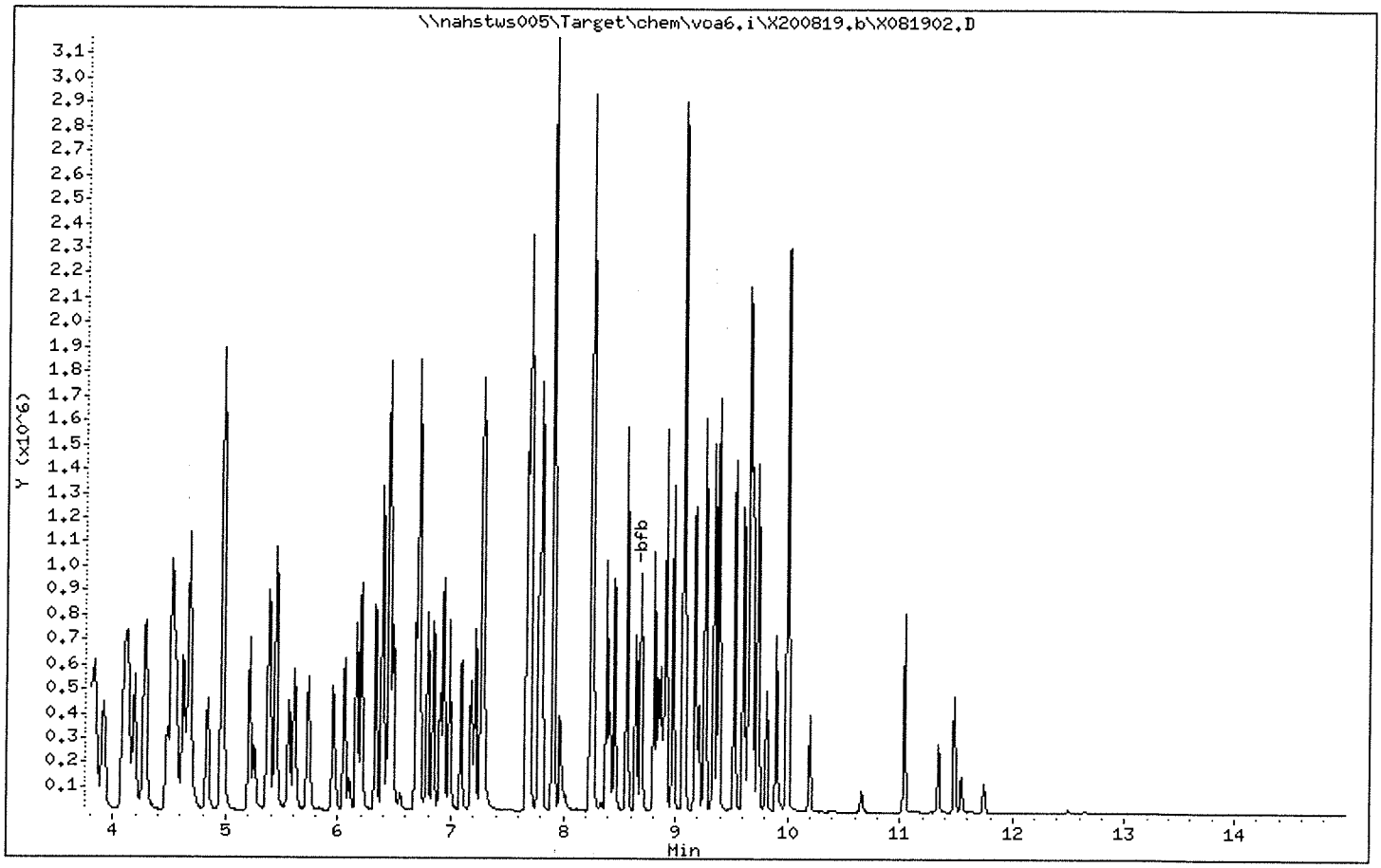
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081902.D

Date : 19-AUG-2020 10:04

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

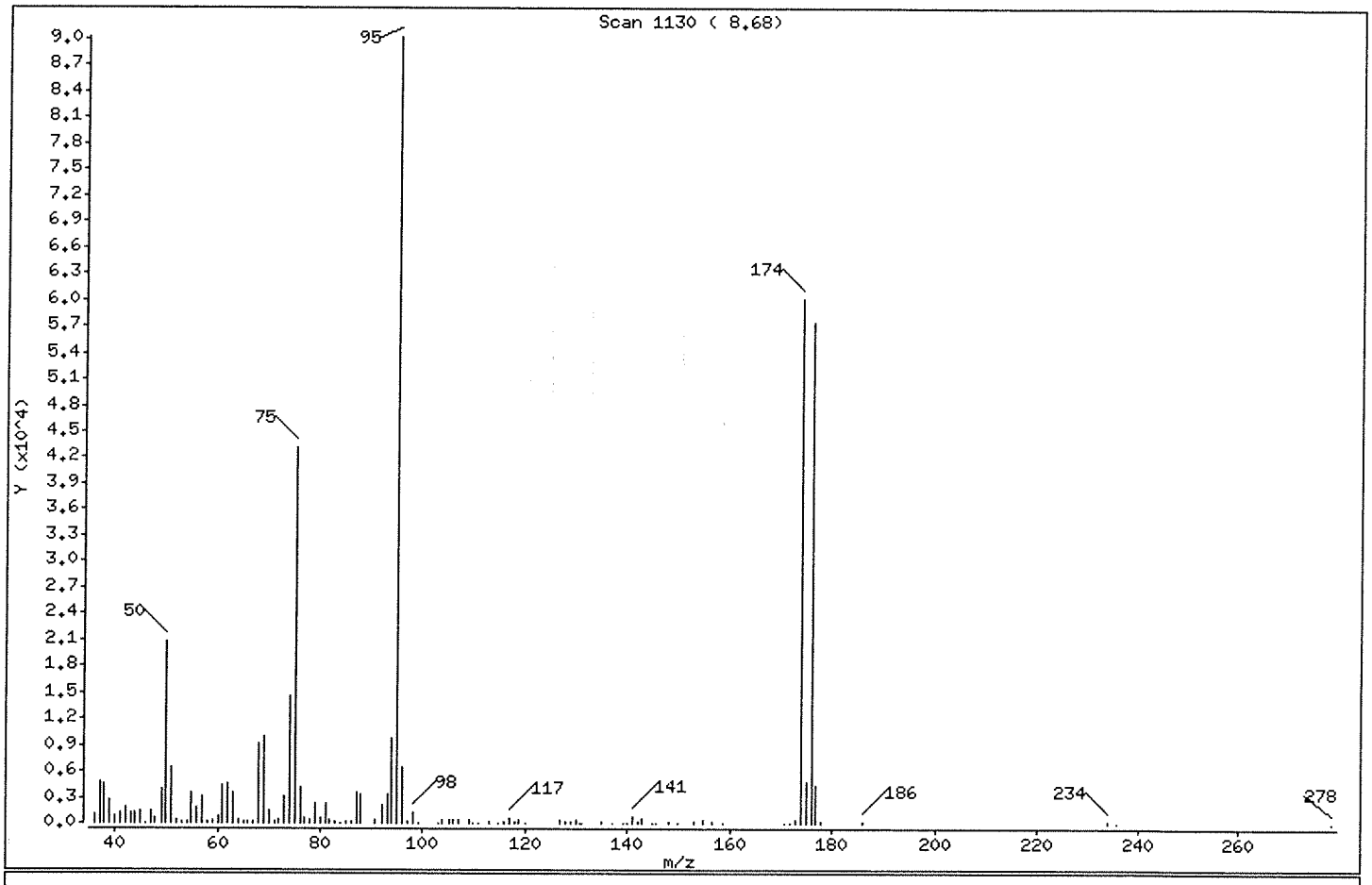
Volume Injected (uL): 2.0

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	23.06
75	30.00 - 60.00% of mass 95	47.88
96	5.00 - 9.00% of mass 95	7.18
173	Less than 2.00% of mass 174	0.37 (0.55)
174	Greater than 50.00% of mass 95	66.62
175	5.00 - 9.00% of mass 174	5.28 (7.92)
176	95.00 - 101.00% of mass 174	63.77 (95.73)
177	5.00 - 9.00% of mass 176	4.86 (7.62)

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081902.D

Date : 19-AUG-2020 10:04

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: X081902.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 110

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1025	64.00	349	94.00	9789	136.90	85
37.00	4858	65.10	134	95.00	90200	139.20	92
38.00	4590	66.00	126	96.00	6474	139.90	90
39.00	2704	66.90	293	96.90	264	140.90	767
39.90	832	68.00	9167	98.00	1188	142.00	155
41.00	1173	69.00	9961	99.20	103	142.80	676
42.00	1962	70.00	1371	102.90	75	144.90	77
43.00	1190	71.10	193	103.80	500	145.70	102
44.00	1264	71.90	474	105.10	379	147.90	211
45.00	1354	72.90	3195	105.80	325	149.70	94
46.00	61	74.00	14425	106.90	502	153.00	144
47.00	1532	75.00	43184	108.90	327	154.80	373
47.90	590	76.00	4236	109.80	57	156.70	107
49.00	3982	76.90	652	110.90	95	158.80	62
50.00	20800	78.00	499	112.90	137	170.60	55
51.00	6477	78.90	2212	114.90	91	171.80	69
52.00	387	80.00	718	115.90	232	172.90	331
52.90	267	80.90	2244	116.90	596	173.90	60088
54.00	303	81.90	513	117.90	248	174.90	4760
55.00	3522	82.90	298	118.80	347	175.90	57520
56.00	1944	84.00	51	120.00	77	176.90	4384
57.00	3214	85.00	111	126.80	322	177.90	120
58.00	250	86.00	145	128.00	279	186.00	178
59.00	513	87.00	3455	128.90	226	233.80	142
60.00	733	87.90	3269	129.90	320	235.60	81
61.00	4404	90.80	399	130.70	62	278.20	70
62.00	4513	91.90	2095	131.00	69		
62.90	3462	93.00	3240	134.80	134		

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Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081903.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 19-AUG-2020 10:28
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 18:01 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

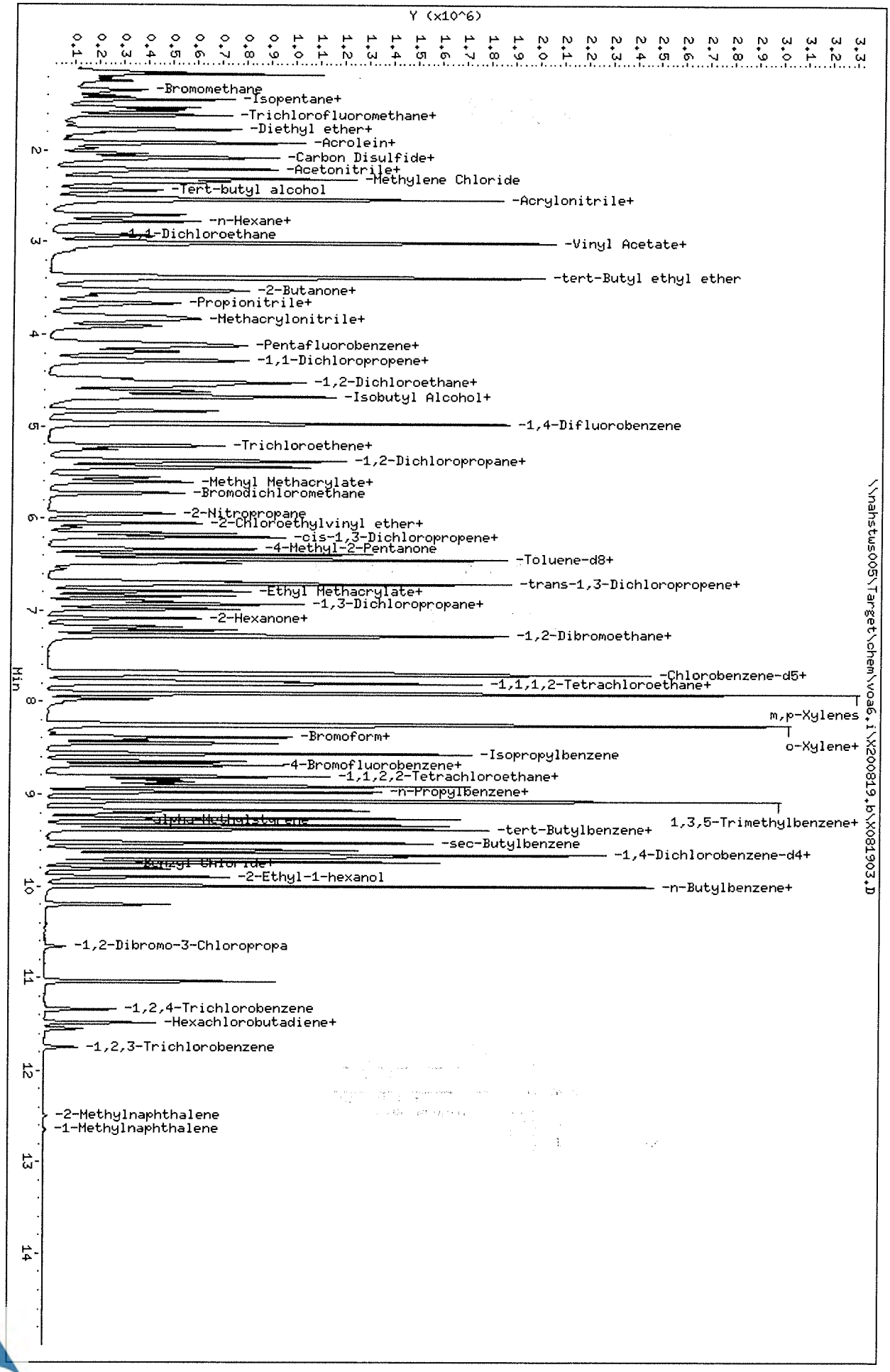
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	435054	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	659817	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	605923	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	274611	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	206689	50.0000	48.37
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	237428	50.0000	46.88
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	724812	50.0000	49.31
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	268392	50.0000	47.33
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	175367	50.0000	50.86
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	184158	50.0000	53.42
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	326190	50.0000	51.05
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	255192	50.0000	53.28
17 Methylene Chloride	84	2.305	2.305	(0.550)	231000	50.0000	51.55
38 Trichloroethene	130	5.214	5.214	(1.049)	246443	50.0000	52.70
5 Vinyl Chloride	62	1.145	1.145	(0.273)	288688	50.0000	51.55

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081903.D
Date : 19-AUG-2020 10:28
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\X200819.b\X081905.D Page 1
Report Date: 15-Sep-2020 18:01

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Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081905.D
Lab Smp Id: VLCSW-200819 Client Smp ID: VLCSW-200819
Inj Date : 19-AUG-2020 11:16
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200819;VLCSW-200819;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 18:01 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

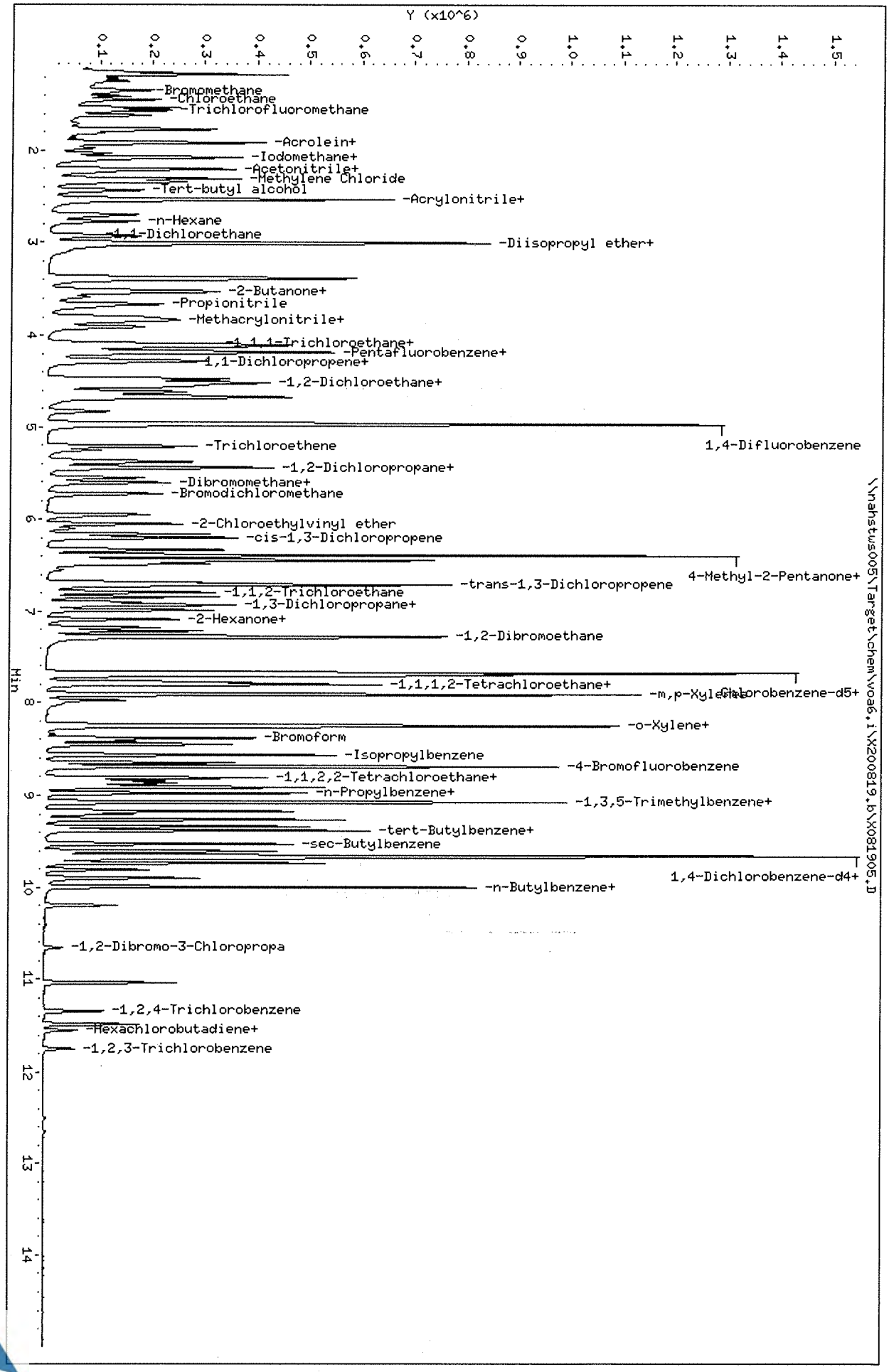
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	457231	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	697166	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	627300	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	296309	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	214287	47.7239	47.72
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	247555	46.5131	46.51
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	737822	48.4914	48.49
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	275119	46.8712	46.87
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	71127	19.9269	19.92
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	74362	20.5262	20.52
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	135188	20.0278	20.02
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	103375	20.5397	20.53
17 Methylene Chloride	84	2.313	2.305	(0.552)	95670	19.4809	19.48
38 Trichloroethene	130	5.214	5.214	(1.049)	98341	19.9037	19.90
5 Vinyl Chloride	62	1.145	1.145	(0.273)	110025	18.6941	18.69

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081905.D
Date : 19-AUG-2020 11:16
Client ID: VLCSW-200819
Sample Info: VLCSW-200819;VLCSW-200819;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Page 2

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081907.D Page 1
Report Date: 15-Sep-2020 18:01

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Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081907.D
Lab Smp Id: VBLKW-200819 Client Smp ID: VBLKW-200819
Inj Date : 19-AUG-2020 12:04
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200819;VBLKW-200819;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 18:01 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Houll.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

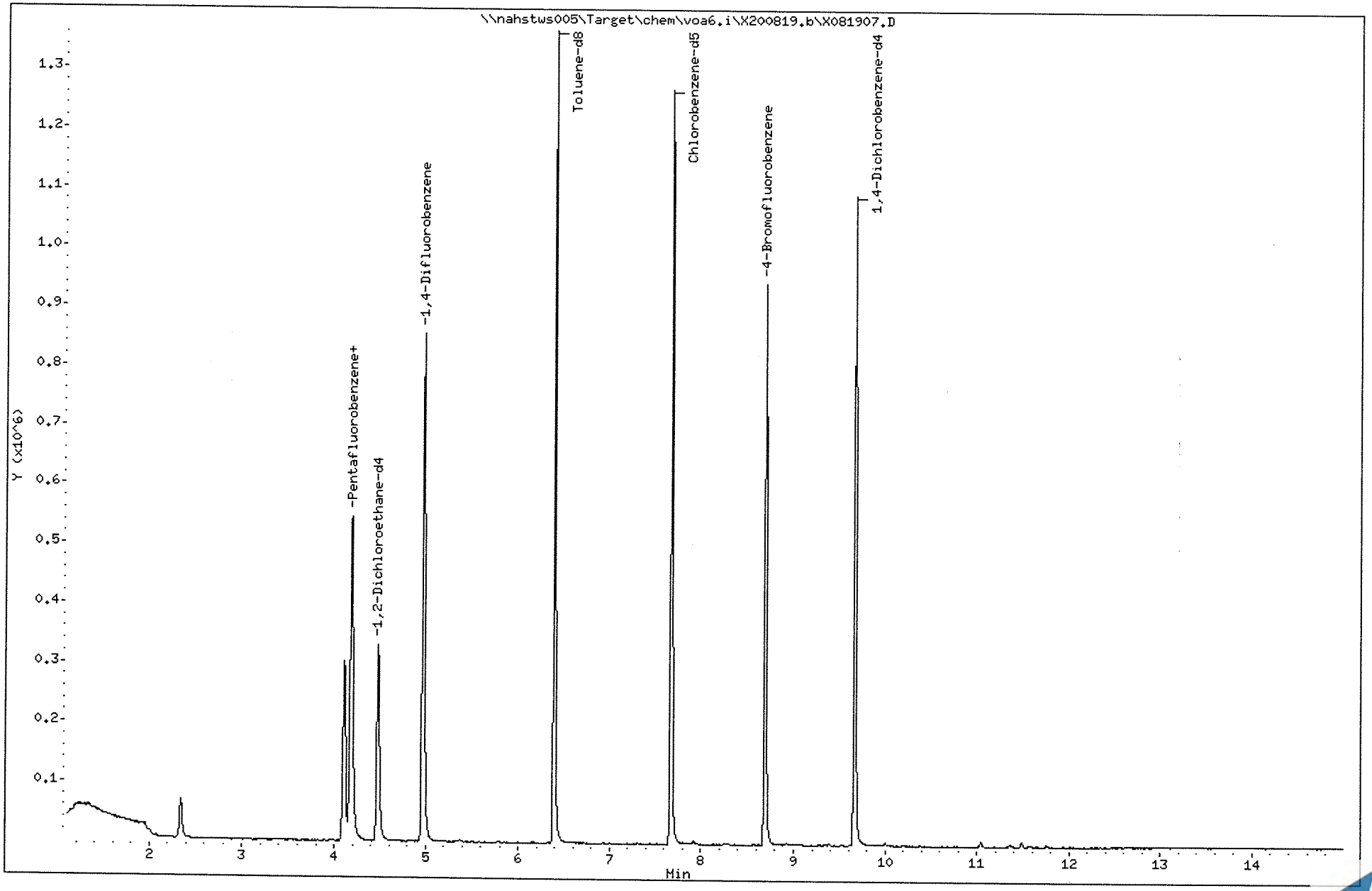
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	466826	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	691547	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	601989	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	269796	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	211204	46.0705	46.07
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	239015	43.9855	43.98
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	777943	53.2780	53.27
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	267213	47.4383	47.43

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081907.D
Date : 19-AUG-2020 12:04
Client ID: VBLKW-200819
Sample Info: VBLKW-200819;VBLKW-200819;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081908.D
Lab Smp Id: HS20080738-03 Client Smp ID: HS20080738-03
Inj Date : 19-AUG-2020 12:28
Operator : PC Inst ID: voa6.i
Smp Info : HS20080738-03;HS20080738-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 17:56 dev.giga Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

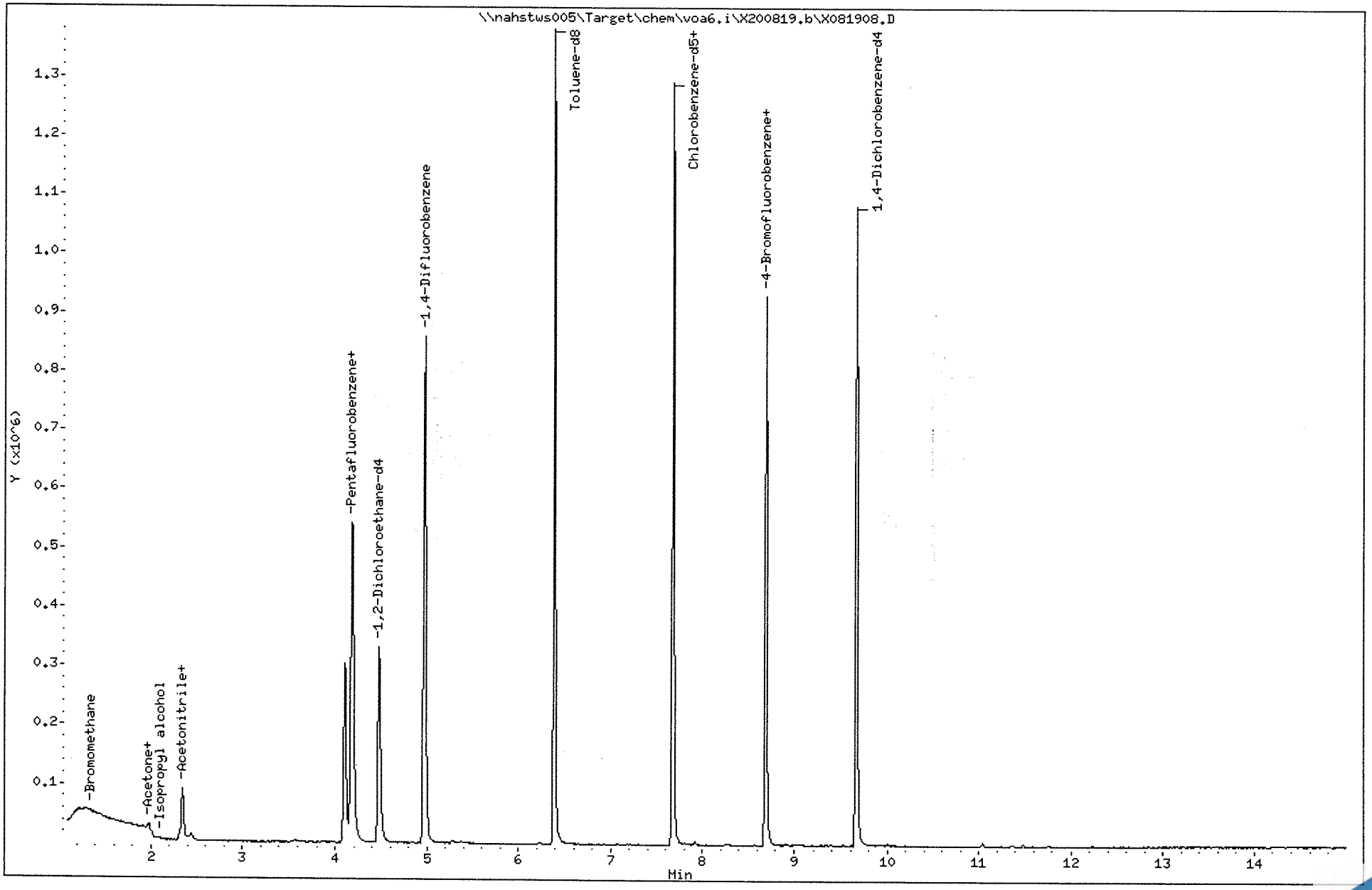
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	473685	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	697768	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	603637	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279796	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	213169	45.8258	45.82
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	241703	43.8361	43.83
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	782179	53.4218	53.42
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	277058	49.0518	49.05

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081908.D
Date : 19-AUG-2020 12:28
Client ID: HS20080738-03
Sample Info: HS20080738-03;HS20080738-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081909.D Page 1
Report Date: 15-Sep-2020 17:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081909.D
Lab Smp Id: HS20080738-02 Client Smp ID: HS20080738-02
Inj Date : 19-AUG-2020 12:52
Operator : PC Inst ID: voa6.i
Smp Info : HS20080738-02;HS20080738-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 17:56 dev.giga Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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	4.189	4.189	(1.000)	466703	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	692711	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	596950	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	271864	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	211242	46.0909	46.09
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	240071	44.1915	44.19
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	766516	52.9385	52.93
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	269070	48.1712	48.17
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	5645	1.52657	1.52(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	336594	68.5630	68.56

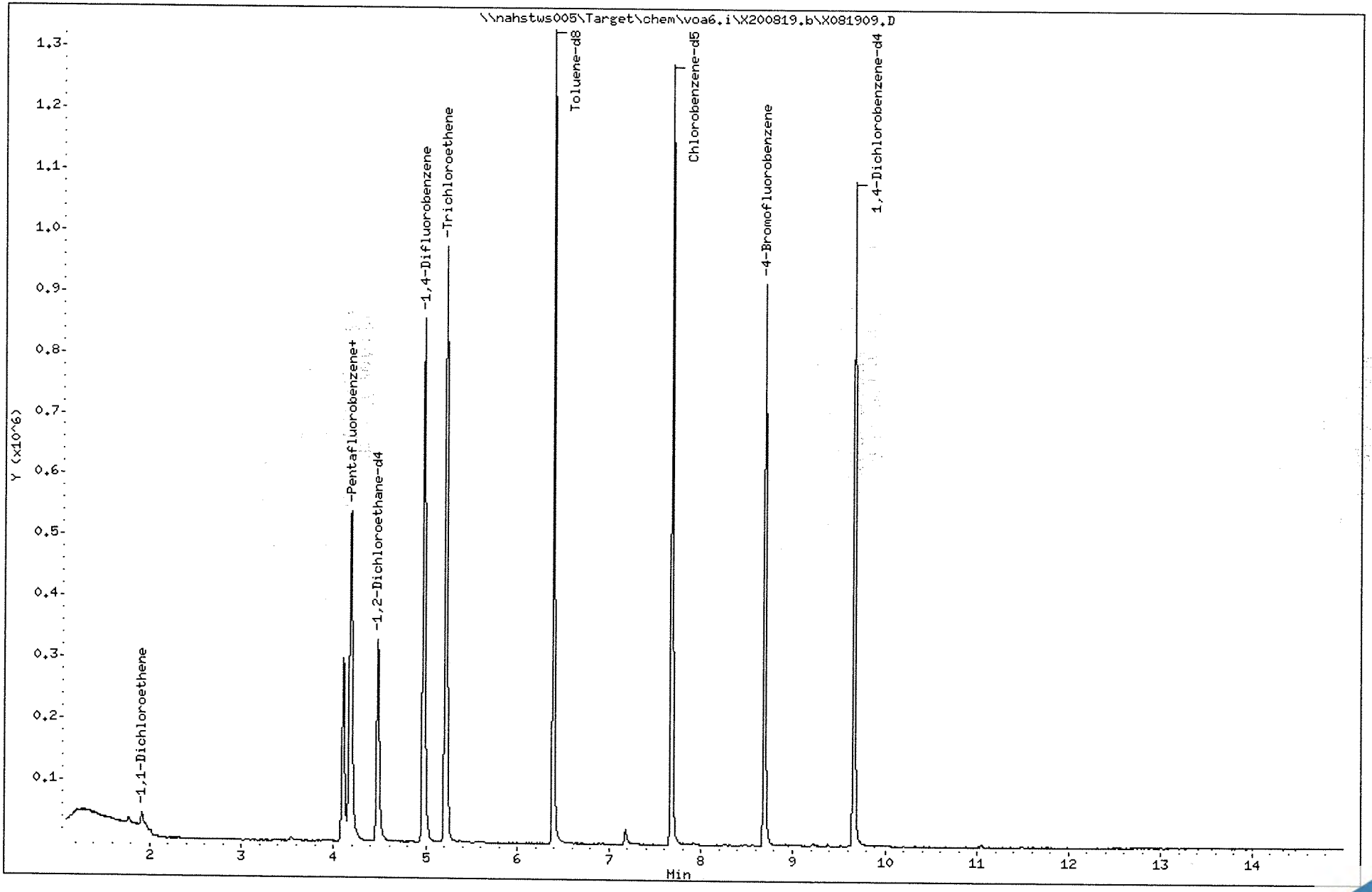
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081909.D
Date : 19-AUG-2020 12:52
Client ID: HS20080738-02
Sample Info: HS20080738-02;HS20080738-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081909.D

Date : 19-AUG-2020 12:52

Client ID: HS20080738-02

Instrument: voa6.i

Sample Info: HS20080738-02;HS20080738-02;;;

Purge Volume: 5.0

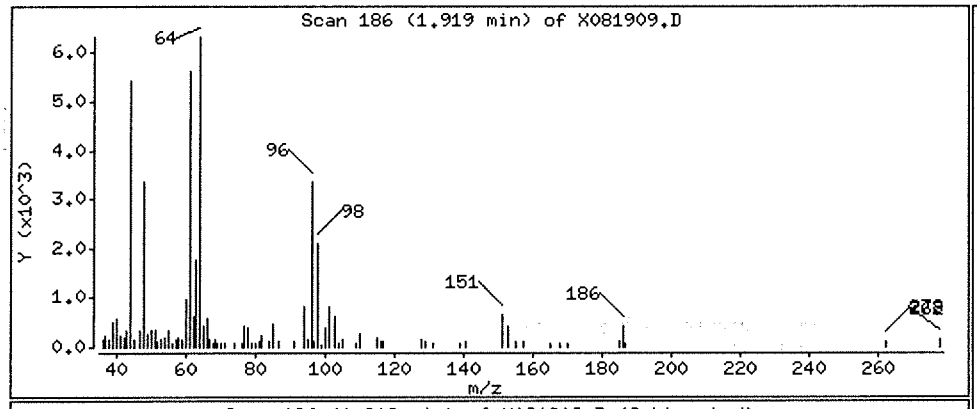
Operator: PC

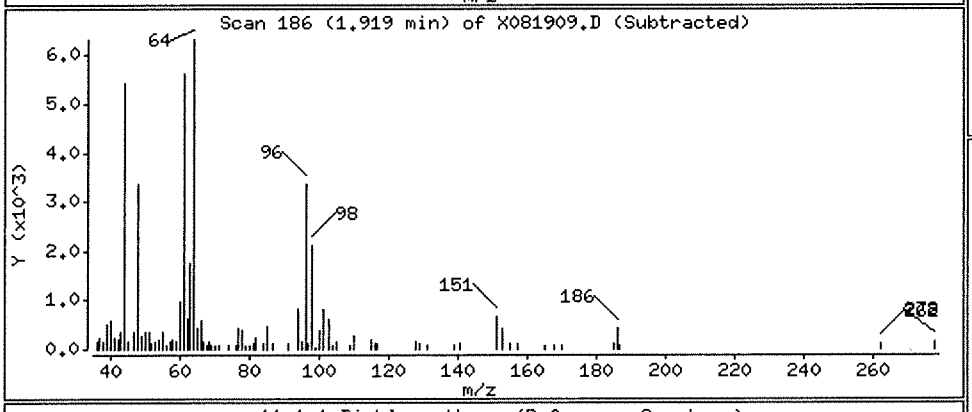
Column phase: DB624

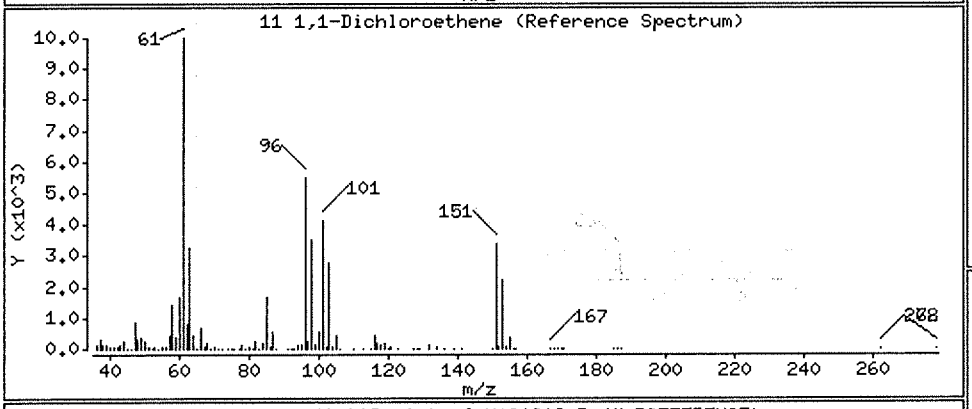
Column diameter: 0.18

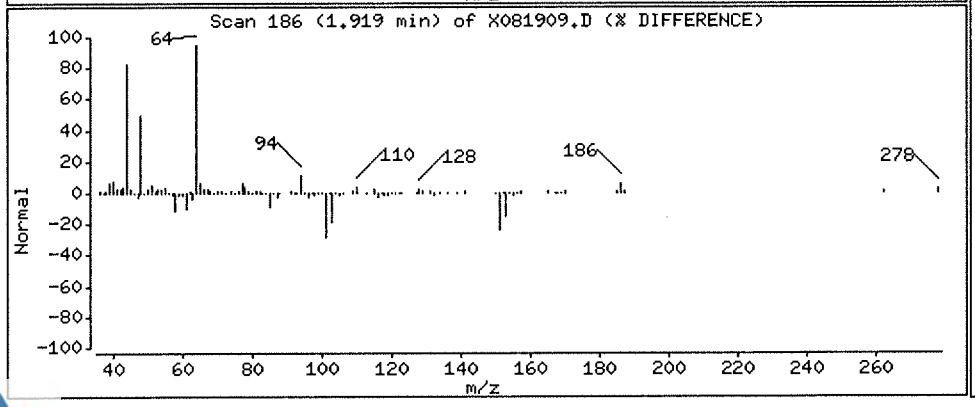
11 1,1-Dichloroethene

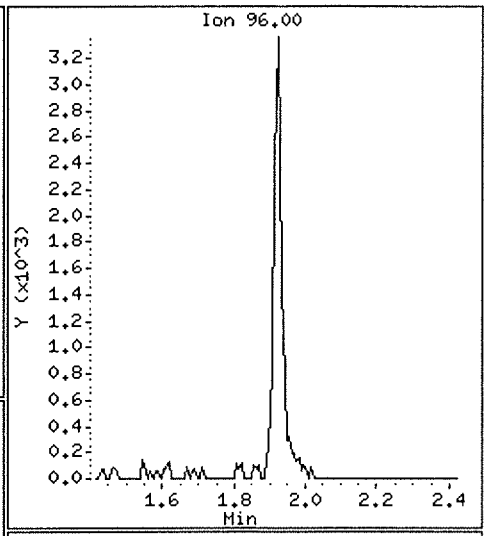
Concentration: 1.52 ug/l

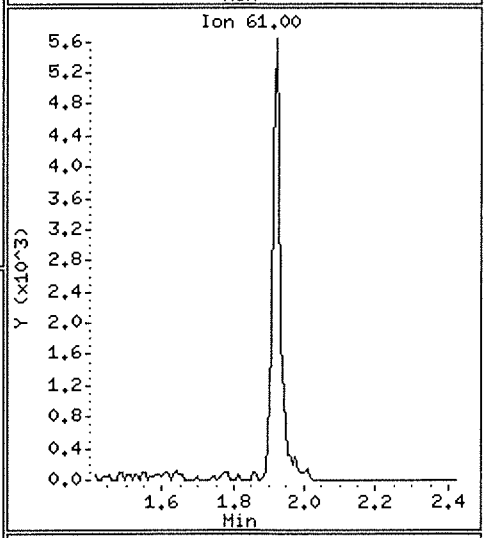


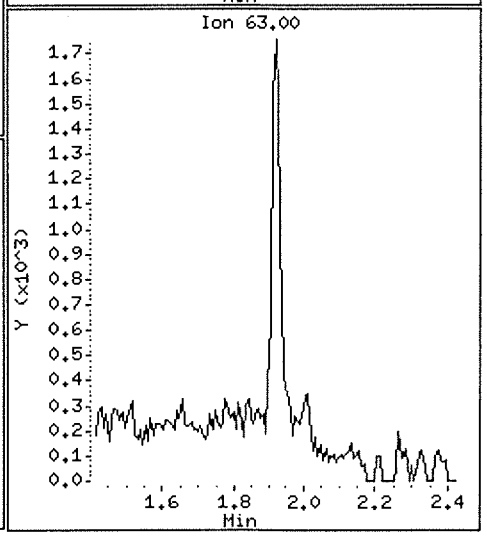












Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081909.D

Date : 19-AUG-2020 12:52

Client ID: HS20080738-02

Instrument: voa6.i

Sample Info: HS20080738-02;HS20080738-02;;;

Purge Volume: 5.0

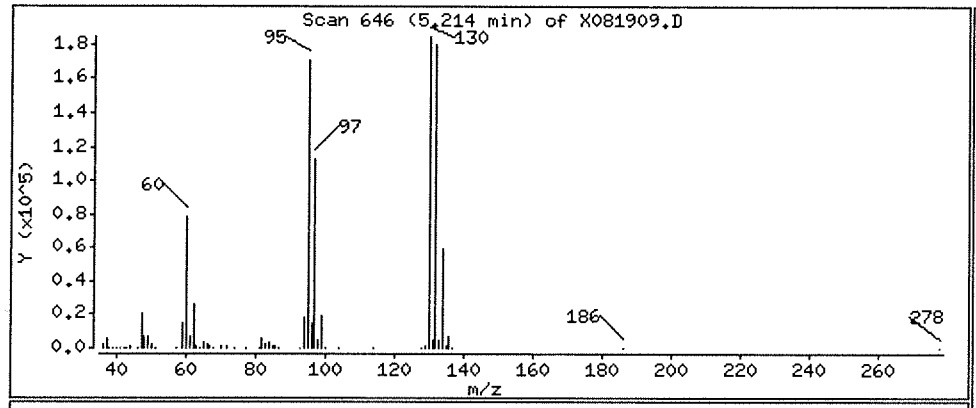
Operator: PC

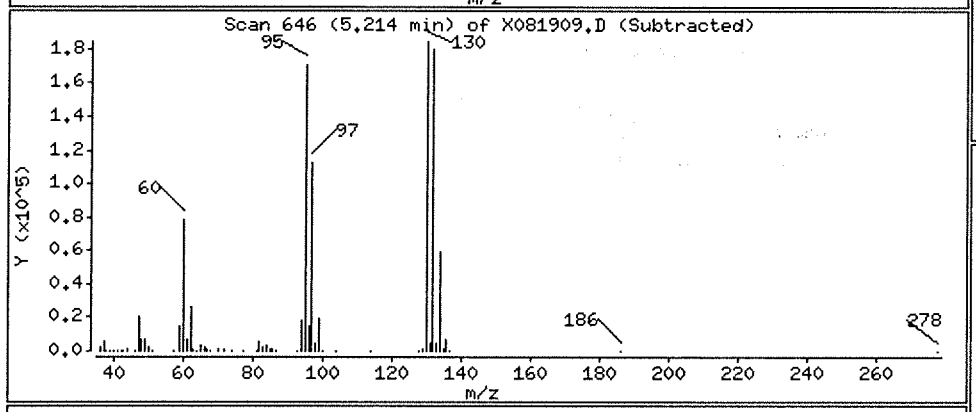
Column phase: DB624

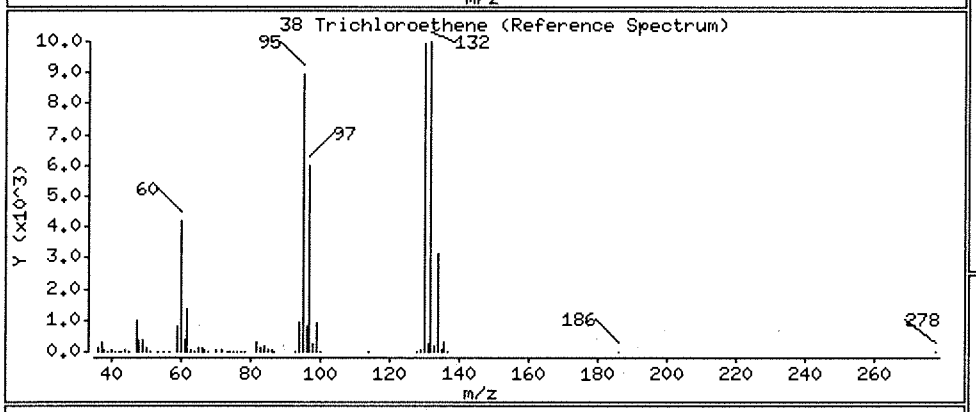
Column diameter: 0.18

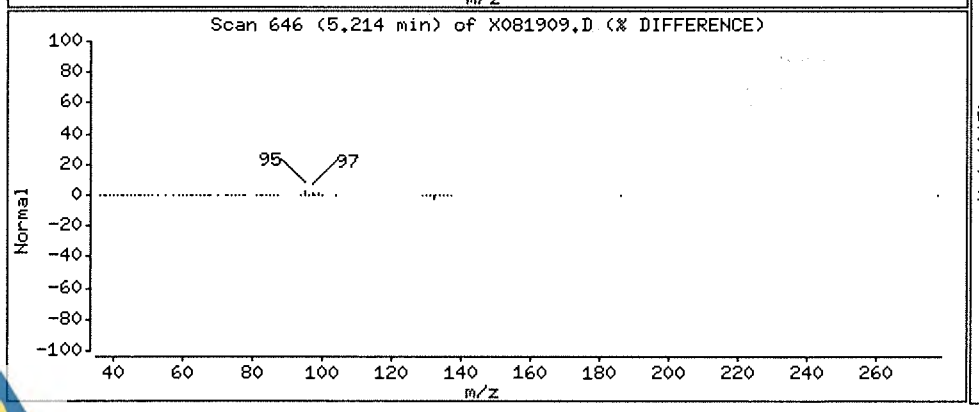
38 Trichloroethene

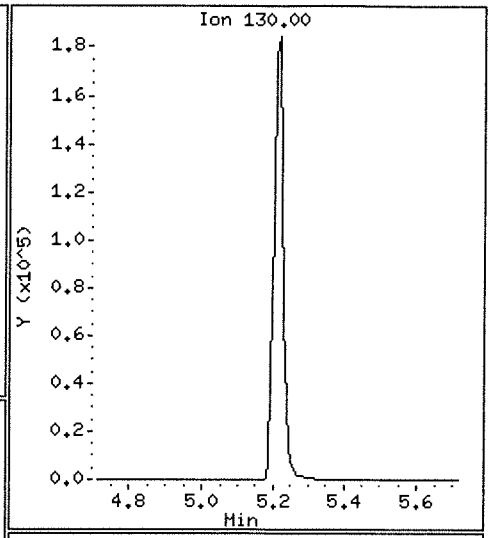
Concentration: 68.56 ug/l

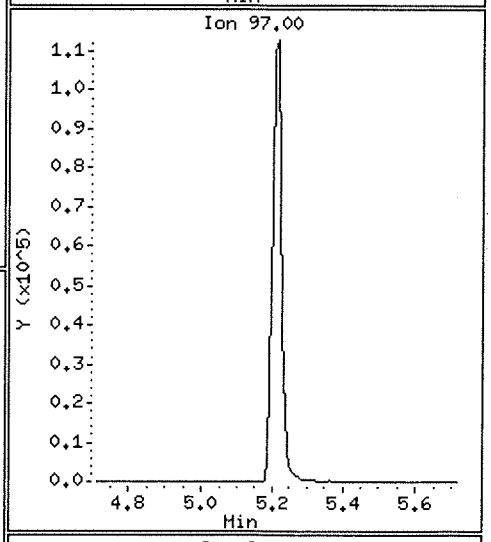


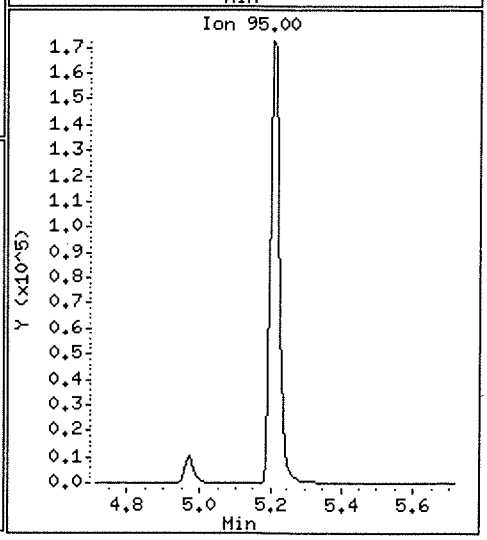












ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081910.D
Lab Smp Id: HS20080738-01 Client Smp ID: HS20080738-01
Inj Date : 19-AUG-2020 13:16
Operator : PC Inst ID: voa6.i
Smp Info : HS20080738-01;HS20080738-01;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 17:56 dev.giga Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 10
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.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	4.189	4.189	(1.000)	472916	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	700622	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	586203	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	252710	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	214281	46.1398	46.13
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	241096	43.7971	43.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	748962	52.6745	52.67
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	259514	47.3122	47.31
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2163	0.57725	2.88(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	114688	22.0317	110.15
38 Trichloroethene	130	5.206	5.214	(1.048)	2863668	576.732	2883.66(A)

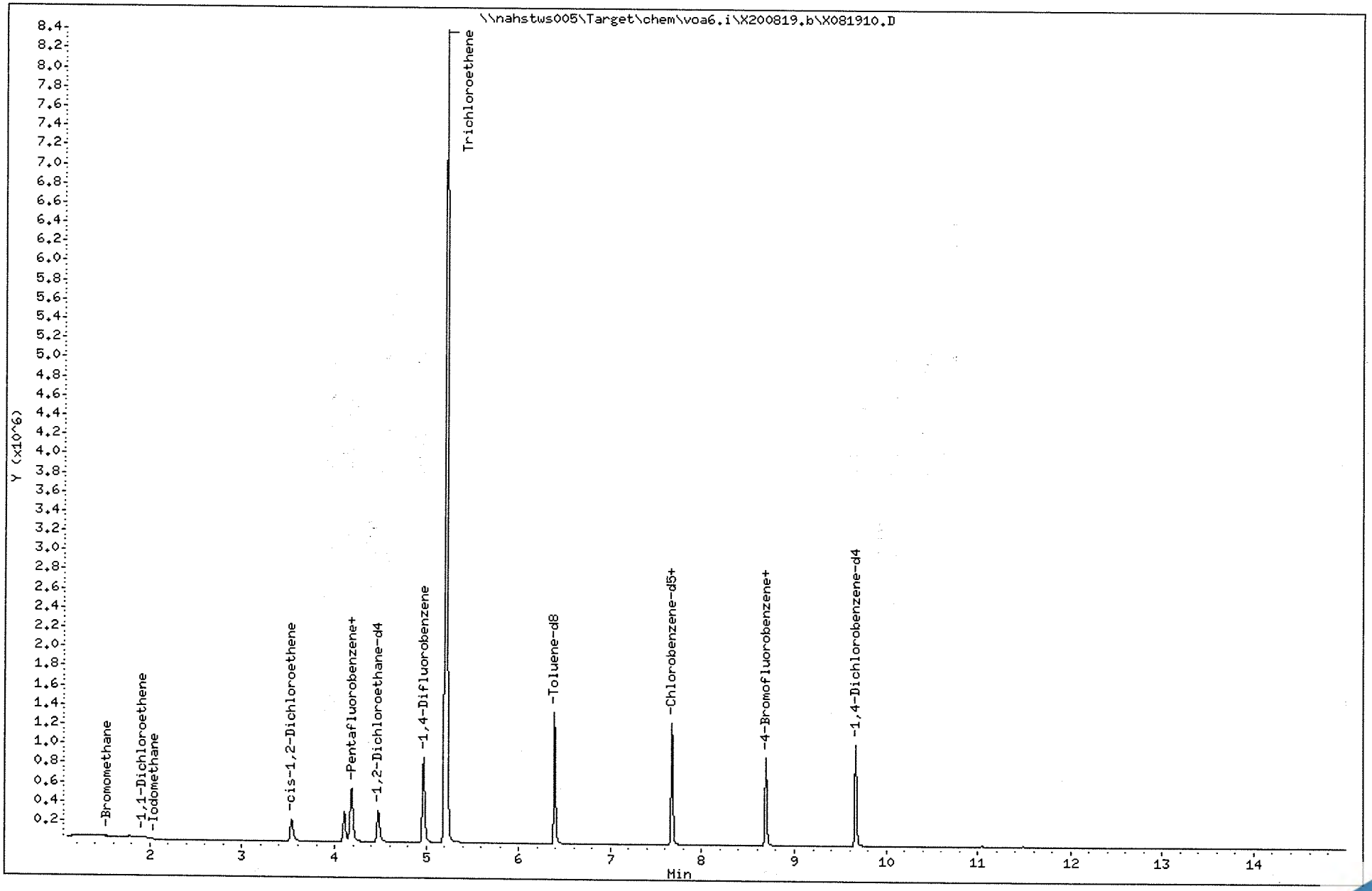
QC Flag Legend

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\X200819.b\X081910.D
Date : 19-AUG-2020 13:16
Client ID: HS20080738-01
Sample Info: HS20080738-01;HS20080738-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081910.D

Date : 19-AUG-2020 13:16

Client ID: HS20080738-01

Instrument: voa6.i

Sample Info: HS20080738-01;HS20080738-01;;;

Purge Volume: 5.0

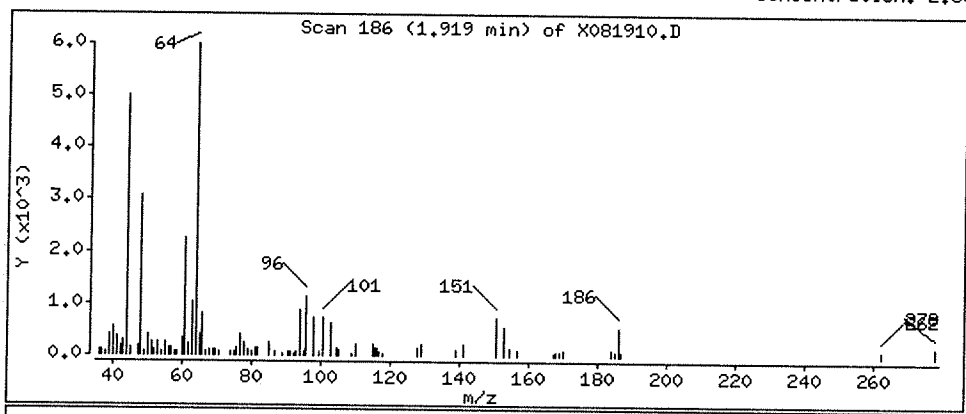
Operator: PC

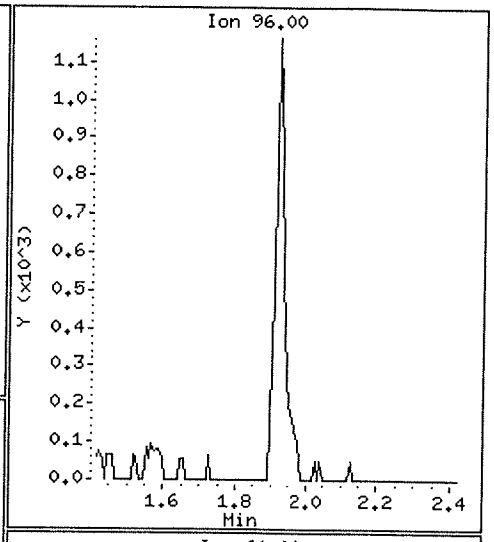
Column phase: DB624

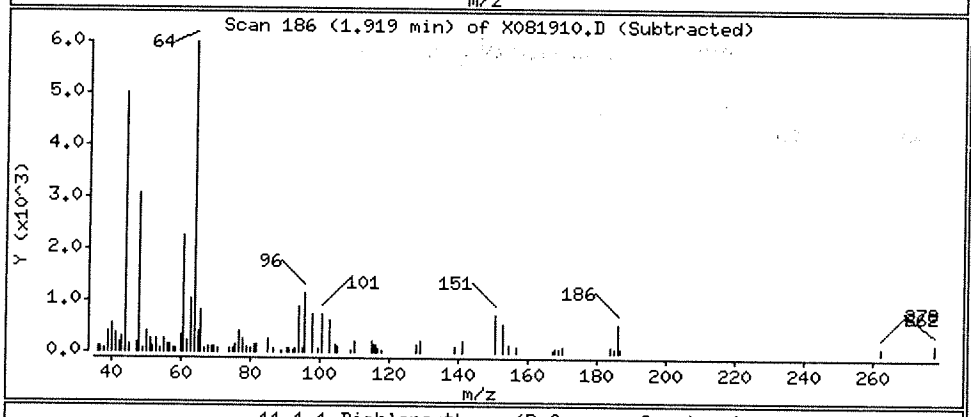
Column diameter: 0.18

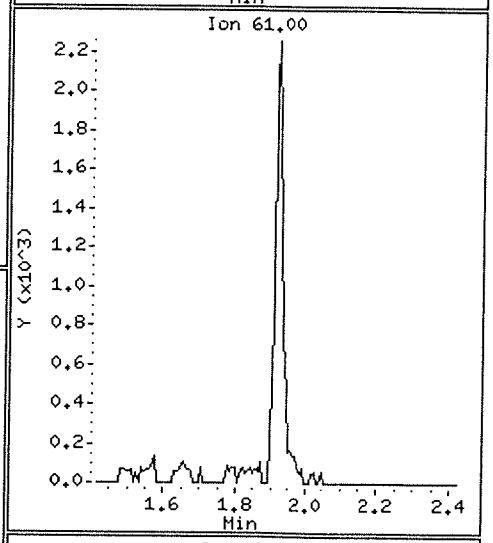
11 1,1-Dichloroethene

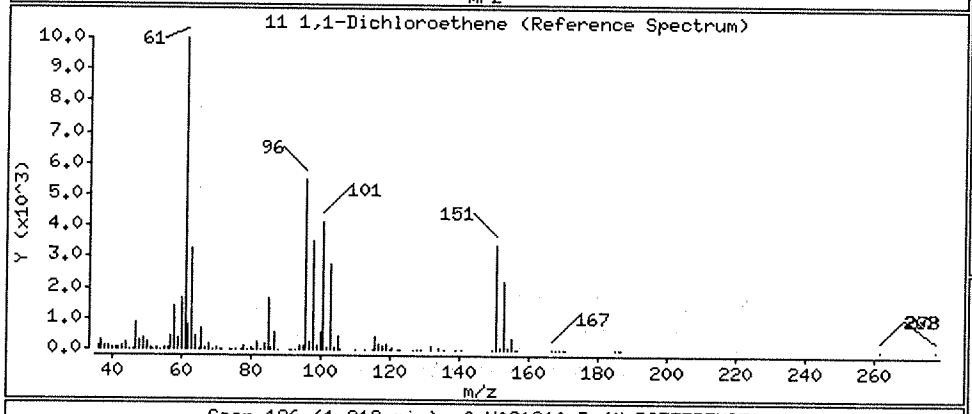
Concentration: 2.88 ug/l

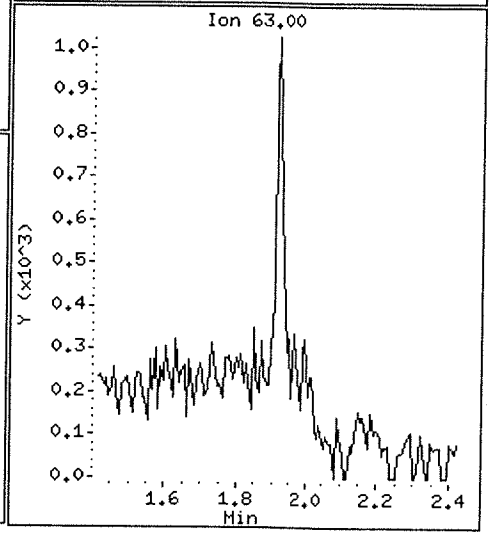


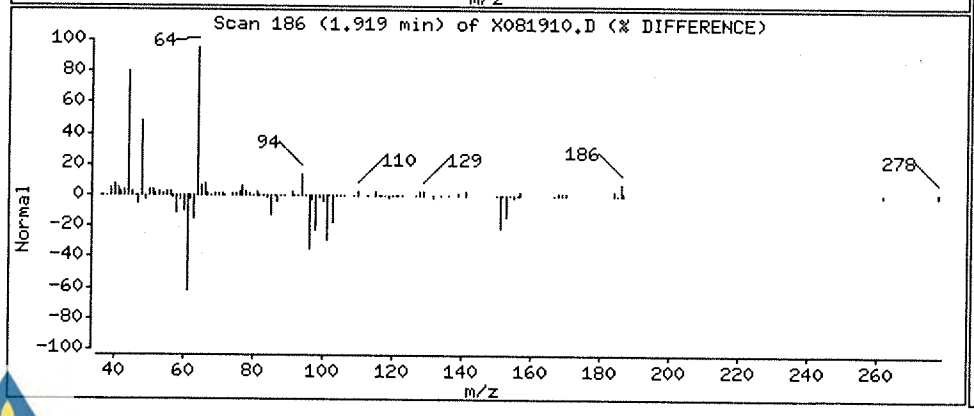












Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081910.D

Date : 19-AUG-2020 13:16

Client ID: HS20080738-01

Instrument: voa6.i

Sample Info: HS20080738-01;HS20080738-01;;;

Purge Volume: 5.0

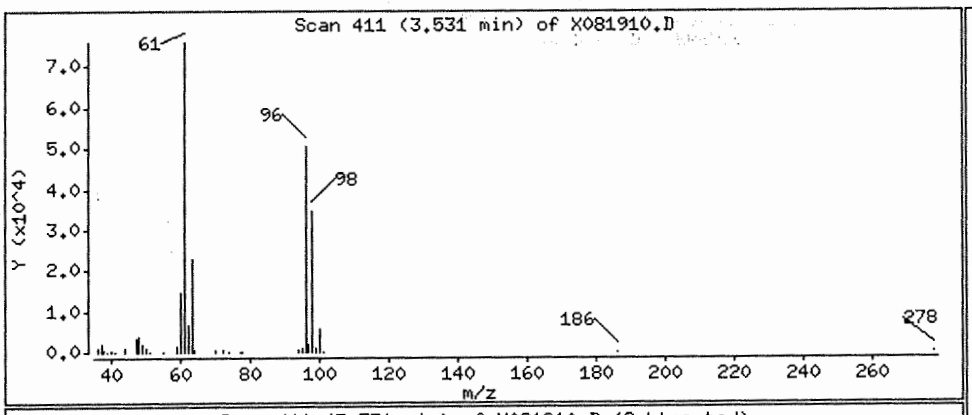
Operator: PC

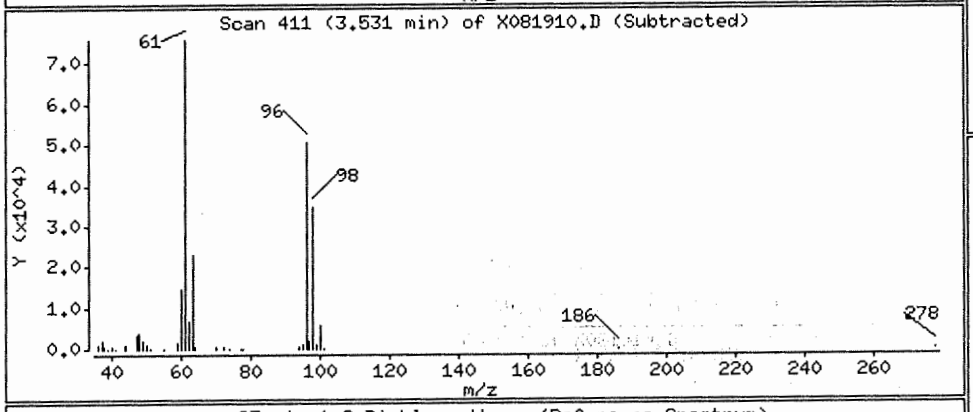
Column phase: DB624

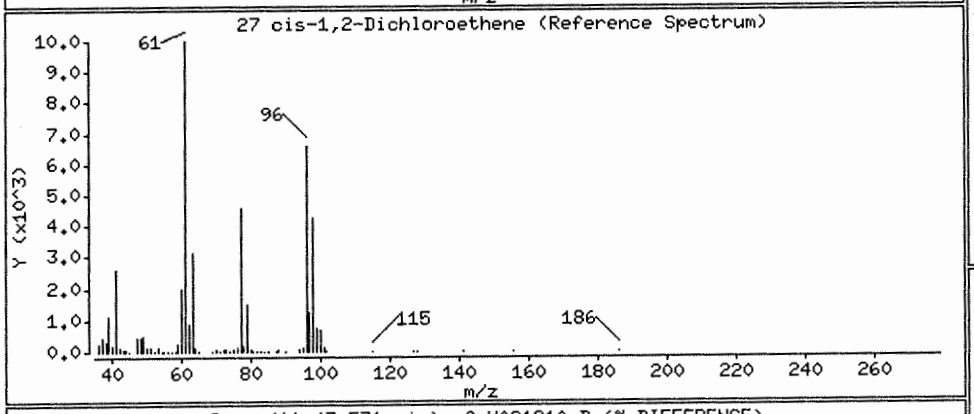
Column diameter: 0.18

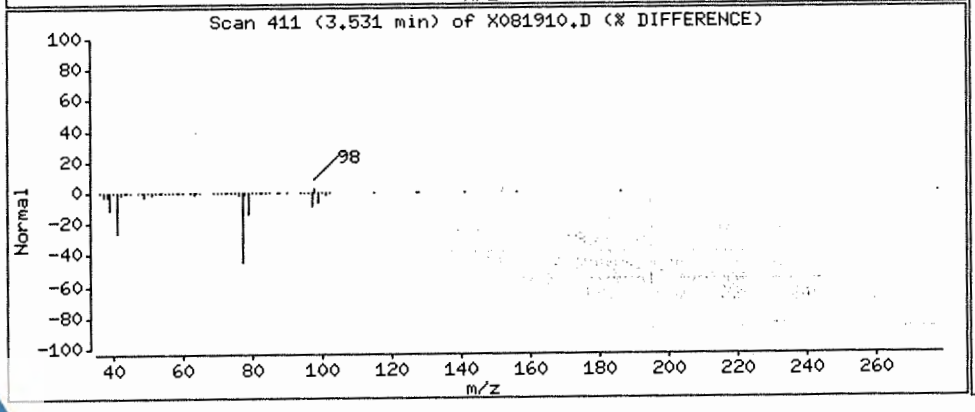
27 cis-1,2-Dichloroethene

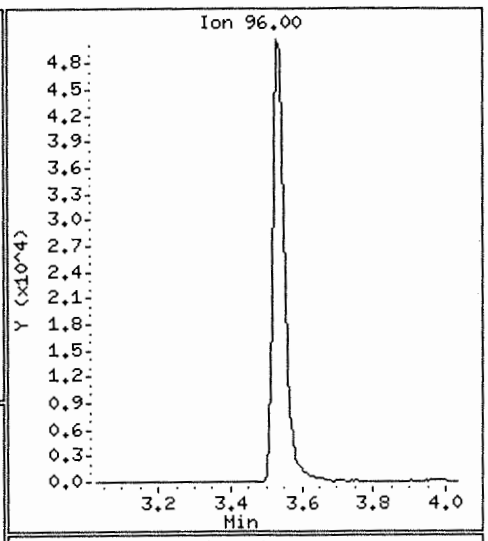
Concentration: 110.15 ug/l

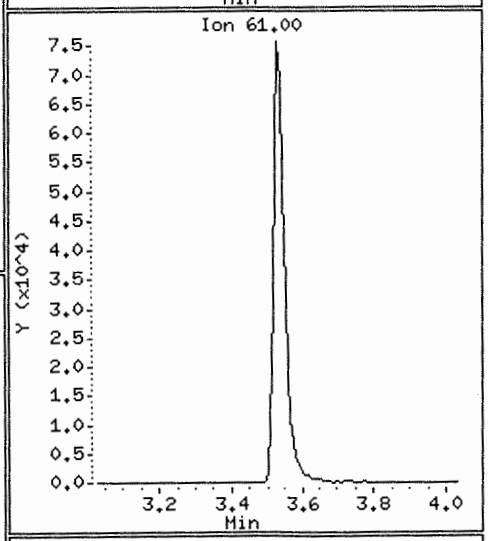


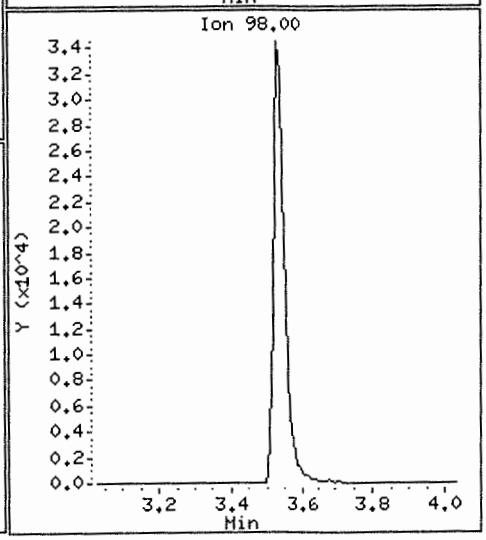












Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081910.D

Date : 19-AUG-2020 13:16

Client ID: HS20080738-01

Instrument: voa6.i

Sample Info: HS20080738-01;HS20080738-01;;;

Purge Volume: 5.0

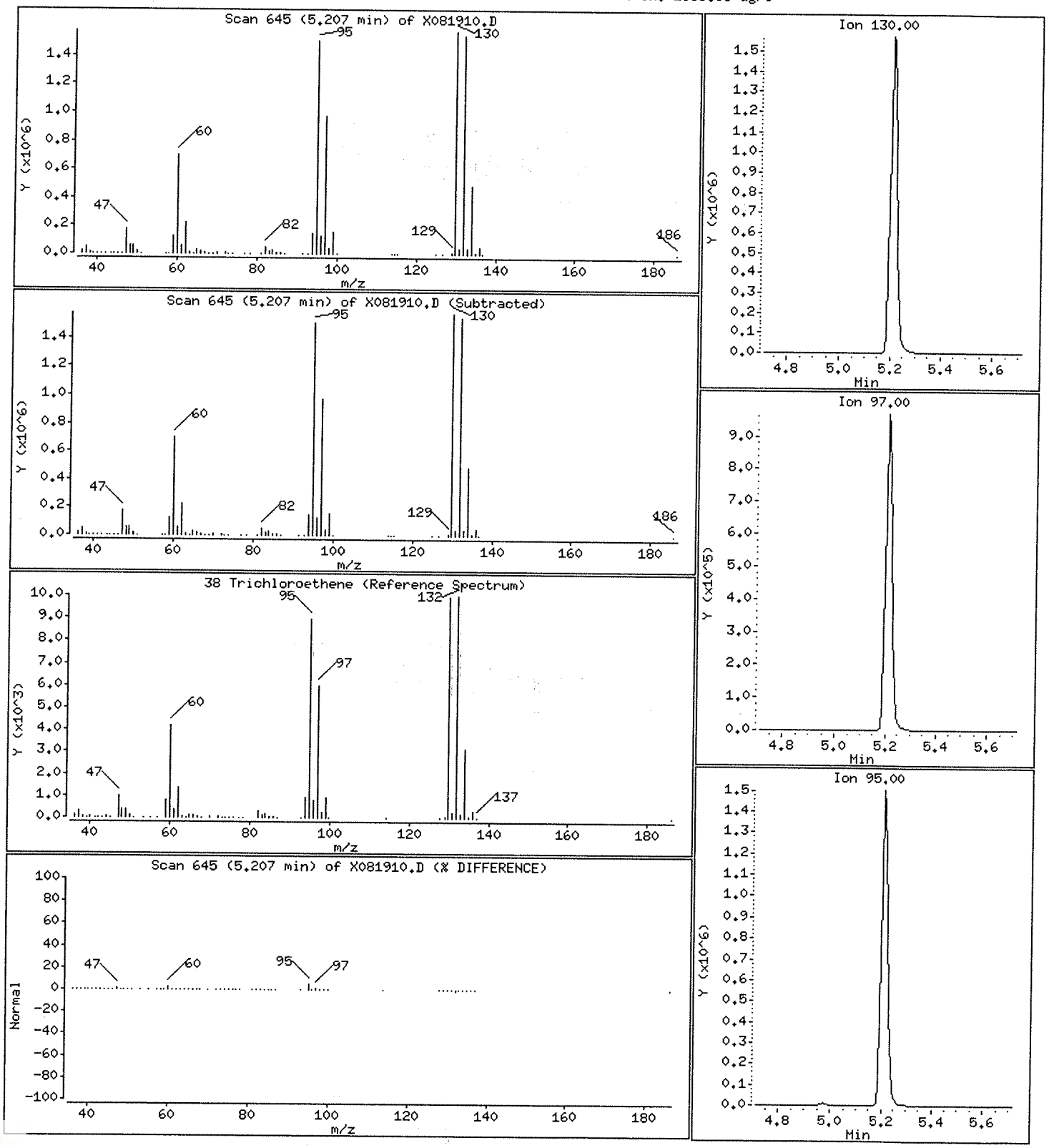
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 2883.66 ug/l



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081911.D
Lab Smp Id: HS20080738-02MS Client Smp ID: HS20080738-02MS
Inj Date : 19-AUG-2020 13:40
Operator : PC Inst ID: voa6.i
Smp Info : HS20080738-02MS;HS20080738-02MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 18:01 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 11 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

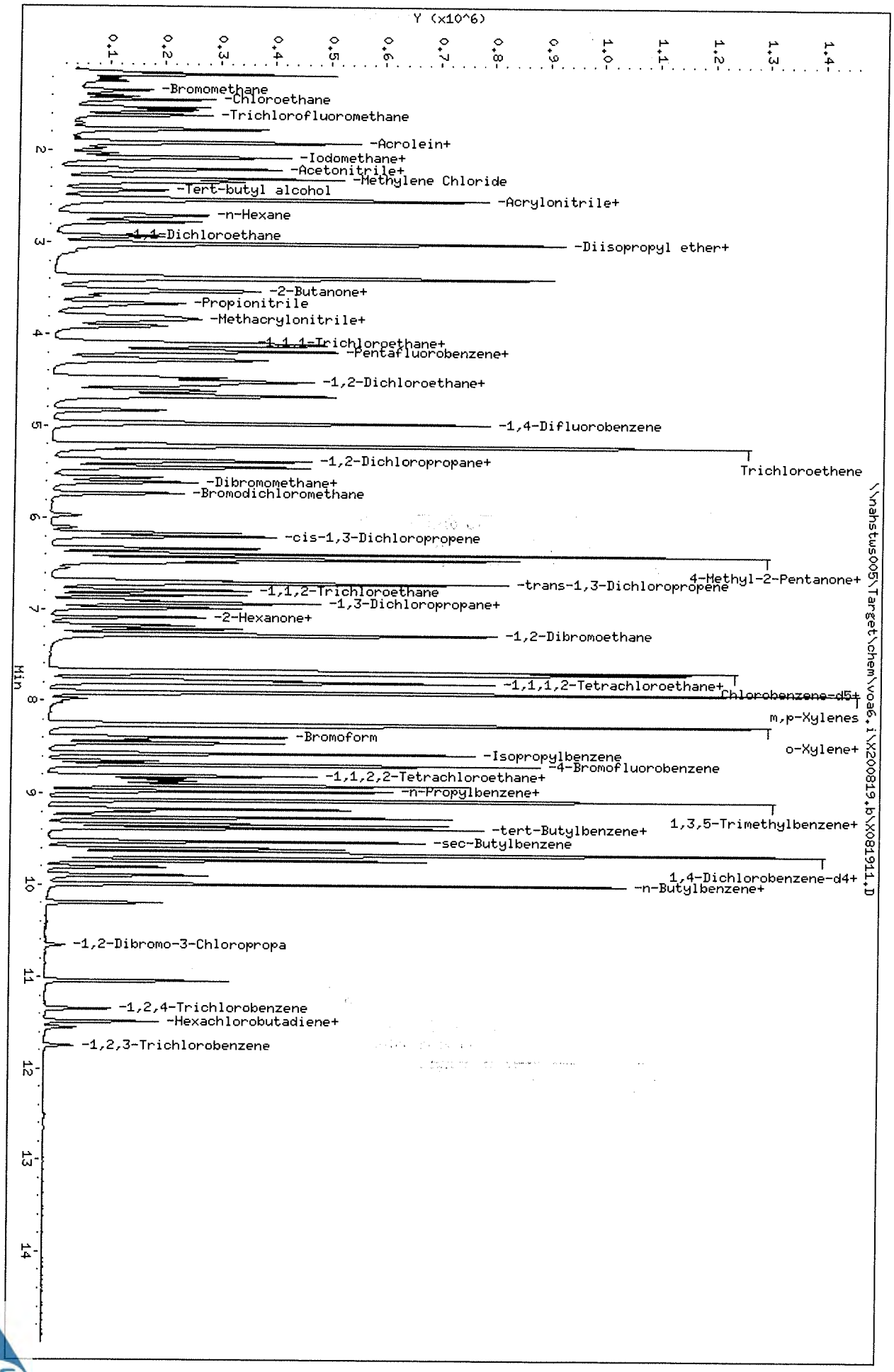
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	428977	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	632449	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	552111	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	249295	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	197563	46.8972	46.89
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	223975	44.8544	44.85
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	702367	52.4477	52.44
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	246877	47.7875	47.78
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	77875	24.7886	24.78
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	93157	27.4078	27.40
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	146110	23.8608	23.86
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	119015	25.2048	25.20
17 Methylene Chloride	84	2.306	2.305	(0.550)	103359	22.6416	22.64
38 Trichloroethene	130	5.214	5.214	(1.049)	433817	96.7868	96.78
5 Vinyl Chloride	62	1.145	1.145	(0.273)	125988	22.8162	22.81

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081911.D
Date : 19-AUG-2020 13:40
Client ID: HS20080738-02MS
Sample Info: HS20080738-02MS;HS20080738-02MS;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\X200819.b\X081912.D Page 1
Report Date: 15-Sep-2020 18:01

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081912.D
Lab Smp Id: HS20080738-02MSD Client Smp ID: HS20080738-02MSD
Inj Date : 19-AUG-2020 14:04
Operator : PC Inst ID: voa6.i
Smp Info : HS20080738-02MSD;HS20080738-02MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 18:01 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 11 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

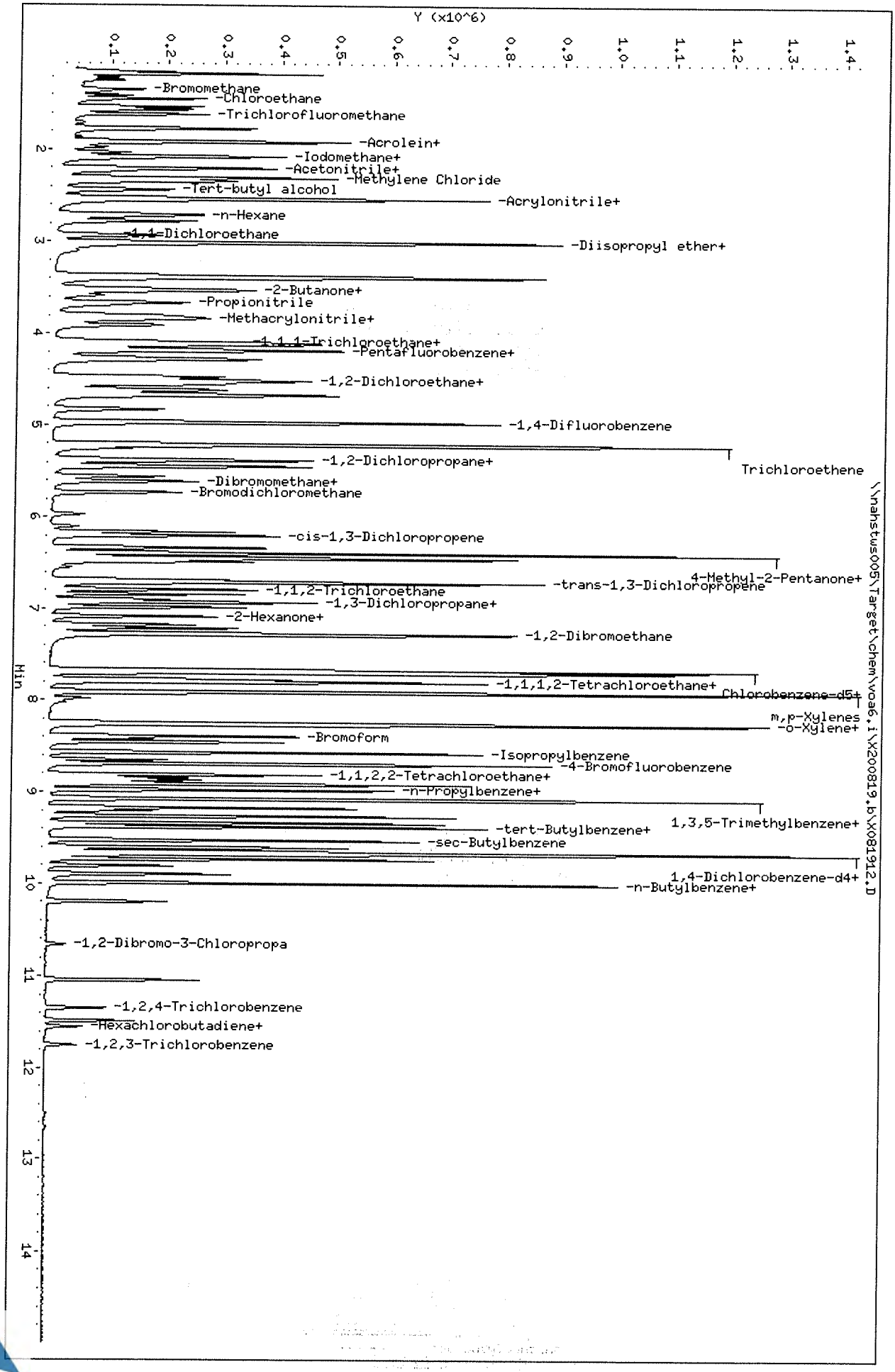
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	424198	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	631160	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	558331	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	256432	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	191826	46.0484	46.04
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	218431	44.2369	44.23
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	712597	52.6188	52.61
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	250195	47.8903	47.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	75965	23.9113	23.91
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	88268	26.2620	26.26
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	141528	23.1597	23.15
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	111388	23.8553	23.85
17 Methylene Chloride	84	2.306	2.305	(0.550)	100079	22.1414	22.14
38 Trichloroethene	130	5.214	5.214	(1.049)	405491	90.6519	90.65
5 Vinyl Chloride	62	1.145	1.145	(0.273)	117924	21.5964	21.59

Data File: \\nahstus005\Target\chem\voa6.i\X200819.b\X081912.D
Date : 19-AUG-2020 14:04
Client ID: HS20080738-02HSD
Sample Info: HS20080738-02HSD;HS20080738-02HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081913.D Page 1
Report Date: 15-Sep-2020 17:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081913.D
Lab Smp Id: HS20080738-01 Client Smp ID: HS20080738-01
Inj Date : 19-AUG-2020 14:28
Operator : PC Inst ID: voa6.i
Smp Info : HS20080738-01;HS20080738-01;;;
Misc Info : HS18090001;WATER;0;50;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 17:56 dev.giga Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 12
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: CBI-Houll.sub
Target Version: 4.14
Processing Host: NAHSTW7056

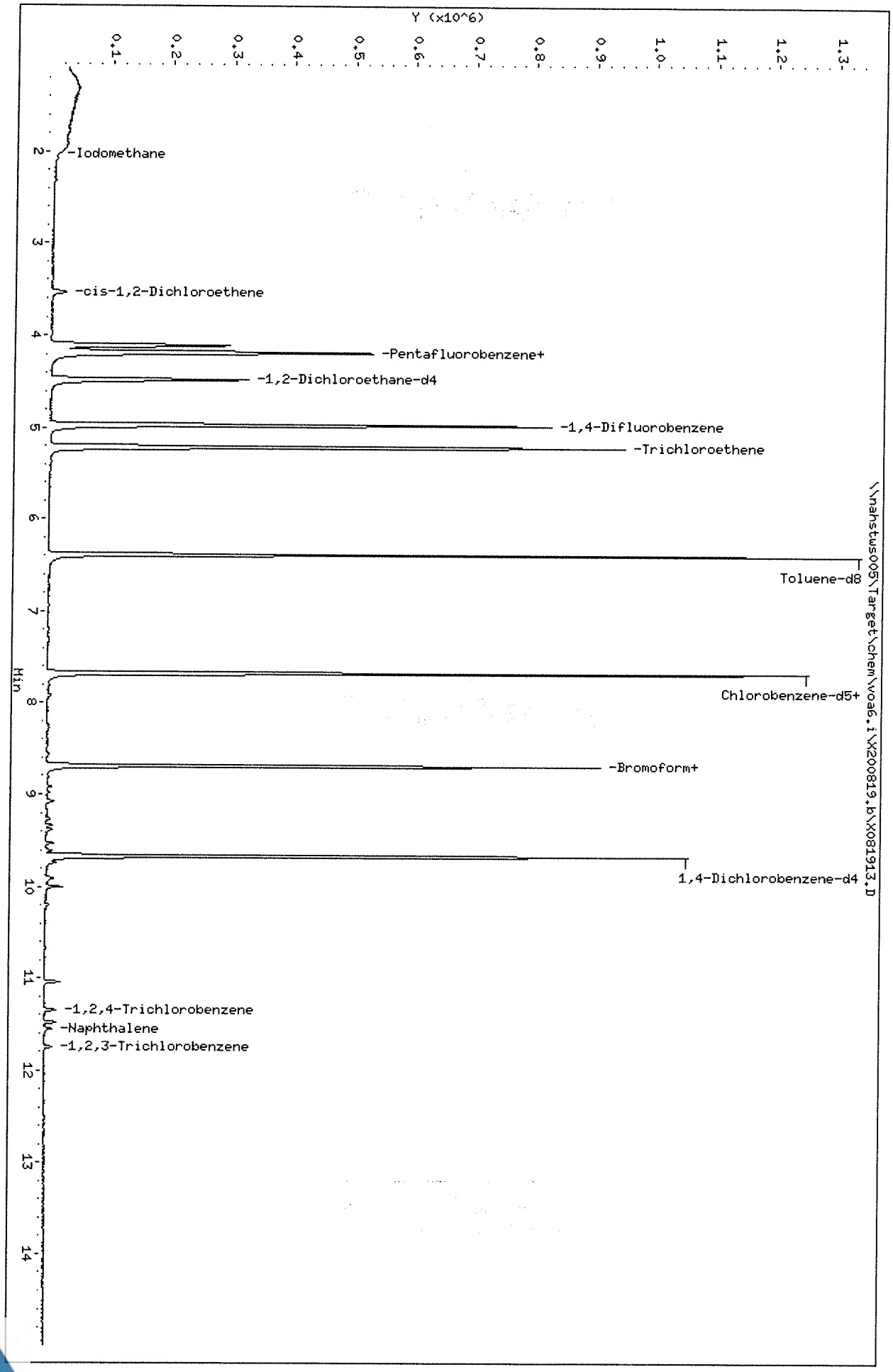
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	452517	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	671814	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	592165	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	264435	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	209231	47.0833	47.08
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	237310	45.0527	45.05
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	755971	52.6321	52.63
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	268684	48.4908	48.49
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	12254	2.46013	123.00
38 Trichloroethene	130	5.207	5.214	(1.048)	321539	67.5336	3376.67

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081913.D
Date : 19-AUG-2020 14:28
Client ID: HS200807 38-01
Sample Info: HS200807 38-01;HS200807 38-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081913.D

Date : 19-AUG-2020 14:28

Client ID: HS20080738-01

Instrument: voa6.i

Sample Info: HS20080738-01;HS20080738-01;;;

Purge Volume: 5.0

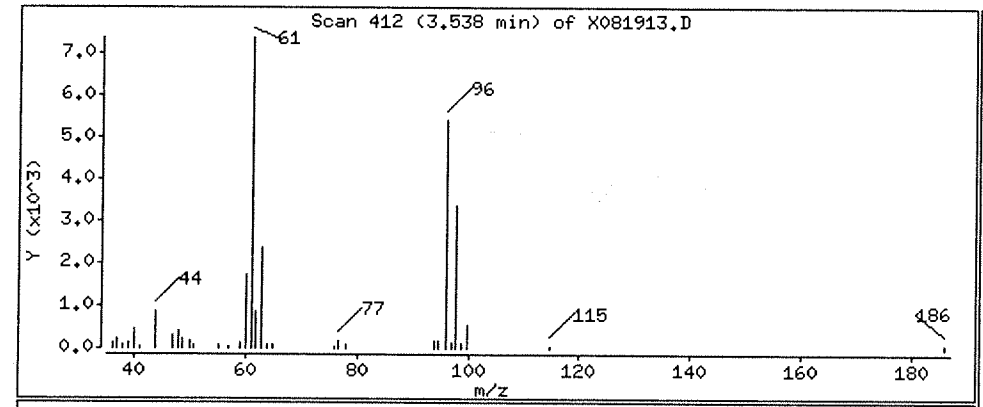
Operator: PC

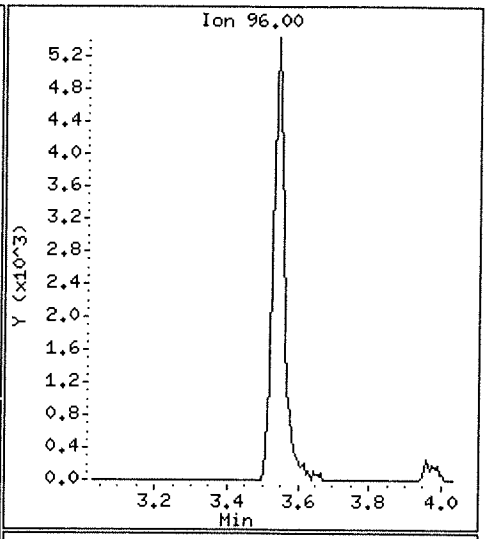
Column phase: DB624

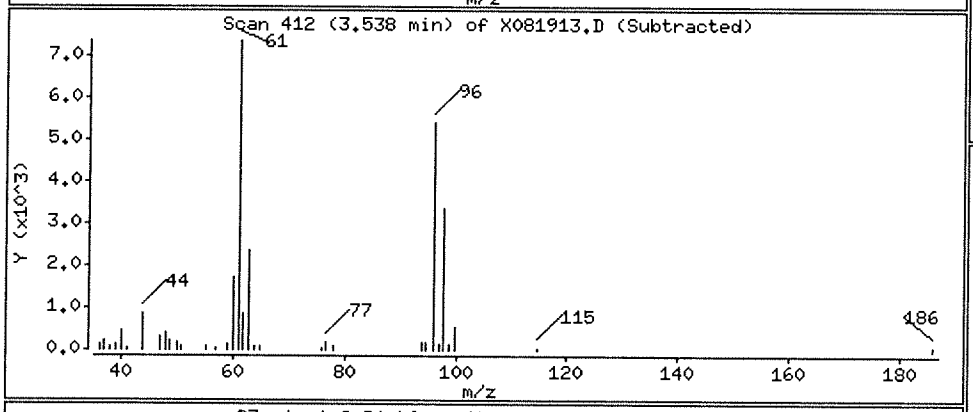
Column diameter: 0.18

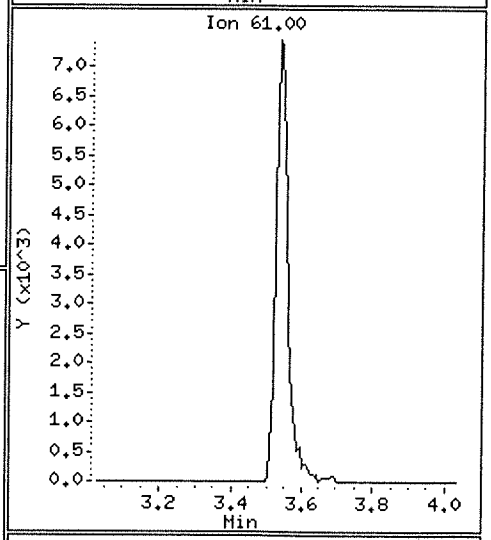
27 cis-1,2-Dichloroethene

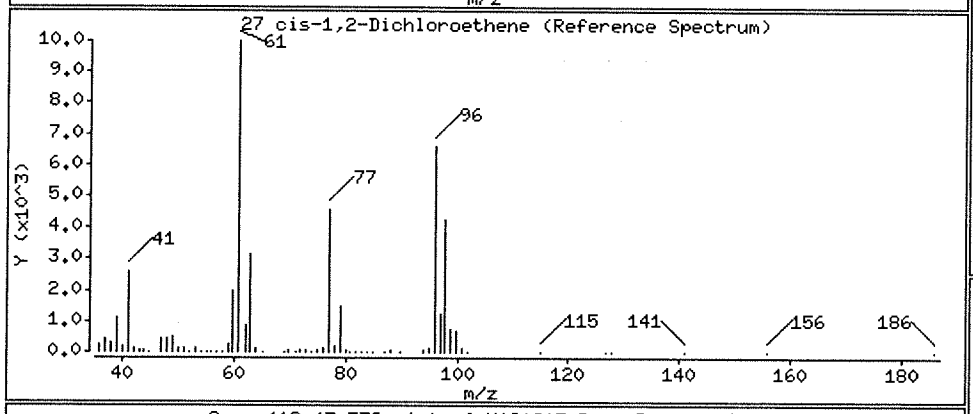
Concentration: 123.00 ug/l

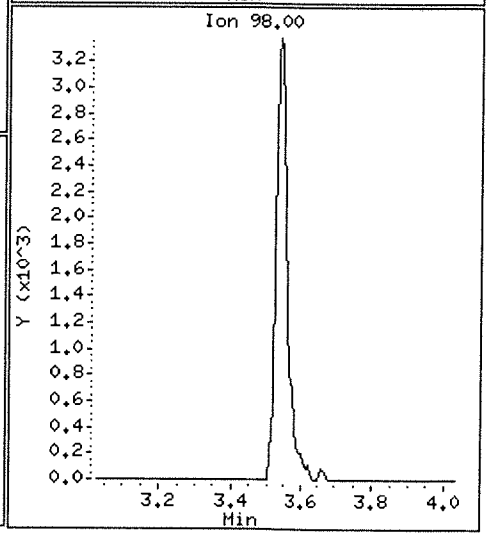


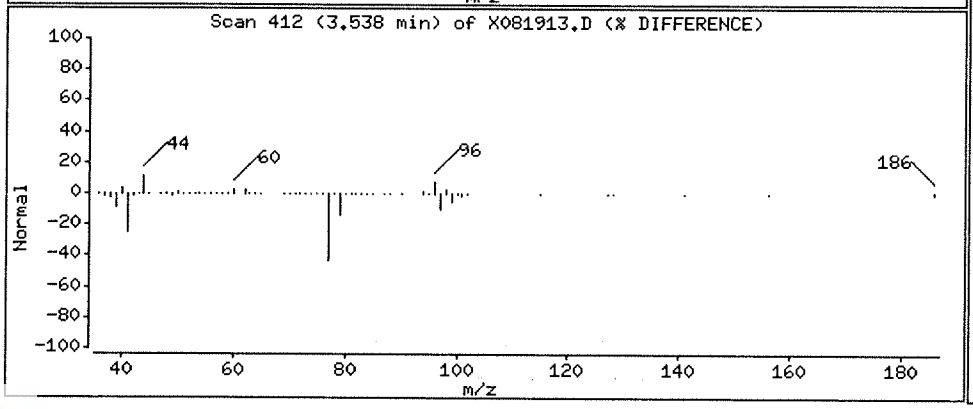












Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081913.D

Page 4

Date : 19-AUG-2020 14:28

Client ID: HS20080738-01

Instrument: voa6.i

Sample Info: HS20080738-01;HS20080738-01;;;

Purge Volume: 5.0

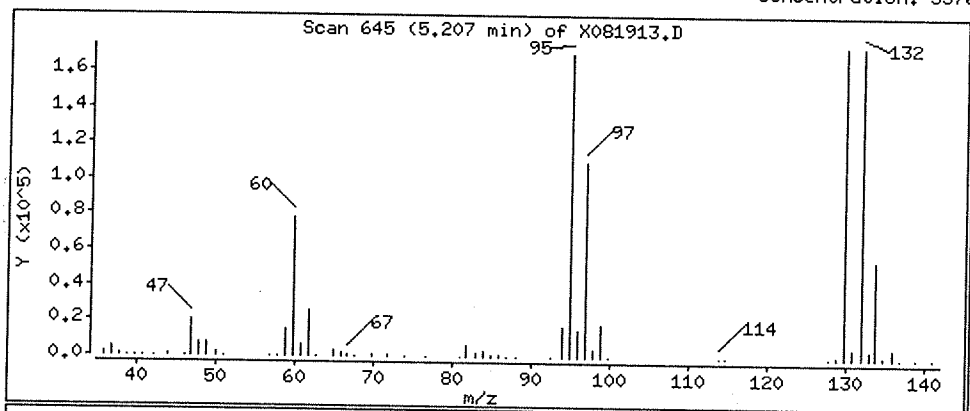
Operator: PC

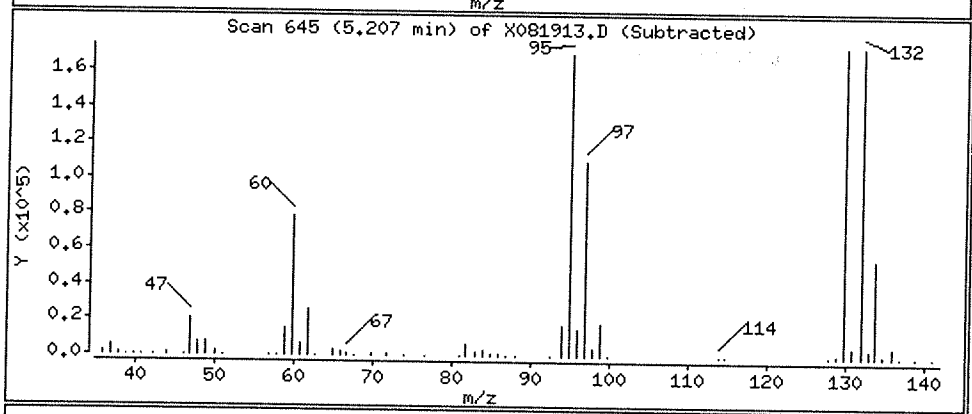
Column phase: DB624

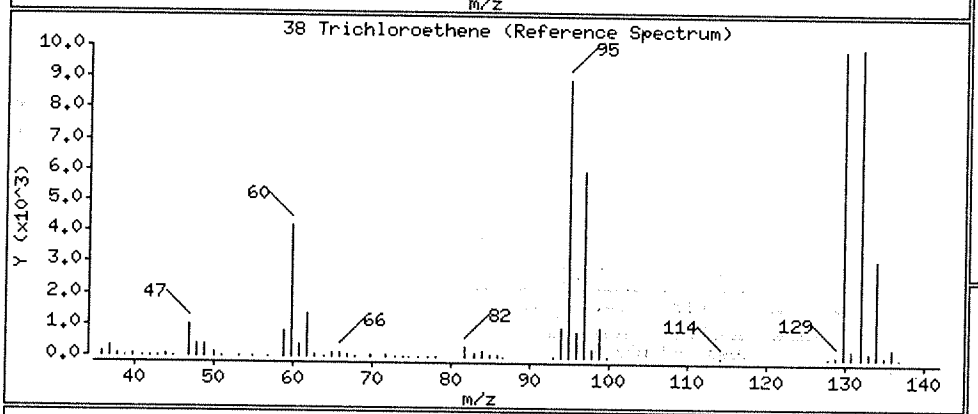
Column diameter: 0.18

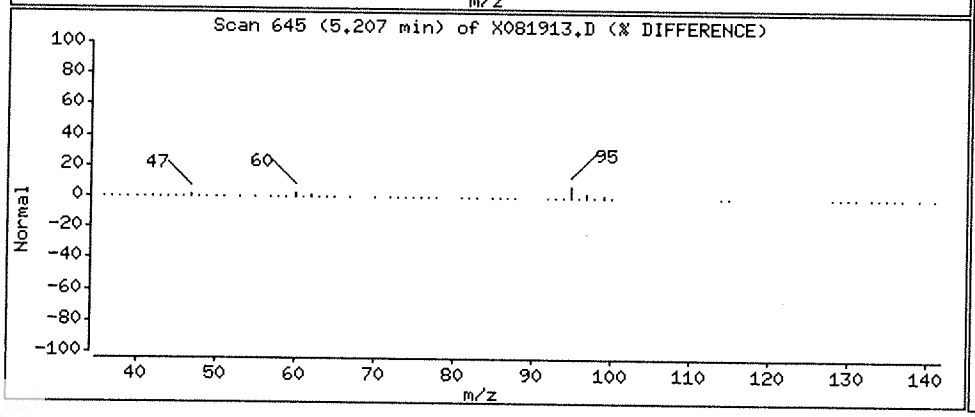
38 Trichloroethene

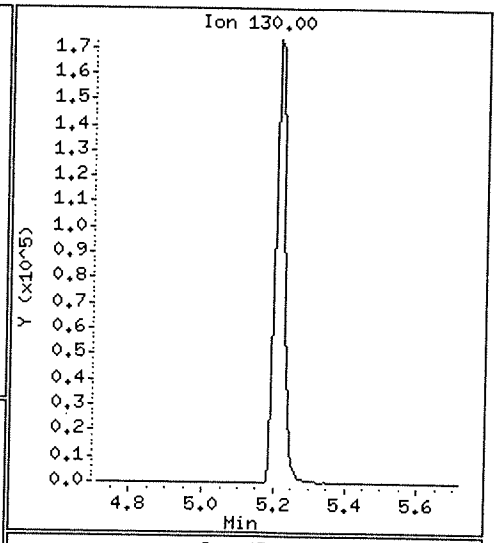
Concentration: 3376.67 ug/l

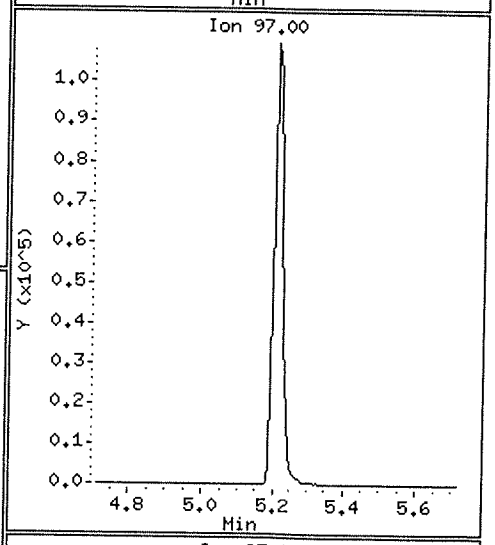


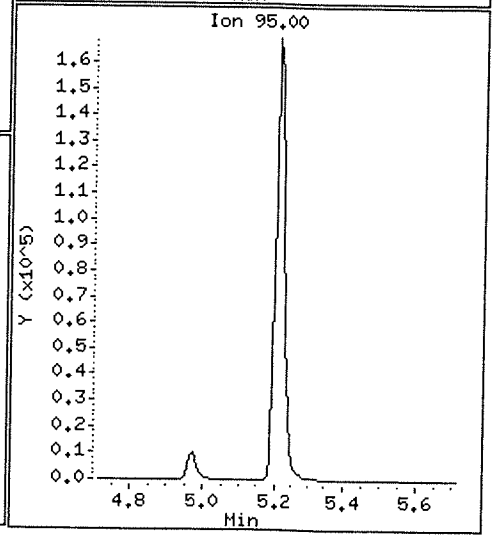












Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081923.D Page 1
Report Date: 15-Sep-2020 18:01

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200819.b\X081923.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 19-AUG-2020 18:29
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200819.b\8260W.m
Meth Date : 15-Sep-2020 18:01 voa6.i Quant Type: ISTD
Cal Date : 03-AUG-2020 14:28 Cal File: X080308.D
Als bottle: 22 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-Hou11.sub
Target Version: 4.14
Processing Host: NAHSTW7056

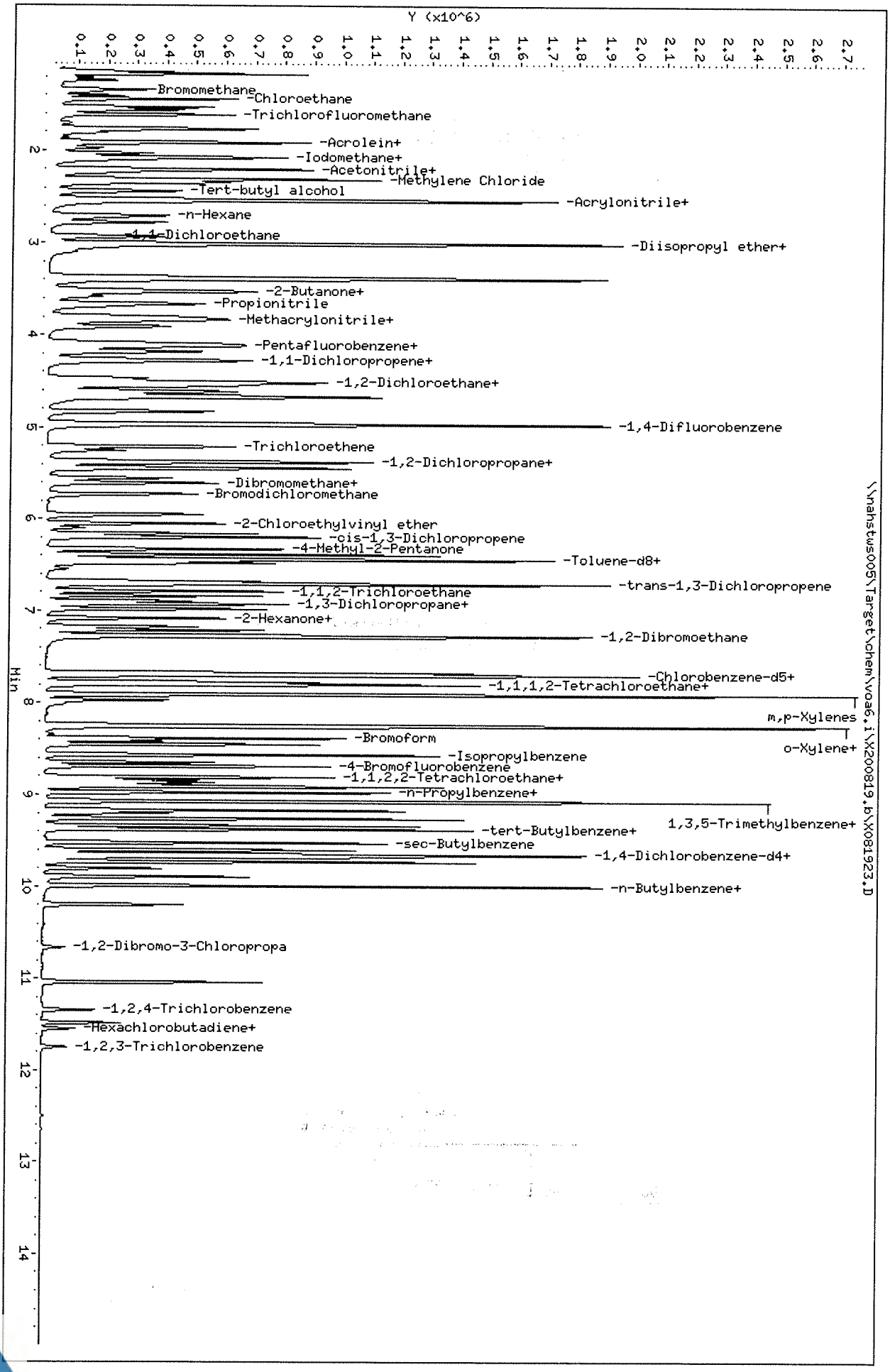
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	428537	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	667292	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	611338	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	279454	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.979)	211638	50.0000	50.28
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	241969	50.0000	48.50
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	732171	50.0000	49.37
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	275187	50.0000	48.10
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	165008	50.0000	47.43
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	164738	50.0000	48.51
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	302536	50.0000	46.82
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	233778	50.0000	49.55
17 Methylene Chloride	84	2.306	2.306	(0.550)	219740	50.0000	49.74
38 Trichloroethene	130	5.214	5.214	(1.049)	220951	50.0000	46.72
5 Vinyl Chloride	62	1.145	1.145	(0.273)	257158	50.0000	46.61

Data File: \\nahstws005\Target\chem\voa6.i\X200819.b\X081923.D
Date : 19-AUG-2020 18:29
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



HS20080738 RSK175 Raw Data

ALS WO# HS20080738

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	pH
1	ICAL1	CALIB_1	01-24-2017 09:06 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	ICAL2	CALIB_2	01-24-2017 09:30 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	NA
3	ICAL3	CALIB_3	01-24-2017 09:59 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	NA
4	ICAL4	CALIB_4	01-24-2017 10:15 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	NA
5	ICAL5	CALIB_5	01-24-2017 10:39 am	1.00	0.00 mL	0.00 mL	005.D	Liquid	Y	NA
6	ICAL6	CALIB_6	01-24-2017 10:57 am	1.00	0.00 mL	0.00 mL	006.D	Liquid	Y	NA
7	ICAL7	CALIB_7	01-24-2017 11:13 am	1.00	0.00 mL	0.00 mL	007.D	Liquid	Y	NA
8	ICV	METHSPIKE	01-24-2017 12:05 pm	1.00	0.00 mL	0.00 mL	008.D	Liquid	Y	NA
9	LCS-170124	LCS	01-24-2017 12:24 pm	1.00	0.00 mL	0.00 mL	009.D	Liquid	Y	NA
10	LCSD-170124	LCSD	01-24-2017 12:40 pm	1.00	0.00 mL	0.00 mL	010.D	Liquid	Y	NA
11	MBLK-170124	MBLK	01-24-2017 12:57 pm	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS17010778-01	SAMP	01-24-2017 01:14 pm	1.00	0.00 mL	0.00 mL	012.D	Liquid	Y	NA
13	HS17010779-01	SAMP	01-24-2017 01:31 pm	1.00	0.00 mL	0.00 mL	013.D	Liquid	Y	NA
14	HS17010779-01DUP	SAMP	01-24-2017 01:47 pm	1.00	0.00 mL	0.00 mL	014.D	Liquid	Y	NA
15	CCV	CCV	01-24-2017 02:01 pm	1.00	0.00 mL	0.00 mL	015.D	Liquid	Y	NA

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.: HS20080738

Matrix Spike - ENG SC Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Ethene	16.800	19.106	114	75-125
Methane	9.647	9.591	99	75-125
Ethane	18.043	20.117	111	75-125
Propane	26.463	27.184	103	75-125
N-Butane	34.955	36.314	104	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.: HS20080738

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	590.504	567.359	564.985	527.151	665.282	428.186
Methane	968.912	978.238	1019.699	880.798	960.713	935.006
Ethane	641.274	670.177	658.908	624.082	808.513	821.648
Propane	500	1279	2602	4785	18436	38286
N-Butane	474	1032	2082	3780	18270	42405

FORM VI GASES

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2008073

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

RF1000: 007

COMPOUND	RF1000	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MA
Ethene	756.854	AVRG		585.760435		17.722	
Methane	1081.580	AVRG		974.992337		6.498	
Ethane	811.824	AVRG		719.489678		12.458	
Propane	96632	2ORDR	0.97326263	1.526e-003	-4.56e-009	0.9990955	0
N-Butane	114164	2ORDR	2.40105031	1.857e-003	-5.73e-009	0.9980163	0

FORM VI GASES

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\001.D
Report Date: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 09:06 Cal File: 001.D
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	374	0.38600	0.383(a)
2 Ethene	1.553	1.556	-0.003	361	0.67400	0.615(a)
3 Ethane	1.716	1.723	-0.007	435	0.72200	0.590(a)
4 Propane	4.073	4.113	-0.040	500	1.05900	1.743
5 N-Butane	7.640	7.690	-0.050	438	1.39800	3.271

QC Flag Legend

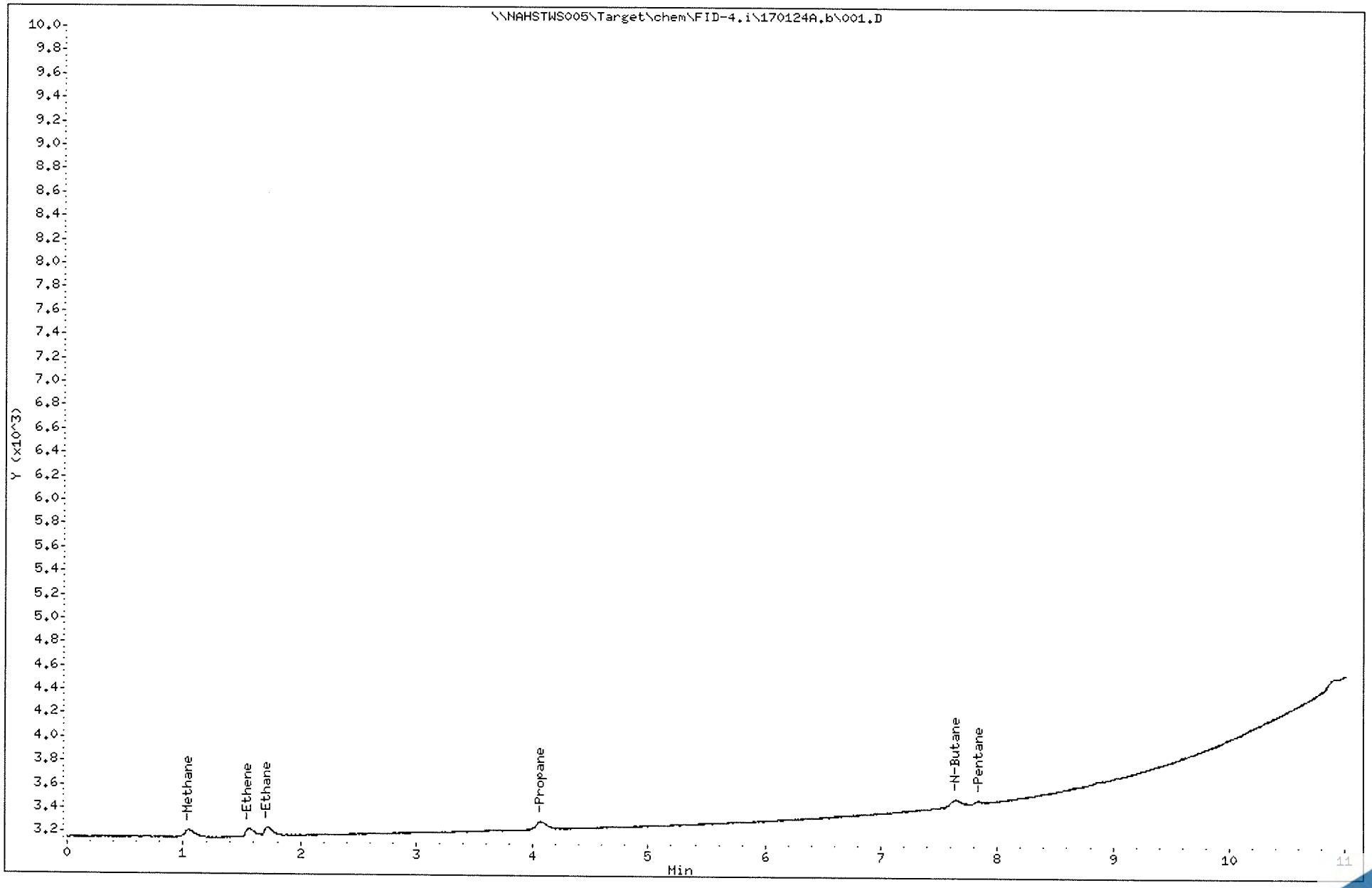
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\001.D
Date : 24-JAN-2017 09:06
Client ID: ICAL1
Sample Info: ICAL1;ICAL1;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: JA
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\002.D Page 1
Report Date: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 09:59 Cal File: 003.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

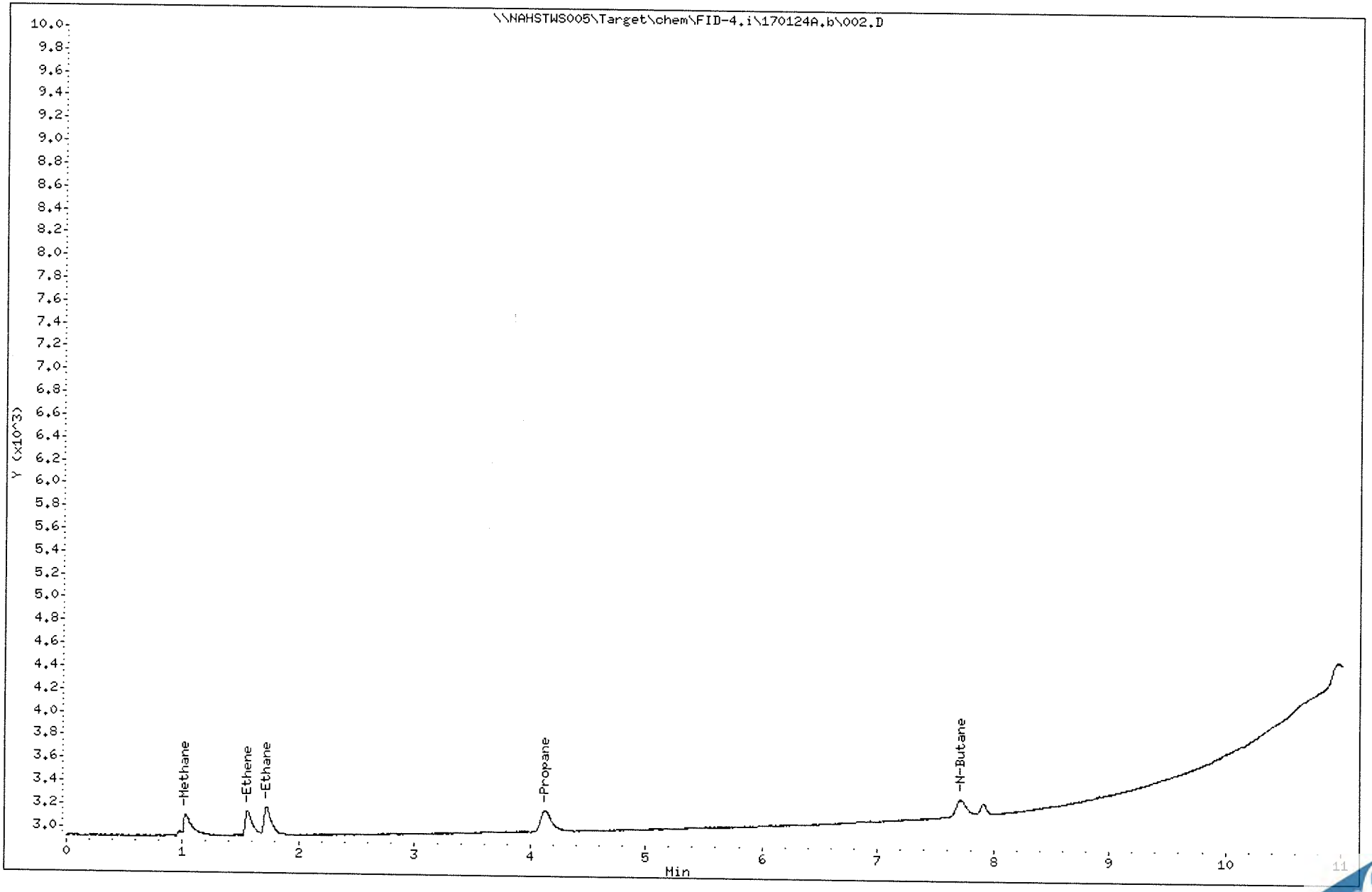
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	944	0.96500	0.968
2 Ethene	1.560	1.556	0.004	956	1.68500	1.630
3 Ethane	1.723	1.723	0.000	1209	1.80400	1.641
4 Propane	4.123	4.113	0.010	1279	2.64600	2.927
5 N-Butane	7.716	7.690	0.026	936	3.49600	4.180

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\002.D
Date : 24-JAN-2017 09:30
Client ID: ICAL2
Sample Info: ICAL2;ICAL2;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\003.D
Report Date: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad 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

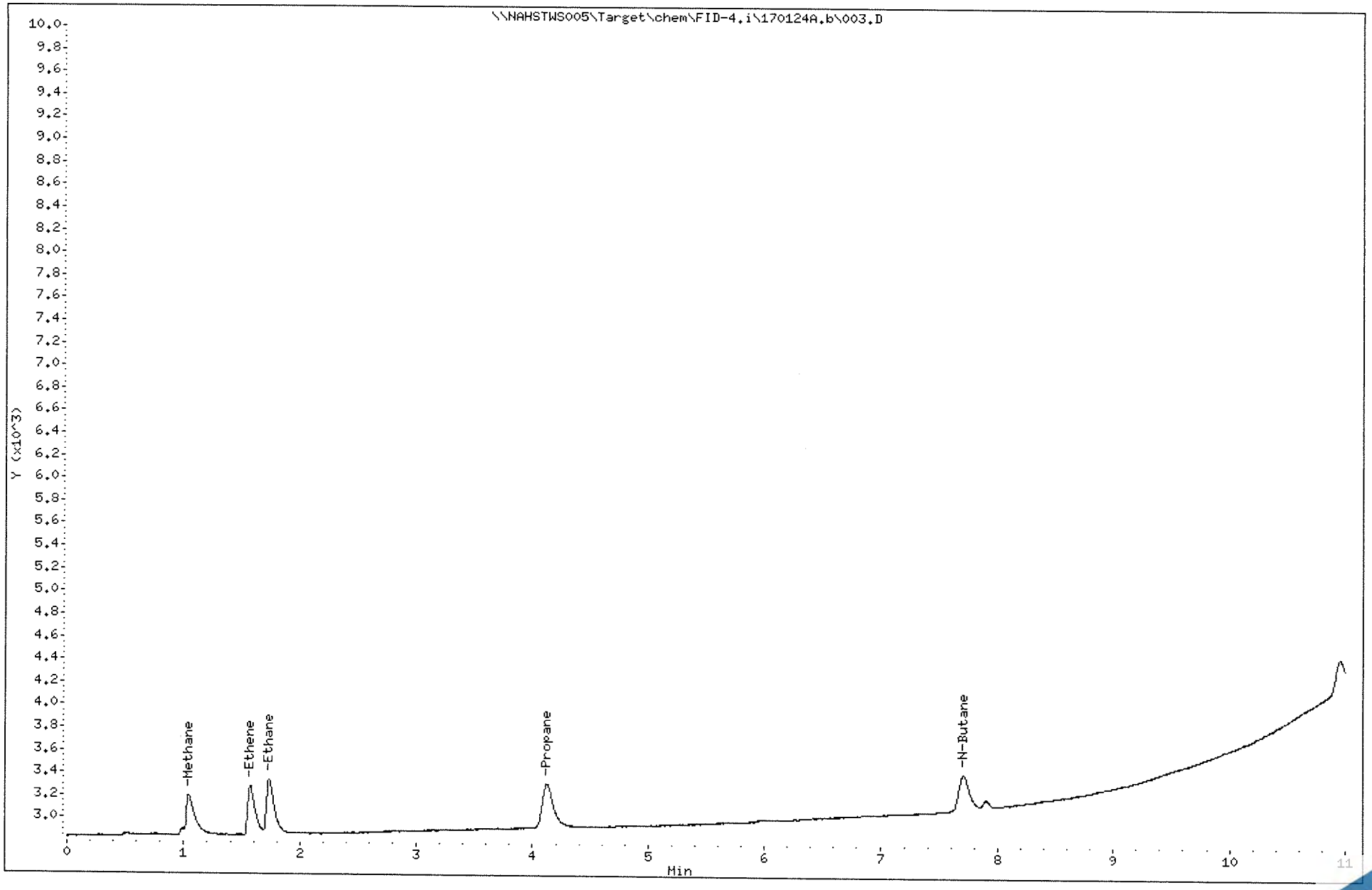
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	1967	1.92900	2.018
2 Ethene	1.570	1.556	0.014	1904	3.37000	3.247
3 Ethane	1.736	1.723	0.013	2378	3.60900	3.229
4 Propane	4.123	4.113	0.010	2602	5.29300	4.926
5 N-Butane	7.703	7.690	0.013	2034	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: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 09:30 Cal File: 002.D
Als bottle: 4 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.033	1.030	0.003	3399	3.85900	3.488
2 Ethene	1.563	1.556	0.007	3478	6.74000	5.932
3 Ethane	1.726	1.723	0.003	4310	7.21700	5.853
4 Propane	4.120	4.113	0.007	4785	10.5850	8.190
5 N-Butane	7.703	7.690	0.013	3864	13.9820	9.473(M)

QC Flag Legend

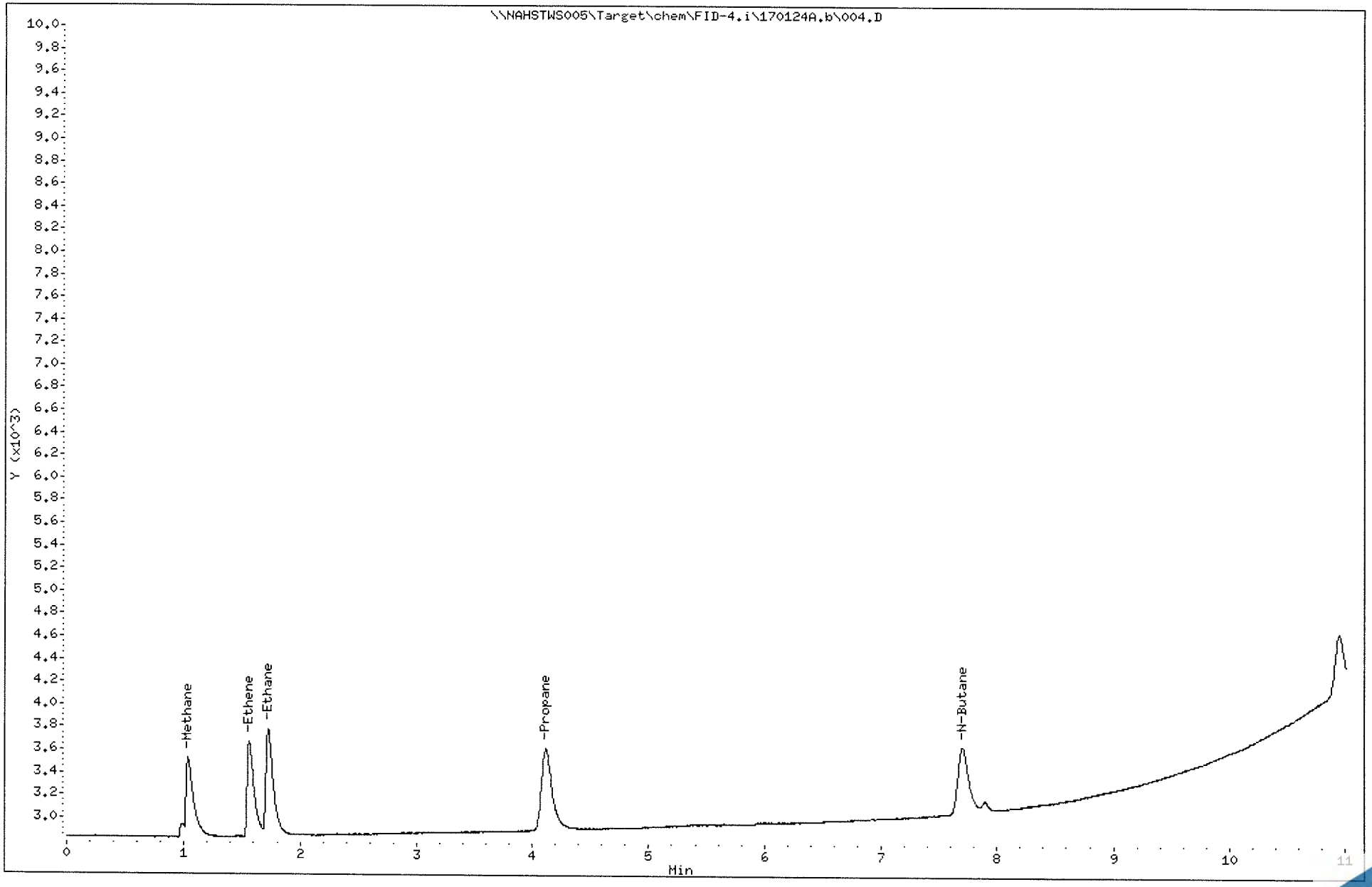
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\004.D
Date : 24-JAN-2017 10:15
Client ID: ICAL4
Sample Info: ICAL4;ICAL4;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\005.D
Report Date: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad 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

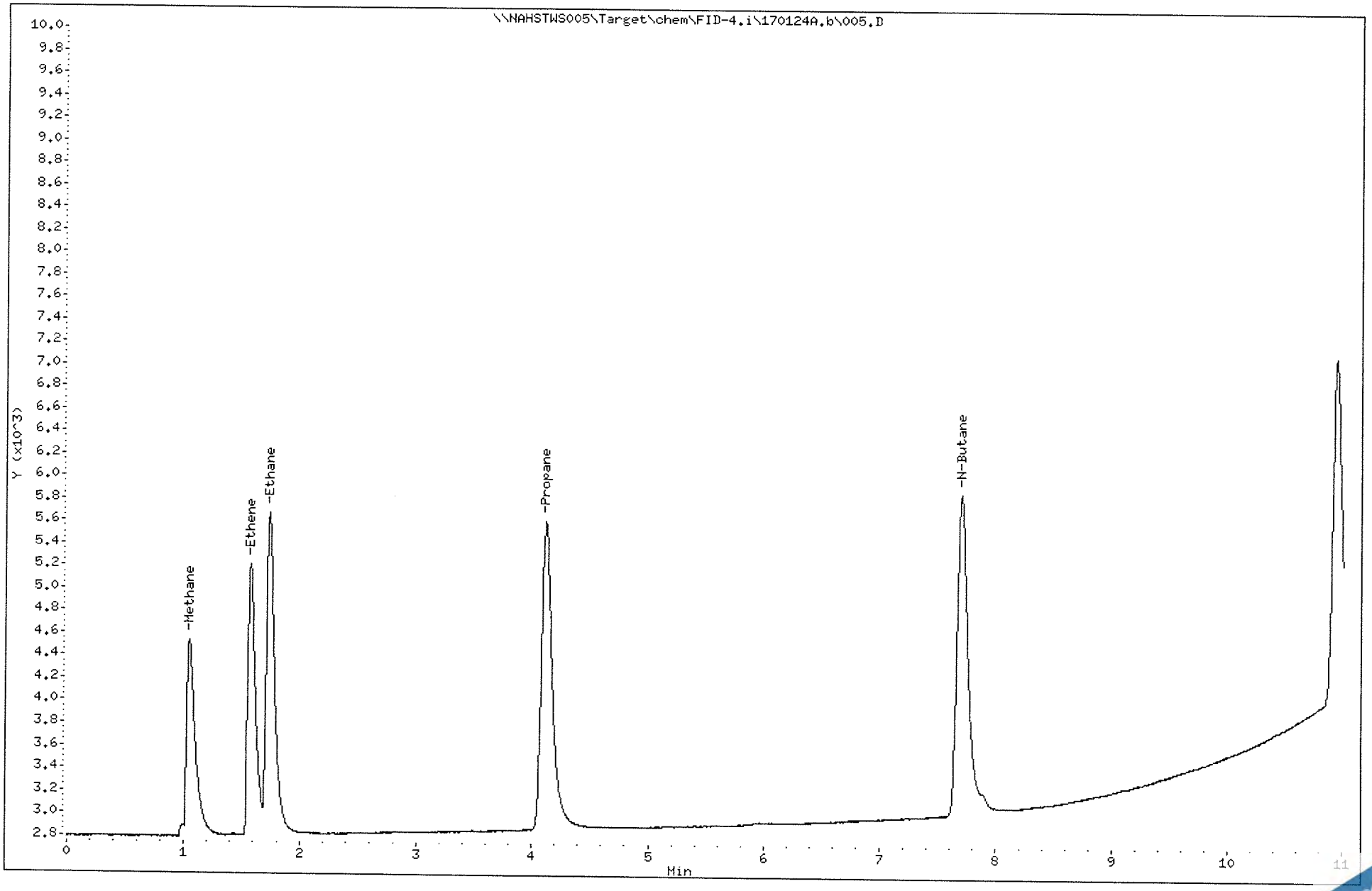
M - Compound response manually integrated.

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: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 10:39 Cal File: 005.D
Als bottle: 6 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

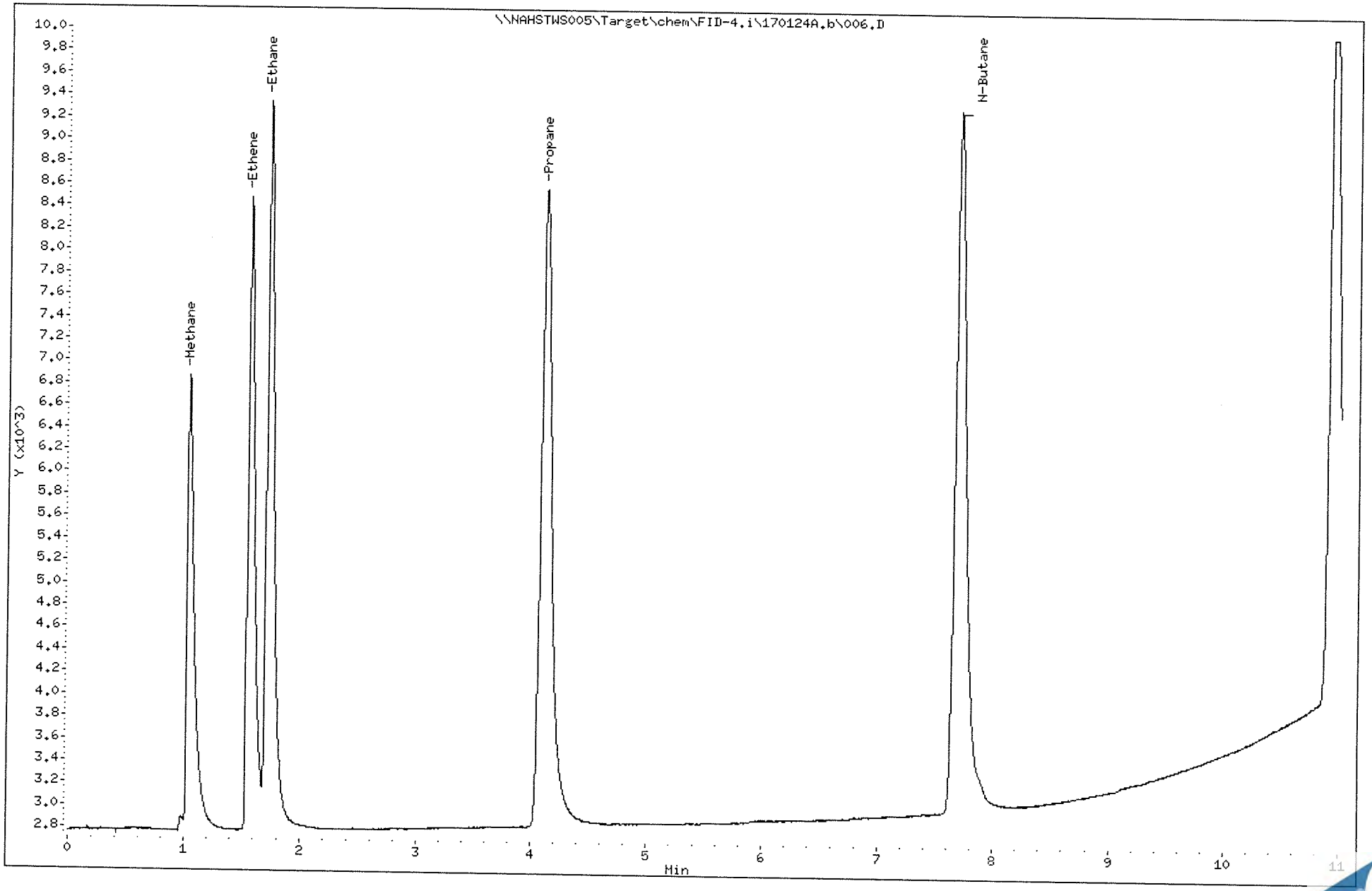
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	17957	19.2940	18.429
2 Ethene	1.550	1.556	-0.006	22910	53.8200	39.078
3 Ethane	1.716	1.723	-0.007	29505	36.0860	40.070
4 Propane	4.110	4.113	-0.003	38286	52.9260	52.796
5 N-Butane	7.696	7.690	0.006	42817	69.9110	70.855

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\006.D
Date : 24-JAN-2017 10:57
Client ID: ICAL6
Sample Info: ICAL6;ICAL6;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\007.D
Report Date: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 10:57 Cal File: 006.D
Als bottle: 7 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.030	1.030	0.000	41736	38.5880	42.833(A)
2 Ethene	1.556	1.556	0.000	55865	67.4000	95.291(A)
3 Ethane	1.723	1.723	0.000	72124	72.1720	97.951(A)
4 Propane	4.113	4.113	0.000	96509	105.852	105.844
5 N-Butane	7.690	7.690	0.000	114164	139.821	139.707

QC Flag Legend

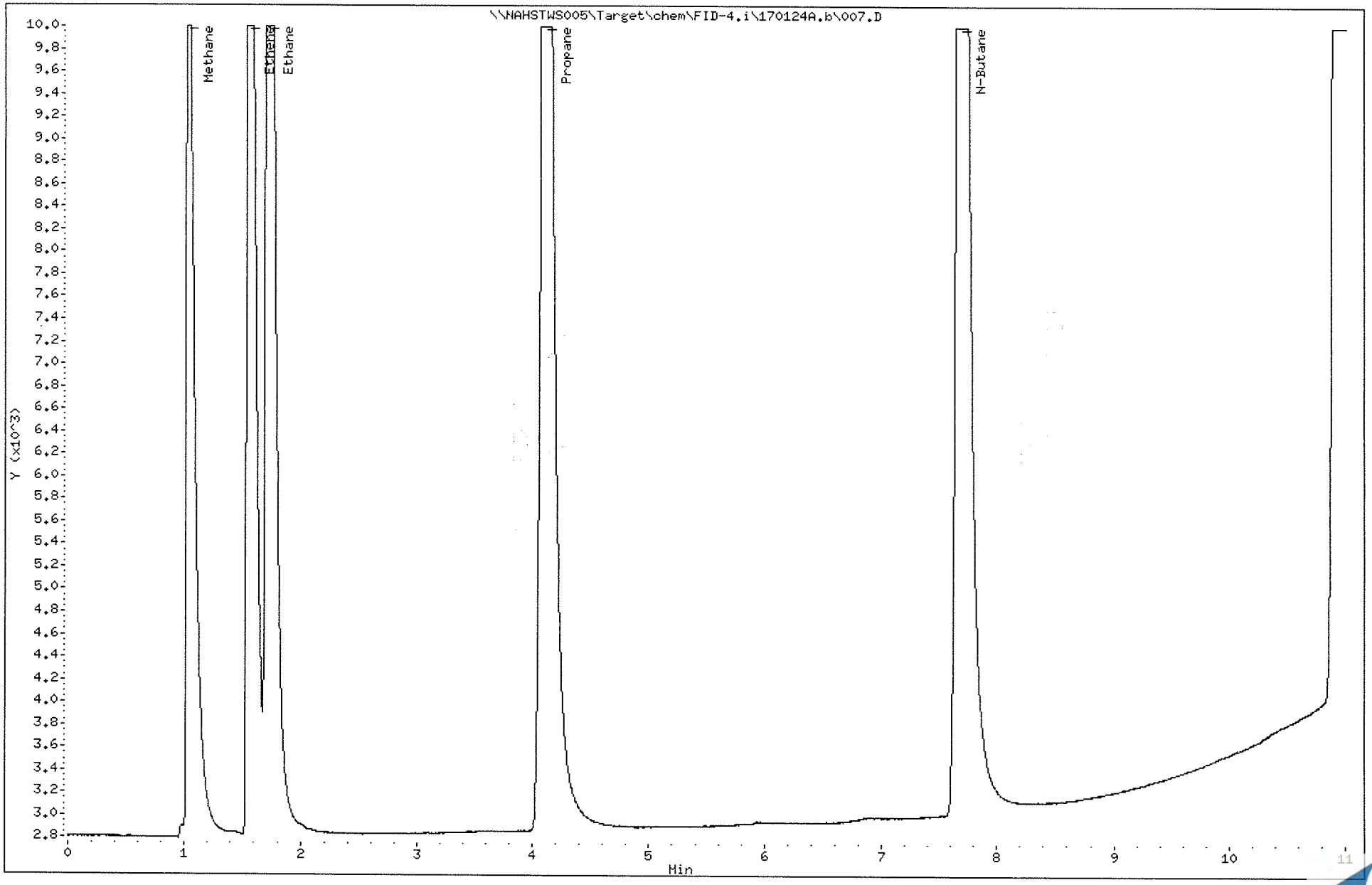
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\007.D
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



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\008.D
Report Date: 08-Apr-2020 12:18

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 : 26-Feb-2020 16:33 Purvi.lad
Quant Type: ESTD
Cal Date : 24-JAN-2017 11:13
Cal File: 007.D
Als bottle: 8
QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: Falcon
Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

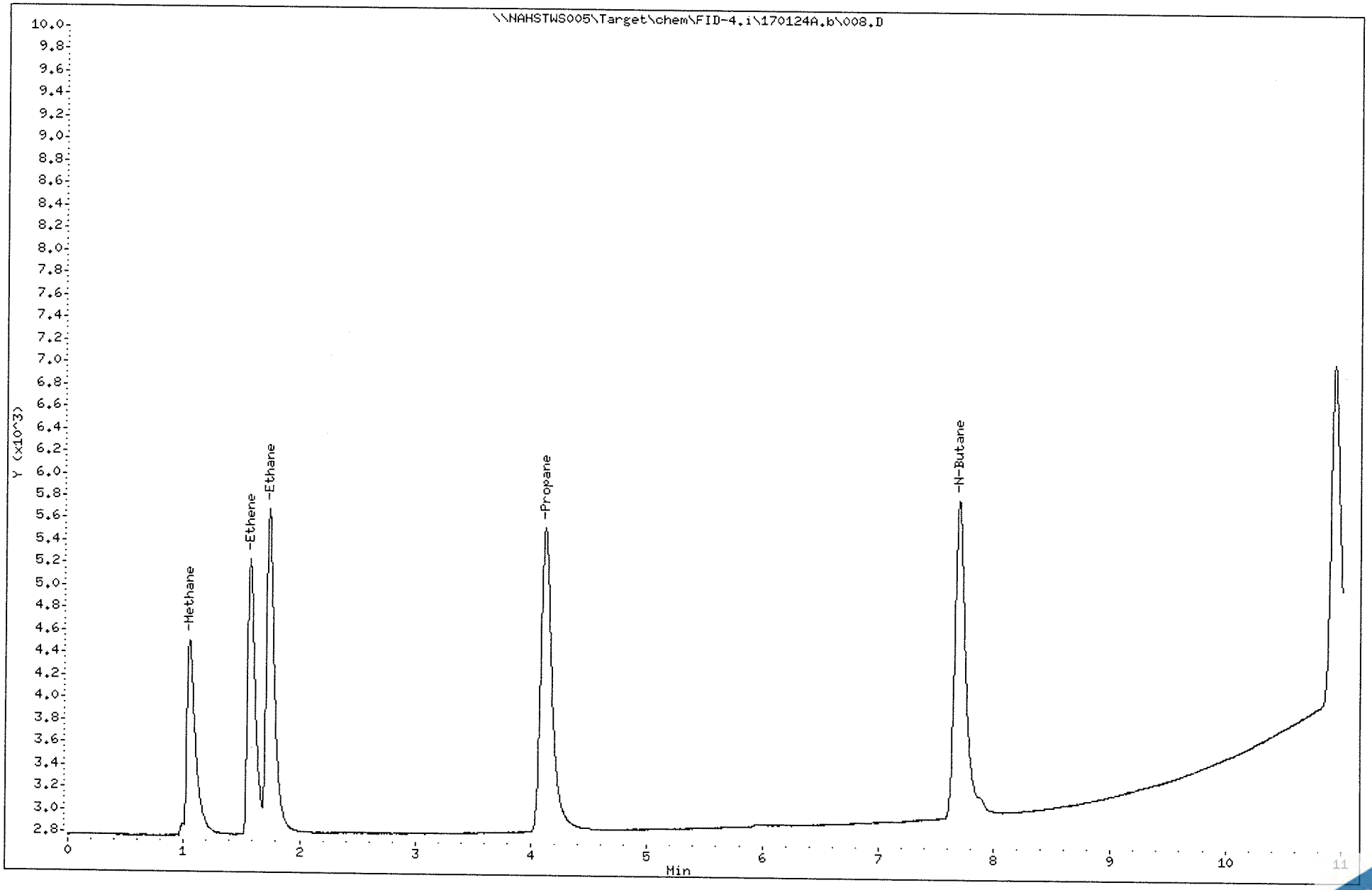
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	1.046	1.030	0.016	9352	9.59792	9.597
2 Ethene	1.573	1.556	0.017	11192	19.0906	19.090
3 Ethane	1.736	1.723	0.013	14474	19.6571	19.657
4 Propane	4.116	4.113	0.003	18164	27.2381	27.238
5 N-Butane	7.696	7.690	0.006	19425	36.0103	36.010

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\008.D
Date : 24-JAN-2017 12:05
Client ID: ICV
Sample Info: ICV;ICV;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



FID04 -Logbook

Batch: 41584 **Analyst:** Purvi Lad
Date: 08-24-2020 **Reviewer:**
Method: rsk **Laboratory:** Houston
Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	RSK-CCV	CCV	08-24-2020 10:01 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	MBLK-200824	MBLK	08-24-2020 10:12 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	NA
3	LCS-200824	LCS	08-24-2020 10:25 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	NA
4	LCSD-200824	LCSD	08-24-2020 10:40 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	NA
5	HS20080738-01	SAMP	08-24-2020 10:50 am	1.00	0.00 mL	32.66	005.D	Liquid	Y	<2
6	HS20080738-02	SAMP	08-24-2020 10:59 am	1.00	0.00 mL	31.31	006.D	Liquid	Y	<2
7	HS20080738-02MS	MS	08-24-2020 11:08 am	1.00	0.00 mL	31.32	007.D	Liquid	Y	<2
8	HS20080738-02MSD	MSD	08-24-2020 11:20 am	1.00	0.00 mL	31.00	008.D	Liquid	Y	<2
9	HS20080789-01	SAMP	08-24-2020 11:33 am	1.00	0.00 mL	31.19	009.D	Liquid	Y	<2
10	HS20080789-02	SAMP	08-24-2020 11:46 am	1.00	0.00 mL	32.18	010.D	Liquid	Y	<2
11	RSK-CCV	CCV	08-24-2020 11:54 am	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS20080789-03	SAMP	08-24-2020 12:15 pm	1.00	0.00 mL	31.73	012.D	Liquid	Y	<2
13	HS20080790-02	SAMP	08-24-2020 12:23 pm	1.00	0.00 mL	31.81	013.D	Liquid	Y	<2
14	HS20080790-03	SAMP	08-24-2020 12:33 pm	1.00	0.00 mL	32.40	014.D	Liquid	Y	<2
15	HS20080790-04	SAMP	08-24-2020 12:47 pm	1.00	0.00 mL	31.94	015.D	Liquid	Y	<2
16	HS20080845-01	SAMP	08-24-2020 01:23 pm	1.00	0.00 mL	32.39	016.D	Liquid	Y	<2
17	HS20080845-02	SAMP	08-24-2020 01:33 pm	1.00	0.00 mL	33.05	017.D	Liquid	Y	<2
18	HS20080845-03	SAMP	08-24-2020 02:18 pm	1.00	0.00 mL	32.67	018.D	Liquid	Y	<2
19	HS20080845-04	SAMP	08-24-2020 02:26 pm	1.00	0.00 mL	32.13	019.D	Liquid	Y	<2
20	RSK-CCV	CCV	08-24-2020 02:34 pm	1.00	0.00 mL	0.00 mL	020.D	Liquid	Y	NA
21	HS20080845-04	SAMP	08-24-2020 03:05 pm	20.00	0.00 mL	0.00 mL	021.D	Liquid	Y	NA
22	HS20080845-05	SAMP	08-24-2020 03:13 pm	1.00	0.00 mL	33.32	022.D	Liquid	Y	<2
23	HS20080845-06	SAMP	08-24-2020 03:26 pm	1.00	0.00 mL	30.86	023.D	Liquid	Y	<2
24	HS20080845-07	SAMP	08-24-2020 03:35 pm	1.00	0.00 mL	32	024.D	Liquid	Y	<2
25	HS20080845-08	SAMP	08-24-2020 03:44 pm	1.00	0.00 mL	32.40	025.D	Liquid	Y	<2
26	HS20080845-09	SAMP	08-24-2020 03:53 pm	1.00	0.00 mL	31.81	026.D	Liquid	Y	<2
27	HS20080833-01	SAMP	08-24-2020 04:02 pm	1.00	0.00 mL	31.62	027.D	Liquid	Y	<2
28	HS20080833-02	SAMP	08-24-2020 04:10 pm	1.00	0.00 mL	31.60	028.D	Liquid	Y	<2
29	HS20080833-03	SAMP	08-24-2020 04:18 pm	1.00	0.00 mL	31.62	029.D	Liquid	Y	<2
30	RSK-CCV	CCV	08-24-2020 04:44 pm	1.00	0.00 mL	0.00 mL	030.D	Liquid	Y	NA

Chemical	Value
pH Paper	300107049-17
CCV/LC/LSD/MS/MSD	300107035-01

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Instrument ID: FID-4 Calibration Date: 08/24/20 Time: 1001

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	770.32644	0.01	-7.06	20.00	AVRG
Methane	974.99200	897.58474	0.01	7.94	20.00	AVRG
Ethene	585.76000	630.32641	0.01	-7.61	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20080738

Instrument ID: FID-4 Calibration Date: 08/24/20 Time: 1154

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	749.21022	0.01	-4.13	20.00	AVRG
Methane	974.99200	913.44459	0.01	6.31	20.00	AVRG
Ethene	585.76000	618.27893	0.01	-5.55	20.00	AVRG

FORM VII GASES

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\001.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 24-AUG-2020 10:01
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\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

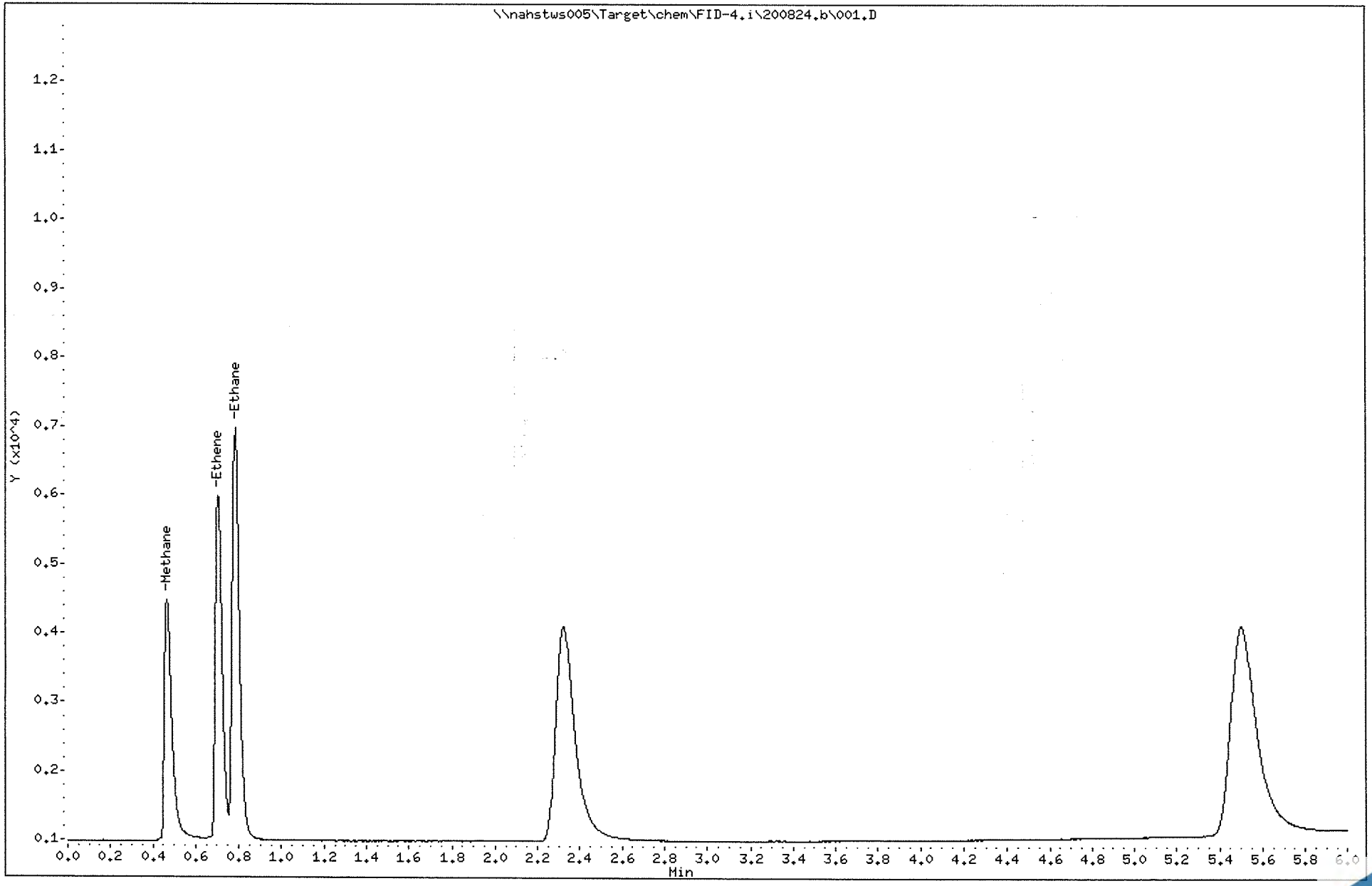
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.466	0.466	0.000	8659	9.64700	8.881
2 Ethene	0.703	0.703	0.000	10621	16.8500	18.131
3 Ethane	0.783	0.783	0.000	13899	18.0430	19.317

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\001.D
Date : 24-AUG-2020 10:01
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\002.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\002.D
Lab Smp Id: MBLK-200824 Client Smp ID: MBLK-200824
Inj Date : 24-AUG-2020 10:12
Operator : PL Inst ID: FID-4.i
Smp Info : MBLK-200824;MBLK-200824;3;;BLANK
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 2 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\002.D

Date : 24-AUG-2020 10:12

Client ID: MBLK-200824

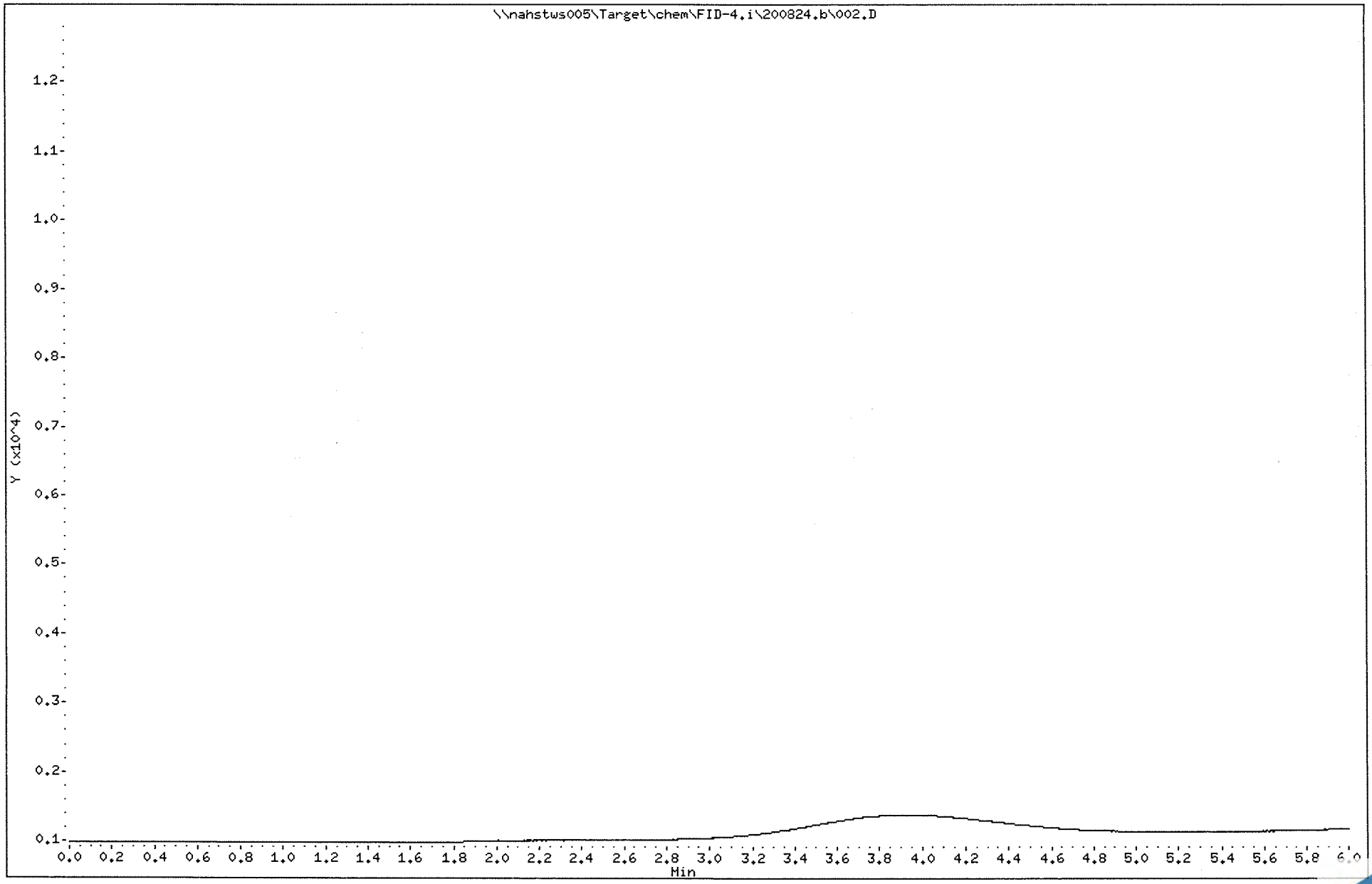
Instrument: FID-4.i

Sample Info: MBLK-200824;MBLK-200824;3;;BLANK

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\003.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\003.D
Lab Smp Id: LCS-200824 Client Smp ID: LCS-200824
Inj Date : 24-AUG-2020 10:25
Operator : PL Inst ID: FID-4.i
Smp Info : LCS-200824;LCS-200824;3;;LCS
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.466	0.466	0.000	9048	9.28007	9.280
2 Ethene	0.706	0.703	0.003	10183	17.3842	17.384
3 Ethane	0.783	0.783	0.000	12969	18.0253	18.025

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\003.D

Date : 24-AUG-2020 10:25

Client ID: LCS-200824

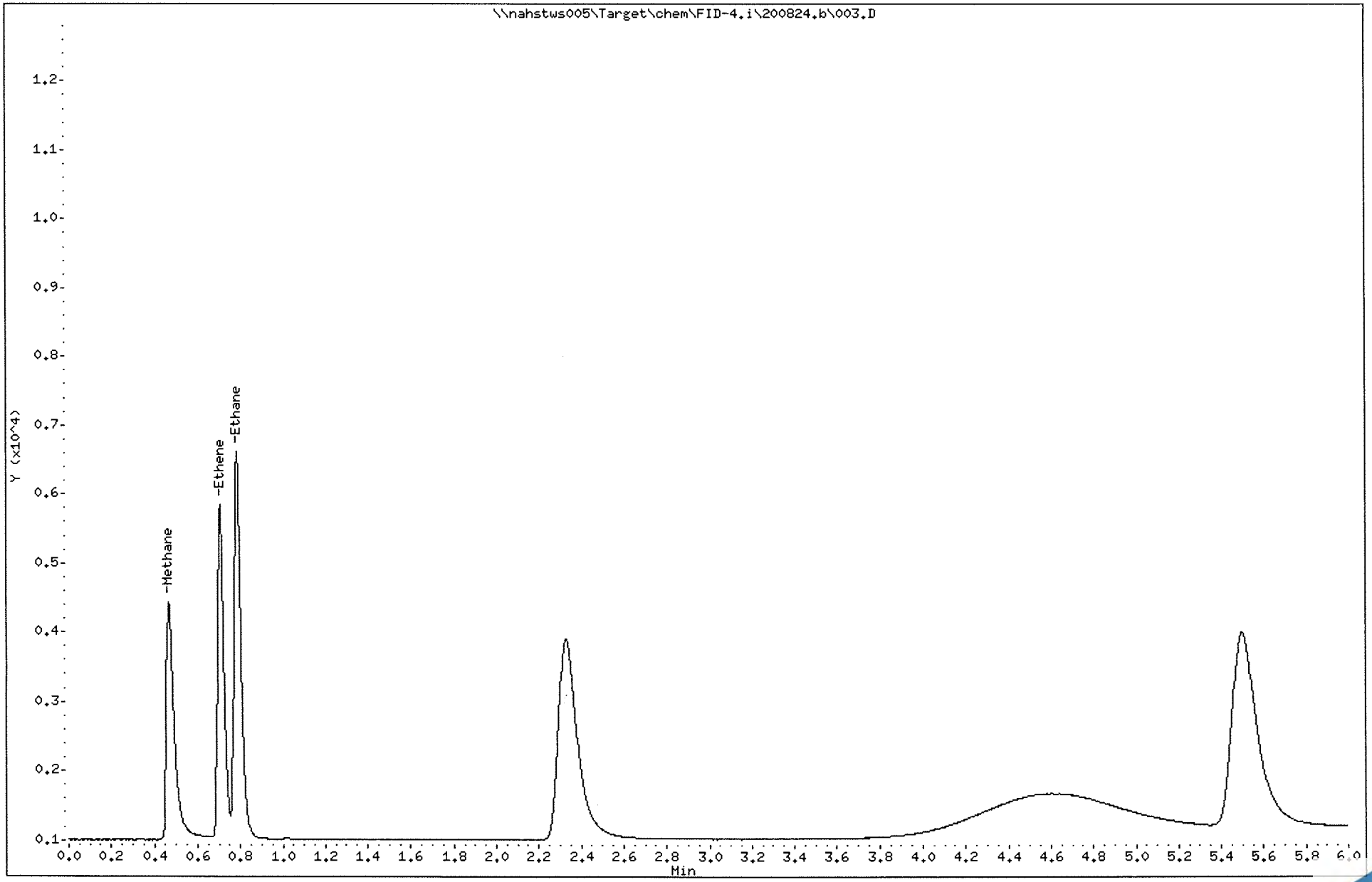
Instrument: FID-4.i

Sample Info: LCS-200824;LCS-200824;3;;LCS

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\004.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\004.D
Lab Smp Id: LCSD-200824 Client Smp ID: LCSD-200824
Inj Date : 24-AUG-2020 10:40
Operator : PL Inst ID: FID-4.i
Smp Info : LCSD-200824;LCSD-200824;3;;LCSD
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i 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: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

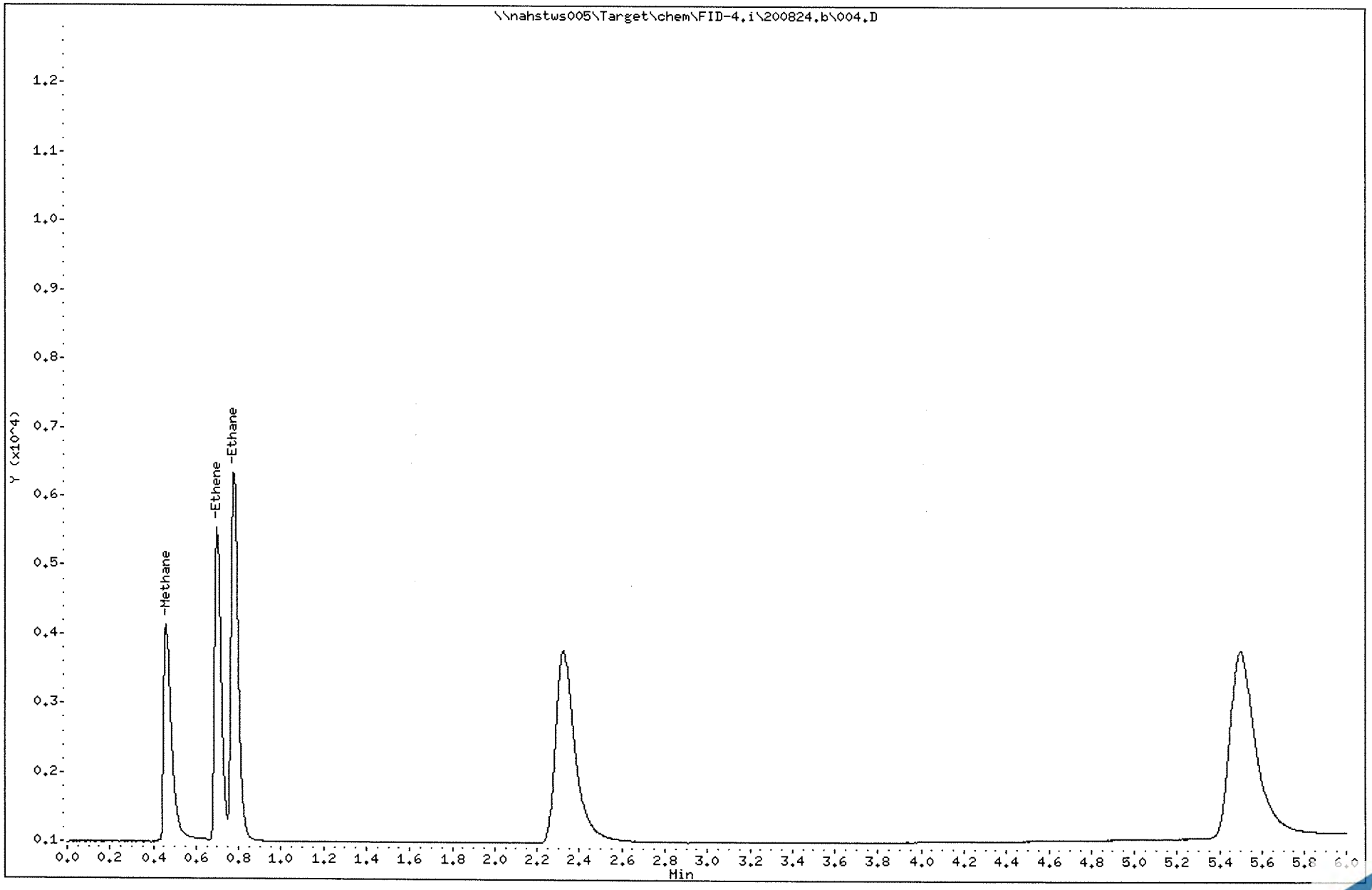
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.460	0.466	-0.006	8281	8.49340	8.493
2 Ethene	0.700	0.703	-0.003	9557	16.3155	16.315
3 Ethane	0.776	0.783	-0.007	12396	17.2289	17.228

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\004.D
Date : 24-AUG-2020 10:40
Client ID: LCSD-200824
Sample Info: LCSD-200824;LCSD-200824;3;;LCSD

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\005.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\005.D
Lab Smp Id: HS20080738-01 Client Smp ID: HS20080738-01
Inj Date : 24-AUG-2020 10:50
Operator : PL Inst ID: FID-4.i
Smp Info : HS20080738-01;HS20080738-01
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.463	0.466	-0.003	9445	9.68726	9.687(M)
2 Ethene	0.686	0.703	-0.017	1002	1.71060	1.710(M)

QC Flag Legend

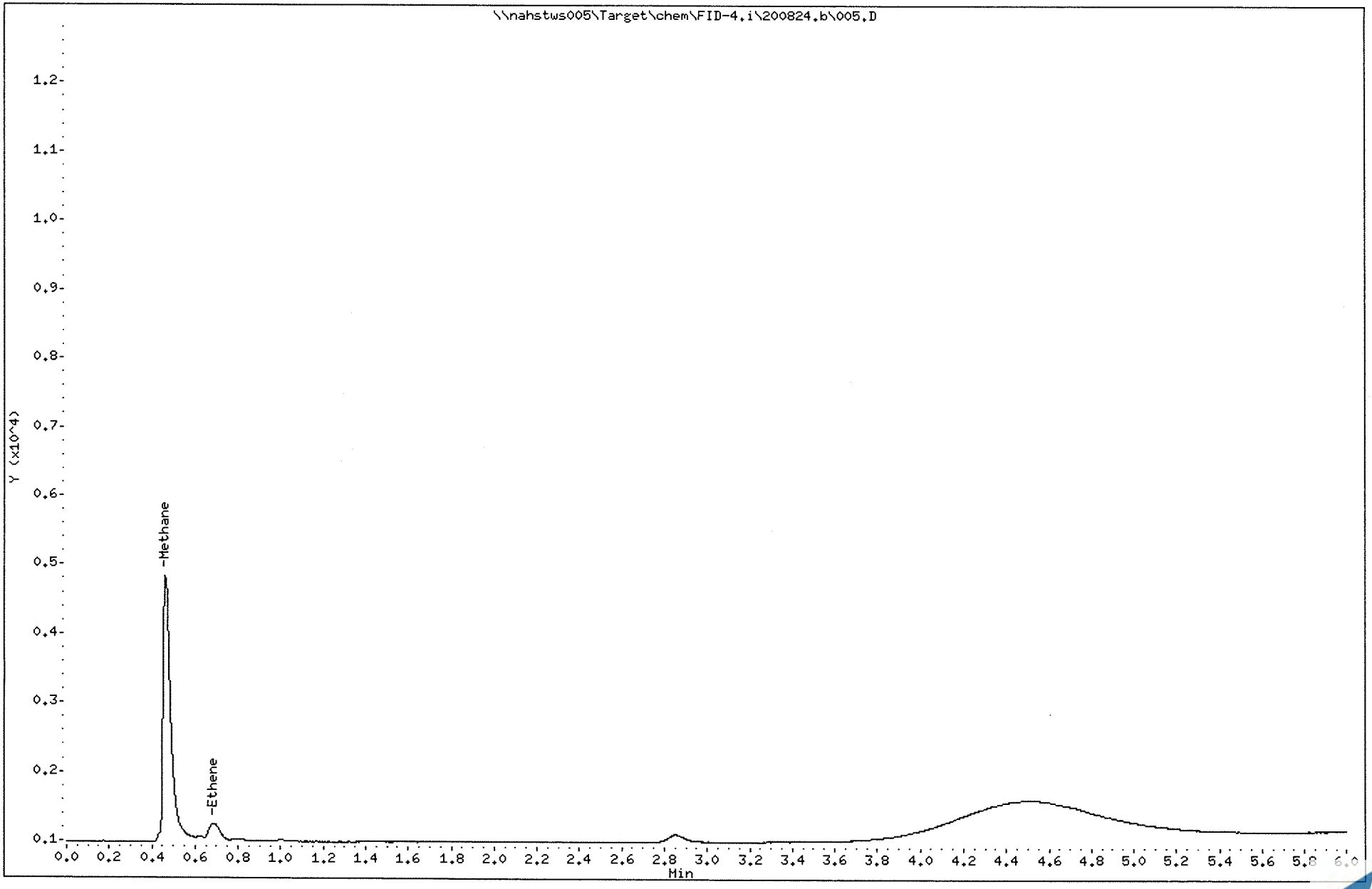
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\005.D
Date : 24-AUG-2020 10:50
Client ID: HS20080738-01
Sample Info: HS20080738-01;HS20080738-01

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\006.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\006.D
Lab Smp Id: HS20080738-02 Client Smp ID: HS20080738-02
Inj Date : 24-AUG-2020 10:59
Operator : PL Inst ID: FID-4.i
Smp Info : HS20080738-02;HS20080738-02
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.466	0.466	0.000	2131	2.18566	2.185(M)

QC Flag Legend

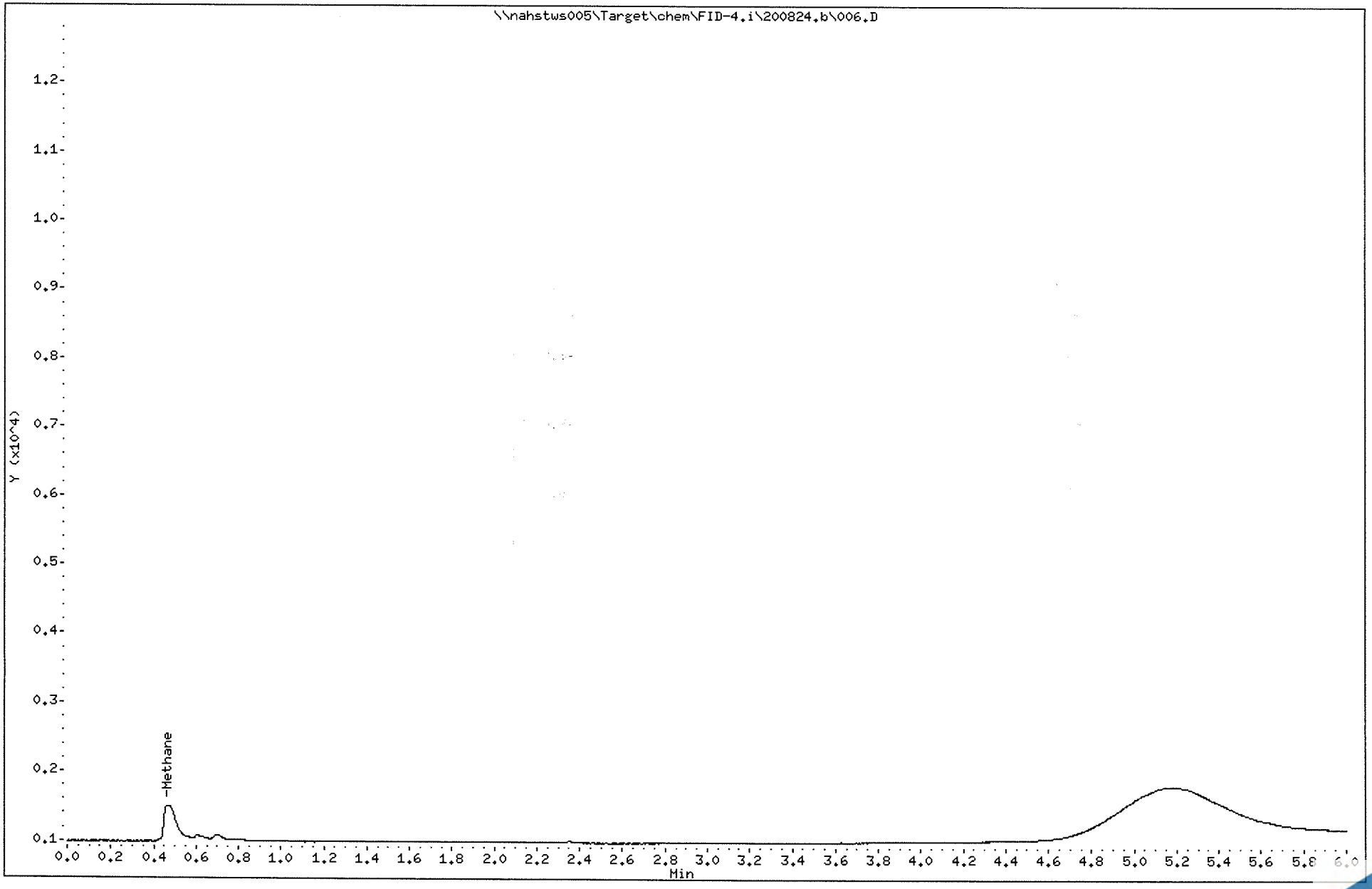
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\006.D
Date : 24-AUG-2020 10:59
Client ID: HS20080738-02
Sample Info: HS20080738-02;HS20080738-02

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\007.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\007.D
Lab Smp Id: HS20080738-02MS Client Smp ID: HS20080738-02MS
Inj Date : 24-AUG-2020 11:08
Operator : PL Inst ID: FID-4.i
Smp Info : HS20080738-02MS;HS20080738-02MS
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 7 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.466	0.466	0.000	8671	8.89340	8.893
2 Ethene	0.703	0.703	0.000	10781	18.4051	18.405(M)
3 Ethane	0.783	0.783	0.000	13405	18.6313	18.631

QC Flag Legend

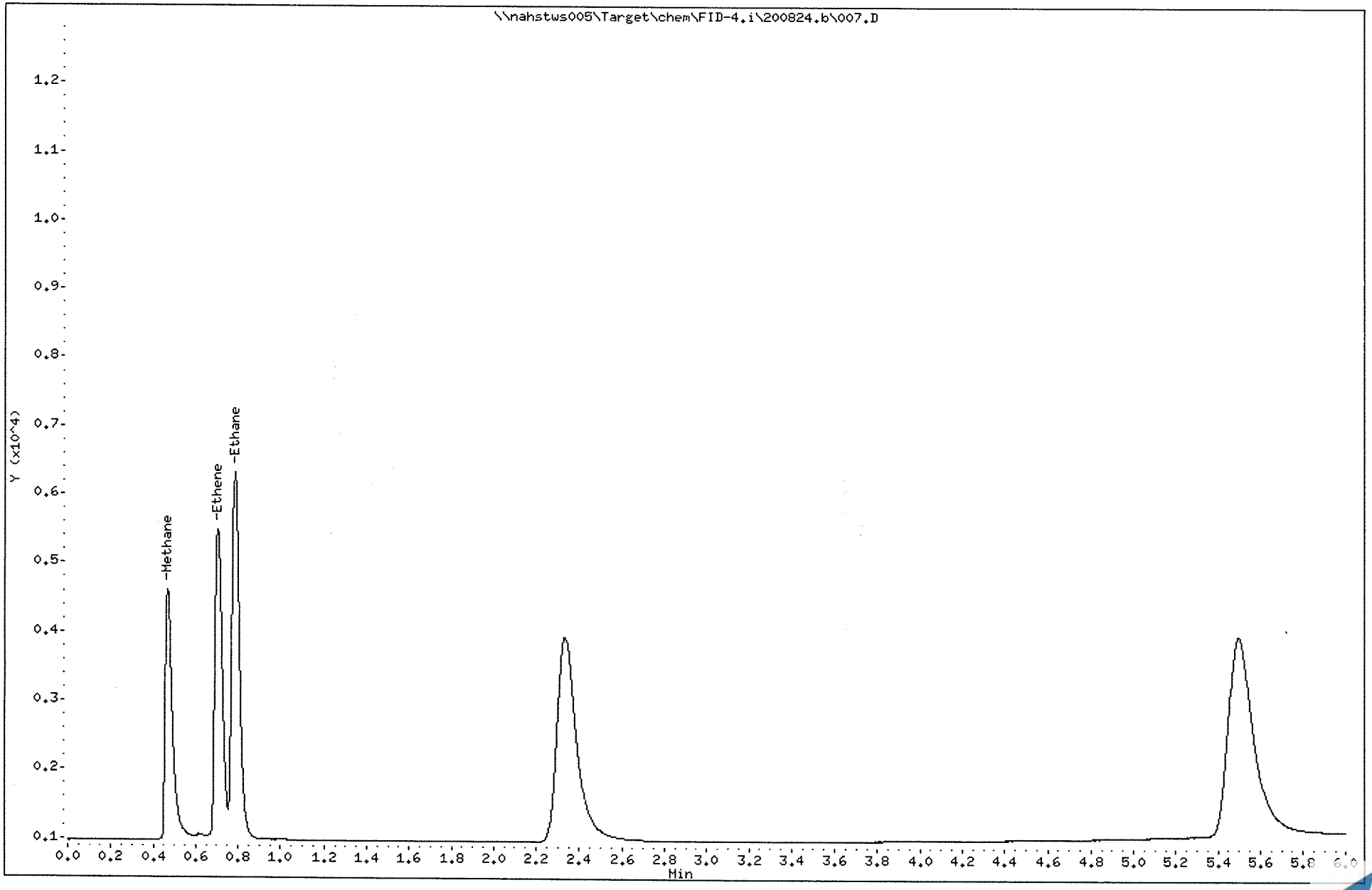
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\007.D
Date : 24-AUG-2020 11:08
Client ID: HS20080738-02MS
Sample Info: HS20080738-02MS;HS20080738-02MS

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\008.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\008.D
Lab Smp Id: HS20080738-02MSD Client Smp ID: HS20080738-02MSD
Inj Date : 24-AUG-2020 11:20
Operator : PL Inst ID: FID-4.i
Smp Info : HS20080738-02MSD;HS20080738-02MSD
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 8 QC Sample: MSD
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.463	0.466	-0.003	8901	9.12930	9.129
2 Ethene	0.700	0.703	-0.003	10992	18.7654	18.765(M)
3 Ethane	0.783	0.783	0.000	13507	18.7730	18.773(M)

QC Flag Legend

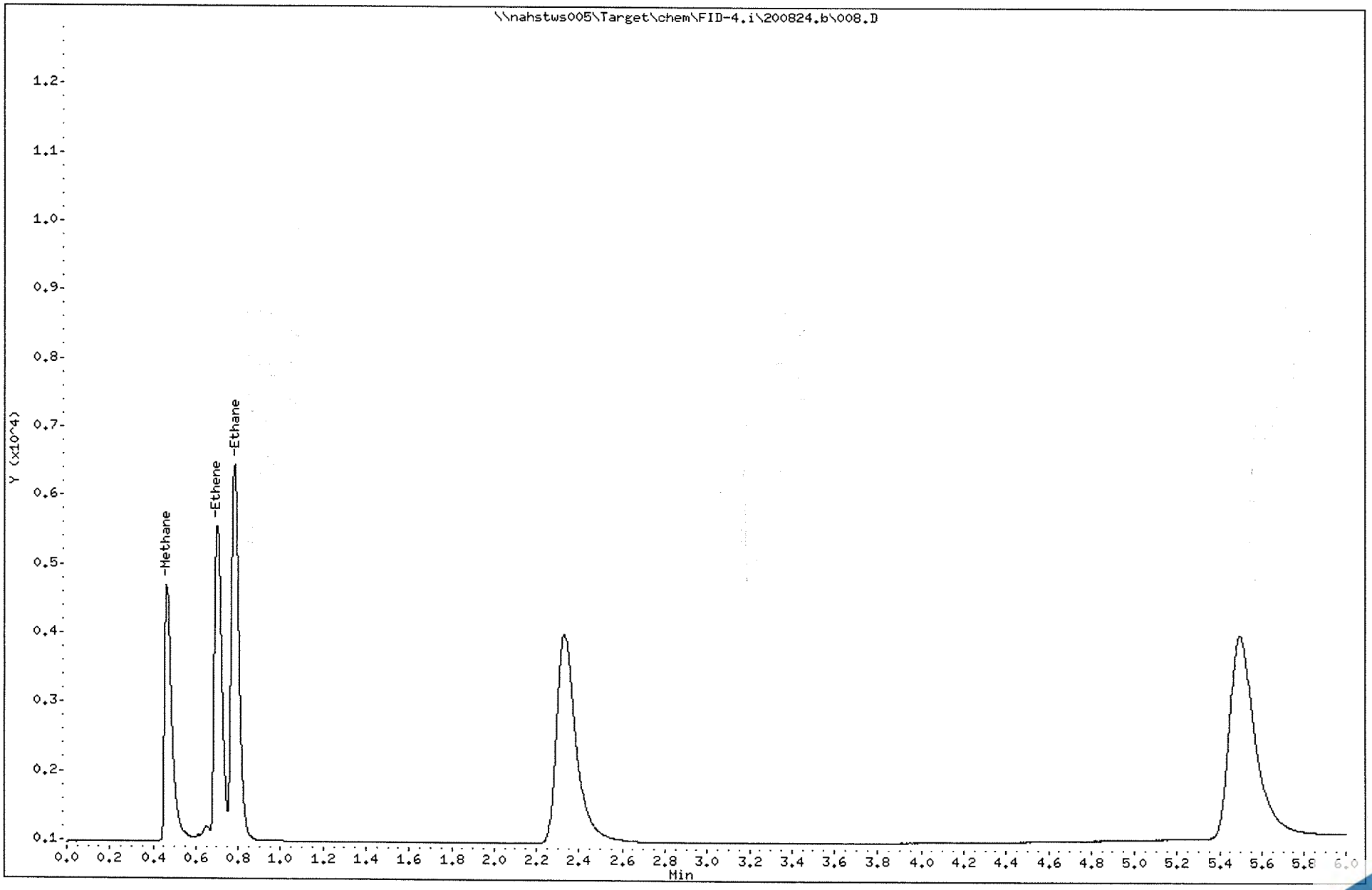
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\008.D
Date : 24-AUG-2020 11:20
Client ID: HS20080738-02MSD
Sample Info: HS20080738-02MSD;HS20080738-02MSD

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\011.D Page 1
Report Date: 15-Sep-2020 18:18

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200824.b\011.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 24-AUG-2020 11:54
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\200824.b\RSKNI3.m
Meth Date : 15-Sep-2020 18:18 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 11 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.470	0.470	0.000	8812	9.64700	9.038
2 Ethene	0.710	0.710	0.000	10418	16.8500	17.785
3 Ethane	0.790	0.790	0.000	13518	18.0430	18.788

Data File: \\nahstws005\Target\chem\FID-4.i\200824.b\011.D

Date : 24-AUG-2020 11:54

Client ID: RSK-CCV

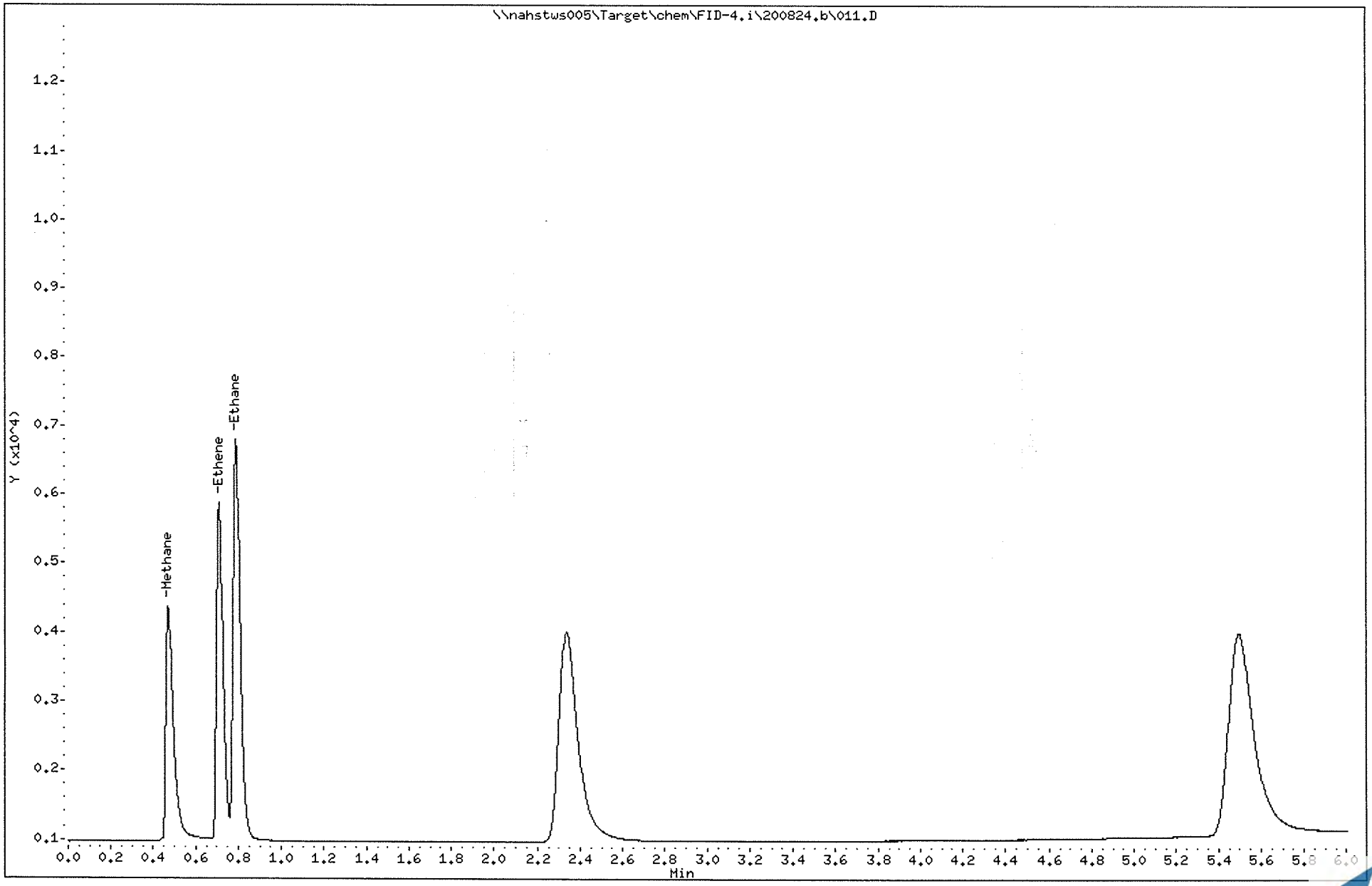
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



HS20080738 Wet Chem Raw Data (9056_anions_W)

ALS WO# HS20080738

Sequence: 081820
Last Update Operator: alshs.nouser

CD	Name	mm	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1		Calibration	BD1	1.00	1	Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 10:46:45 AM
	STD2		Calibration	BD2	1.00	2	Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 11:04:45 AM
	STD3		Calibration	BD3	1.00	3	Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 11:22:45 AM
	STD4		Calibration	BD4	1.00	4	Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 11:40:48 AM
	STD5		Calibration	BD5	1.00	5	Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 11:58:48 AM
	STD6		Calibration	BD6	1.00	6	Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 12:16:48 PM
	ICV		Unknown	BD7	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 12:34:48 PM
	ICB		Unknown	BD8	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/11/2020 12:52:50 PM
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	CCB		Unknown	BA5	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 2:01:07 PM -
	HS20080738-01DF10		Unknown	RD5	10.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 2:55:14 PM -
	HS20080738-02DF10		Unknown	RD6	10.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 3:13:15 PM -
	CCV		Unknown	BA2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 6:49:55 PM -
	CCB		Unknown	BB6	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 7:07:56 PM -
	MBLK-081820		Unknown	BB1	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 8:20:00 PM -
	LCS-081820		Unknown	BB2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 8:38:03 PM -
	HS20080738-01		Unknown	RD7	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 9:14:10 PM -
	HS20080738-02DF5		Unknown	RE1	5.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 9:32:10 PM -
	HS20080738-02MSDF5		Unknown	RE2	5.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 9:50:13 PM -
	HS20080738-02MSDDF5		Unknown	RE3	5.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 10:08:12 PM
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	HS20080738-02DF100		Unknown	RE4	100.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/18/2020 11:02:18 PM
	CCV		Unknown	BA2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/19/2020 2:02:28 AM -
	CCB		Unknown	BB6	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished	8/19/2020 2:20:29 AM -

Sequence: 081820
Injection #6: STD6

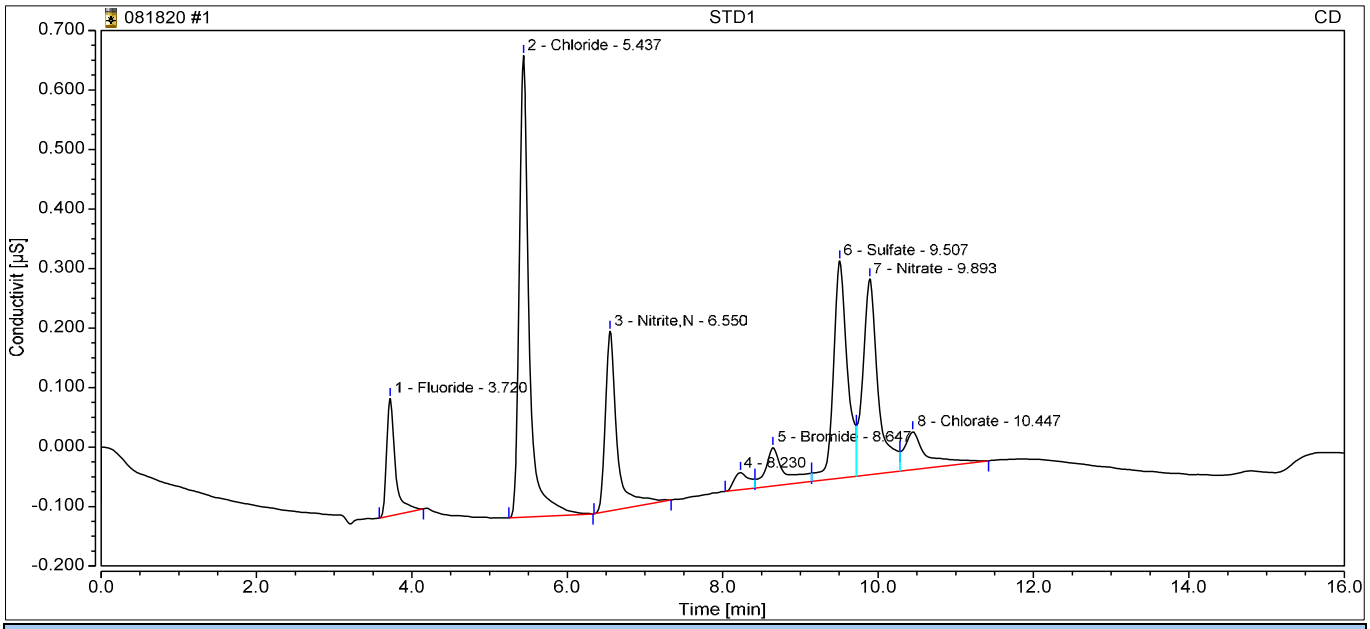
Calibration

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*	*17.3553*	*0.99849*	*-0.0040*	*0.3537*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	5.4804	0.99983	0.0129	0.2289	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	26.1376	0.99573	0.0186	0.4711	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	0.9346	0.99999	0.0083	0.1008	0.0000
6	Sulfate	Lin, WithOffset, 1/	Area	6	5.2843	0.99985	-0.0019	0.1602	0.0000
7	Nitrate	Lin, WithOffset, 1/	Area	6	4.5248	0.99988	0.0144	0.6154	0.0000
8	Chlorate	Lin, WithOffset, 1/	Area	6	13.4374	0.99837	0.0139	0.1019	0.0000
10	Phosphate	Lin, WithOffset, 1/	Area	5	18.5357	0.99714	-0.0737	0.1942	0.0000
Maximum					**26.1376**	0.99999			
Minimum					0.9346	**0.99573**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**BD1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 10:46**	*Sample Weight:*	**1.0000**

Run Time:



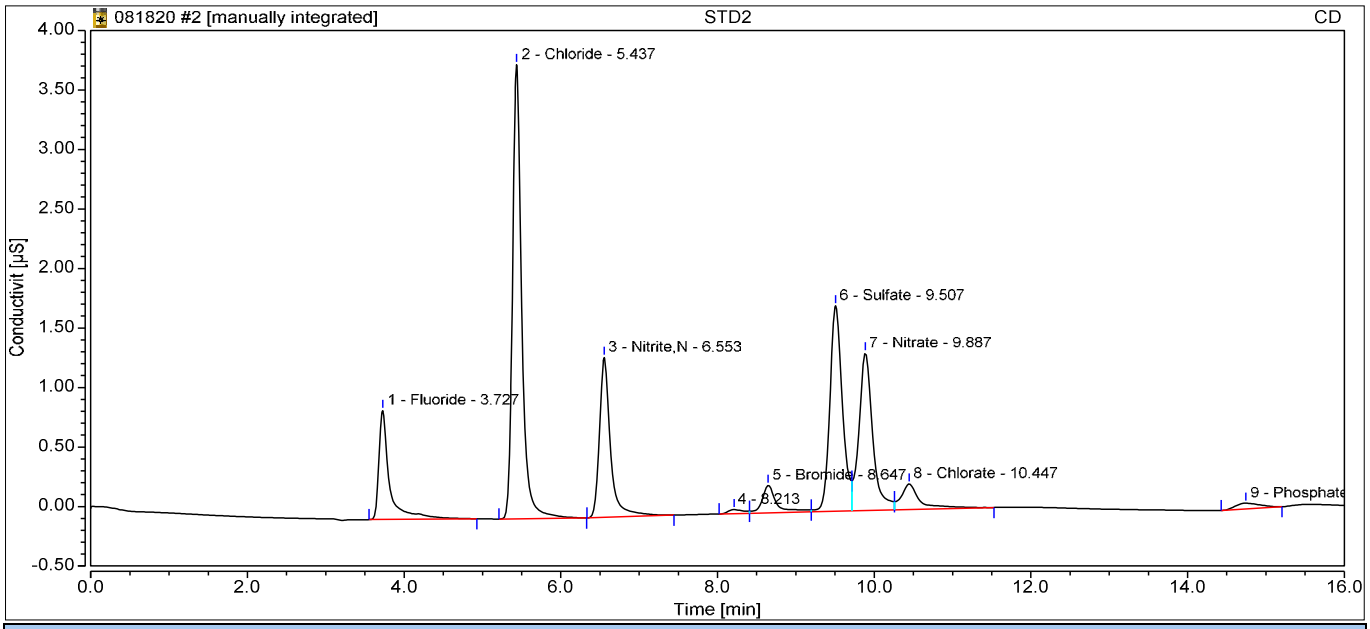
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.025	0.0833	0.0833	1.0000
2	5.44	Chloride	BMB	0.116	0.4487	0.4487	1.0000
3	6.55	Nitrite,N	BMB	0.052	0.0715	0.0715	1.0000
5	8.65	Bromide	M	0.018	0.0997	0.0997	1.0000
6	9.51	Sulfate	M	0.076	0.4861	0.4861	1.0000
7	9.89	Nitrate	M	0.075	0.0985	0.0985	1.0000
8	10.45	Chlorate	MB	0.021	0.0734	0.0734	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.384**		**1.36**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**BD2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:04**	*Sample Weight:*	**1.0000**

Run Time:



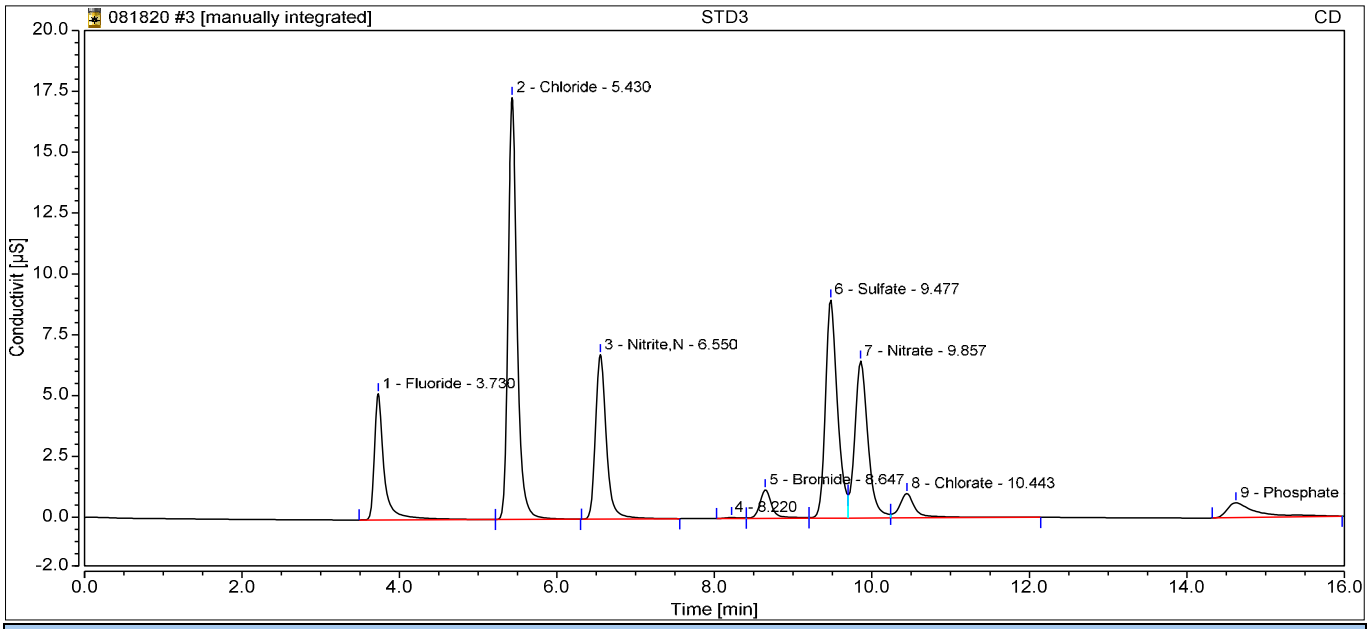
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.145	0.4204	0.4204	1.0000
2	5.44	Chloride	BMB	0.518	2.2084	2.2084	1.0000
3	6.55	Nitrite,N	BMB	0.221	0.4294	0.4294	1.0000
5	8.65	Bromide	M	0.049	0.4041	0.4041	1.0000
6	9.51	Sulfate	M	0.321	2.0151	2.0151	1.0000
7	9.89	Nitrate	M	0.270	0.4147	0.4147	1.0000
8	10.45	Chlorate	MB	0.060	0.4536	0.4536	1.0000
9	14.74	Phosphate	BMB	0.018	0.4703	0.4703	1.0000
Total:			**0.000**	**1.601**		**6.82**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**BD3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:22**	*Sample Weight:*	**1.0000**

Run Time:



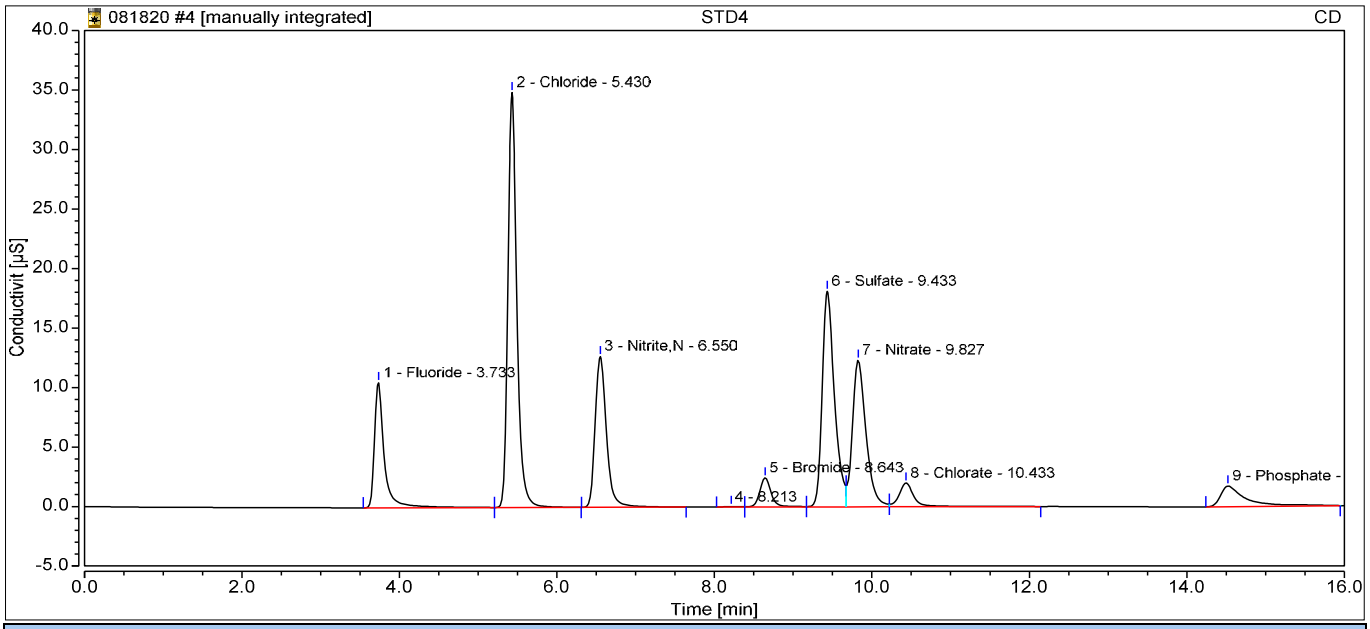
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.745	2.1166	2.1166	1.0000
2	5.43	Chloride	BMB	2.291	9.9533	9.9533	1.0000
3	6.55	Nitrite,N	BMB	1.077	2.2460	2.2460	1.0000
5	8.65	Bromide	M	0.209	1.9882	1.9882	1.0000
6	9.48	Sulfate	M	1.595	9.9688	9.9688	1.0000
7	9.86	Nitrate	M	1.238	1.9883	1.9883	1.0000
8	10.44	Chlorate	MB	0.239	2.2038	2.2038	1.0000
9	14.62	Phosphate	BM *	0.269	1.7634	1.7634	1.0000
Total:			**0.000**	**7.661**		**32.23**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**BD4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:40**	*Sample Weight:*	**1.0000**

Run Time:



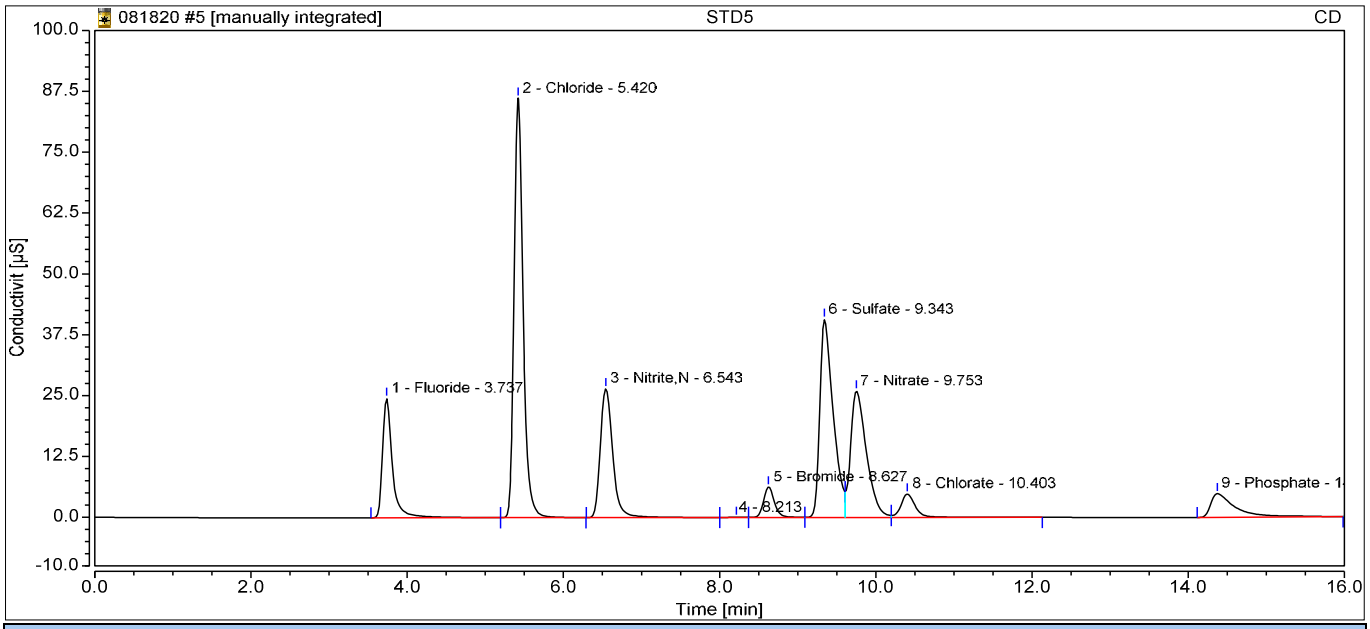
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.504	4.2630	4.2630	1.0000
2	5.43	Chloride	BMB	4.613	20.0986	20.0986	1.0000
3	6.55	Nitrite,N	BMB*	2.104	4.4276	4.4276	1.0000
5	8.64	Bromide	M	0.411	3.9946	3.9946	1.0000
6	9.43	Sulfate	M	3.273	20.4465	20.4465	1.0000
7	9.83	Nitrate	M	2.444	3.9482	3.9482	1.0000
8	10.43	Chlorate	MB	0.443	4.2079	4.2079	1.0000
9	14.52	Phosphate	BM *	0.648	3.7157	3.7157	1.0000
Total:			**0.000**	**15.439**		**65.10**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**BD5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:58**	*Sample Weight:*	**1.0000**

Run Time:



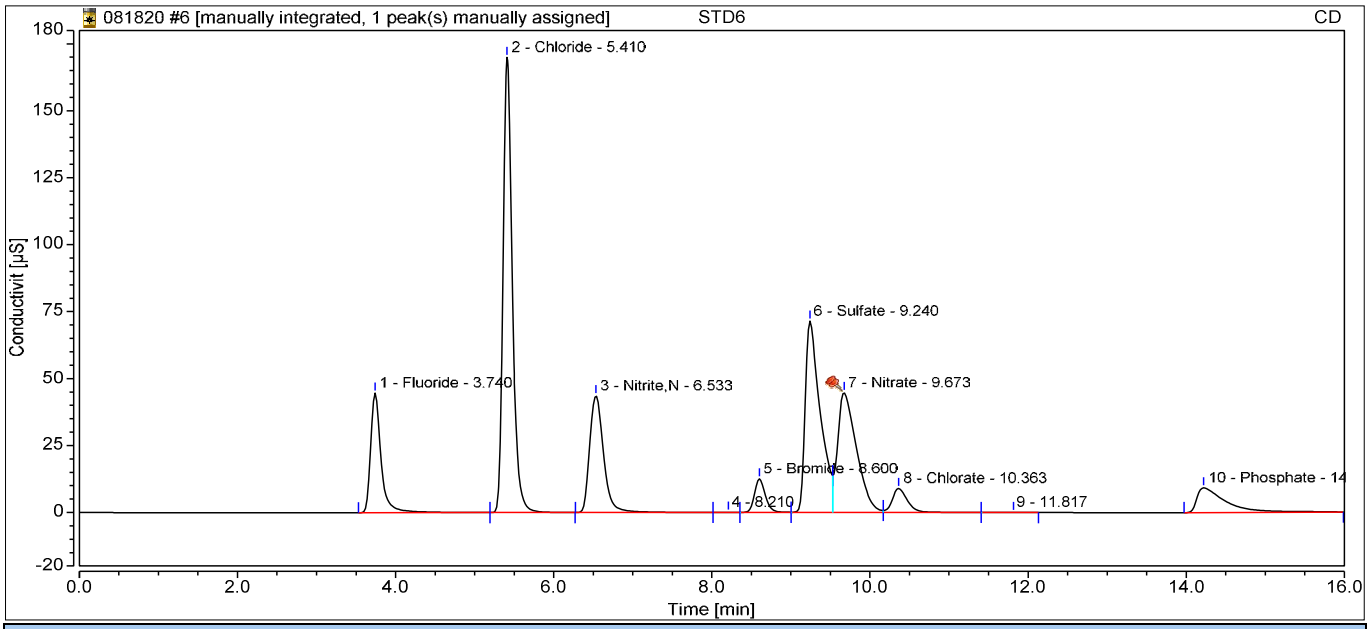
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.611	10.2228	10.2228	1.0000
2	5.42	Chloride	BMB	11.462	50.0272	50.0272	1.0000
3	6.54	Nitrite,N	BMB	4.877	10.3135	10.3135	1.0000
5	8.63	Bromide	M	1.014	9.9796	9.9796	1.0000
6	9.34	Sulfate	M	8.089	50.5200	50.5200	1.0000
7	9.75	Nitrate	M	6.097	9.8832	9.8832	1.0000
8	10.40	Chlorate	MB	1.032	9.9918	9.9918	1.0000
9	14.37	Phosphate	BM *	1.834	9.8223	9.8223	1.0000
Total:			**0.000**	**38.017**		**160.76**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**BD6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 12:16**	*Sample Weight:*	**1.0000**

Run Time:



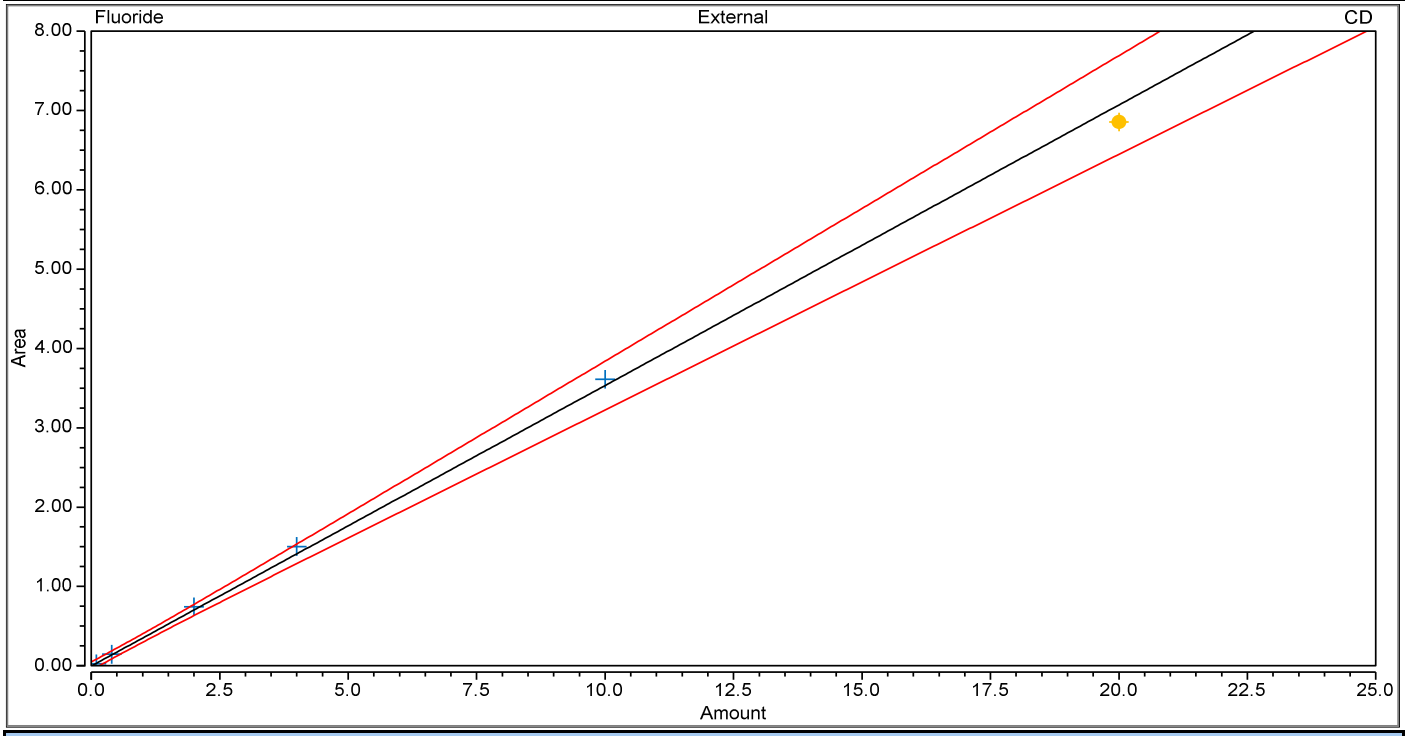
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	6.855	19.3940	19.3940	1.0000
2	5.41	Chloride	BMB	22.844	99.7639	99.7639	1.0000
3	6.53	Nitrite,N	BMB	8.975	19.0121	19.0121	1.0000
5	8.60	Bromide	M	2.028	20.0338	20.0338	1.0000
6	9.24	Sulfate	M	15.864	99.0635	99.0635	1.0000
7	9.67	Nitrate	M ^	12.426	20.1671	20.1671	1.0000
8	10.36	Chlorate	M	2.009	19.5694	19.5694	1.0000
10	14.22	Phosphate	BM *	3.933	20.6283	20.6283	1.0000
Total:			**0.000**	**74.933**		**317.63**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0040
Evaluation Type	Area	*Slope (C1)*	0.3537
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9985

Calibration Plot **Fluoride**



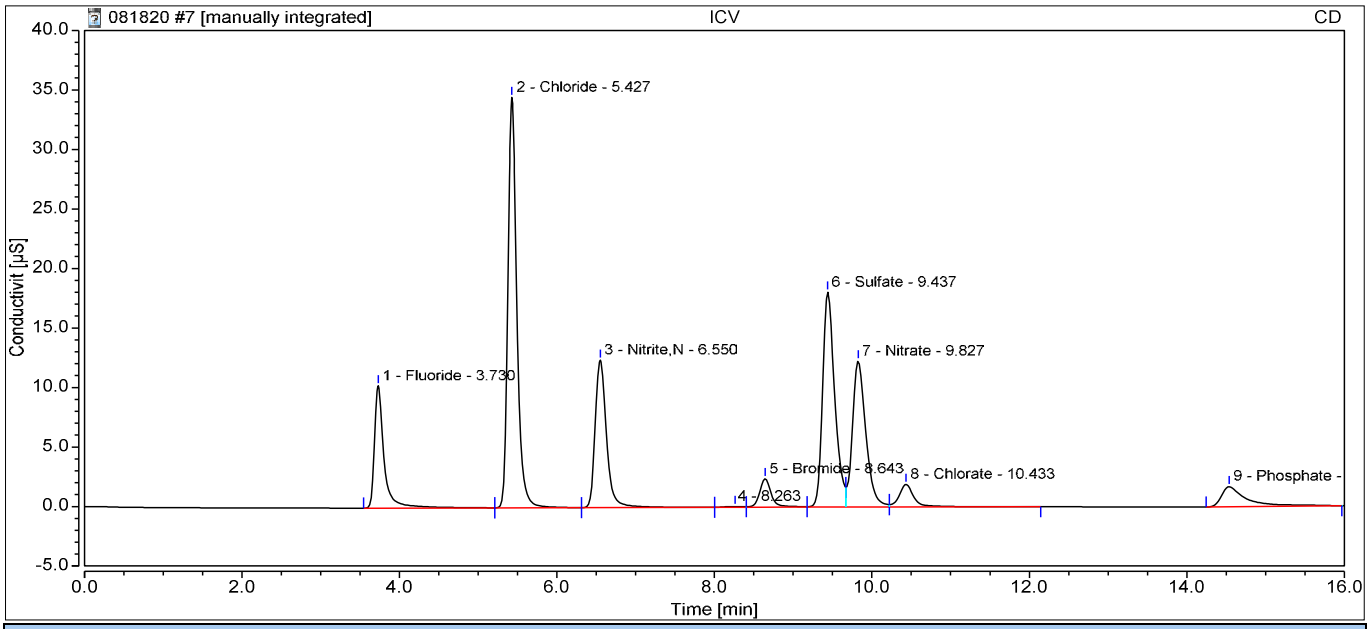
Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0254	0.0254	0.025	0.197
2	STD2	2	0.4000	0.1446	0.1446	0.145	0.916
3	STD3	3	2.0000	0.7445	0.7445	0.745	5.182
4	STD4	4	4.0000	1.5036	1.5036	1.504	10.507
5	STD5	5	10.0000	3.6113	3.6113	3.611	24.538
6	STD6	6	20.0000	6.8547	6.8547	6.855	44.677

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**BD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 12:34**	*Sample Weight:*	**1.0000**

Run Time:



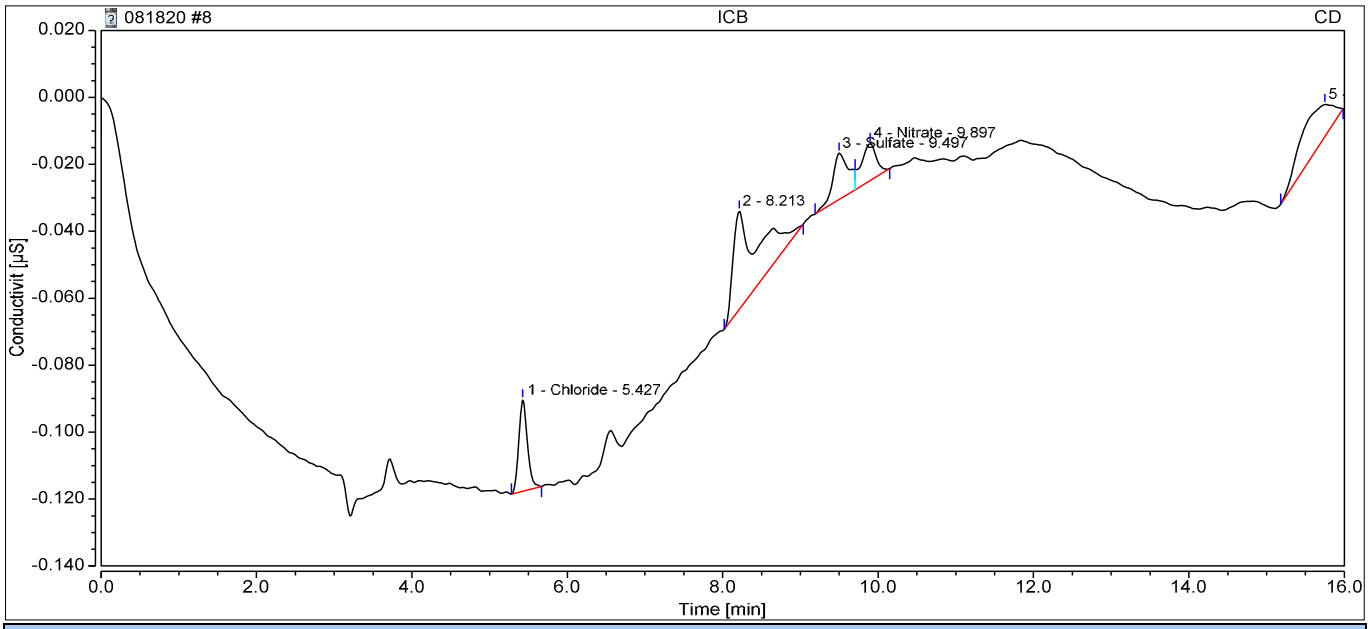
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.447	4.1020	4.1020	1.0000
2	5.43	Chloride	BMB	4.553	19.8399	19.8399	1.0000
3	6.55	Nitrite,N	BMB	2.061	4.3359	4.3359	1.0000
5	8.64	Bromide	M	0.413	4.0106	4.0106	1.0000
6	9.44	Sulfate	M	3.227	20.1622	20.1622	1.0000
7	9.83	Nitrate	M	2.405	3.8850	3.8850	1.0000
8	10.43	Chlorate	MB	0.422	4.0019	4.0019	1.0000
9	14.54	Phosphate	BM *	0.631	3.6292	3.6292	1.0000
Total:			**0.000**	**15.159**		**63.97**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**BD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 12:52**	*Sample Weight:*	**1.0000**

Run Time:



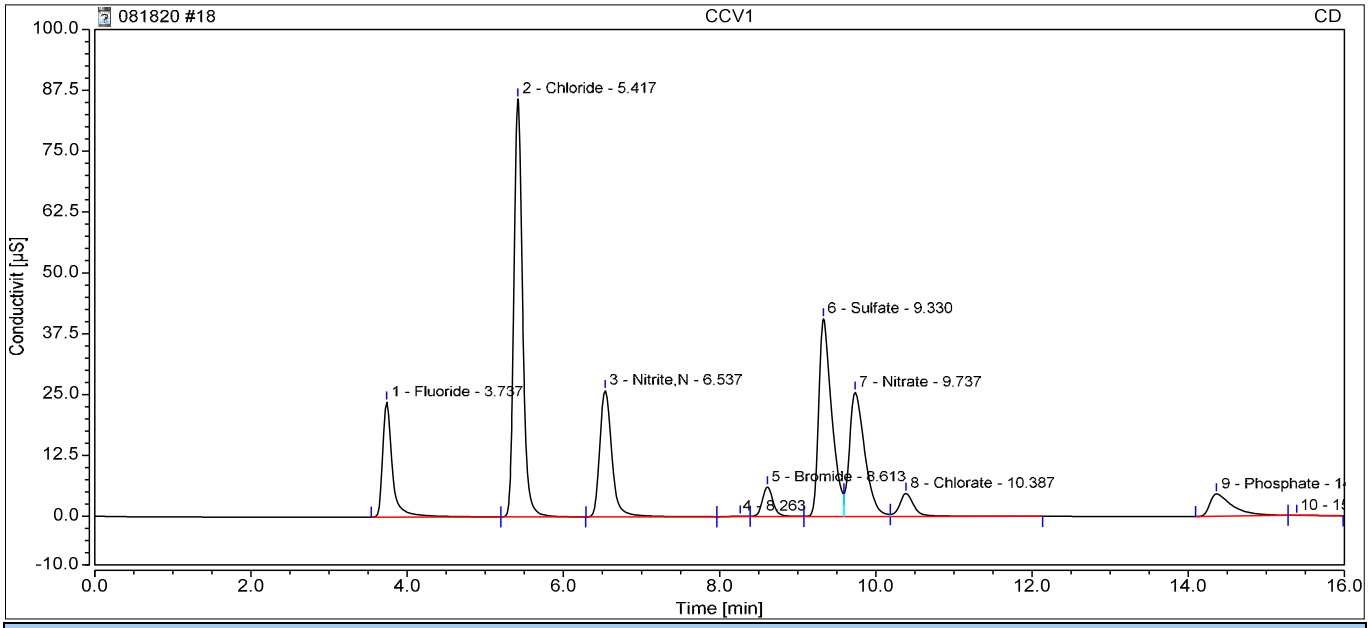
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.43	Chloride	BMB	0.004	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	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
3	9.50	Sulfate	BM	0.003	0.0318	0.0318	1.0000
4	9.90	Nitrate	MB	0.003	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**	**0.009**		**0.03**	

18 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 13:43**	*Sample Weight:*	**1.0000**

Run Time:



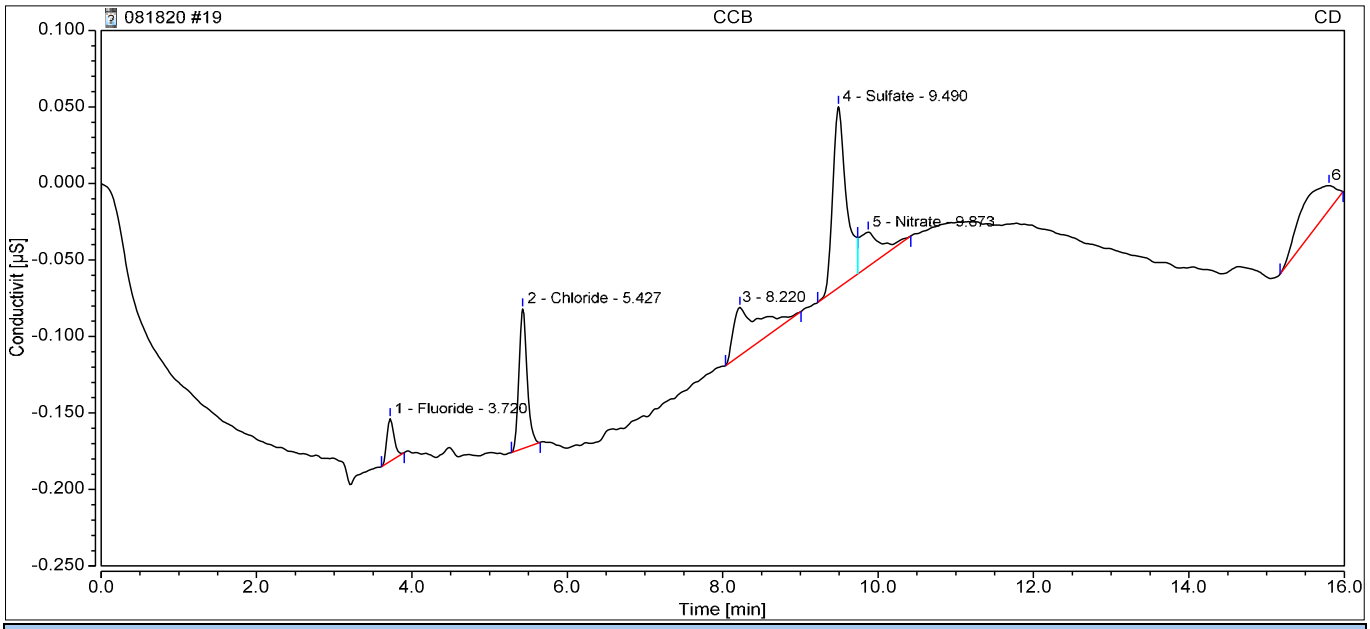
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.438	9.7332	9.7332	1.0000
2	5.42	Chloride	BMB	11.014	48.0691	48.0691	1.0000
3	6.54	Nitrite,N	BMB	4.687	9.9101	9.9101	1.0000
5	8.61	Bromide	M	0.991	9.7464	9.7464	1.0000
6	9.33	Sulfate	M	7.845	48.9969	48.9969	1.0000
7	9.74	Nitrate	M	5.852	9.4849	9.4849	1.0000
8	10.39	Chlorate	MB	1.039	10.0594	10.0594	1.0000
9	14.36	Phosphate	BMB	1.544	8.3265	8.3265	1.0000
Total:			**0.000**	**36.410**		**154.33**	

19 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 14:01**	*Sample Weight:*	**1.0000**

Run Time:



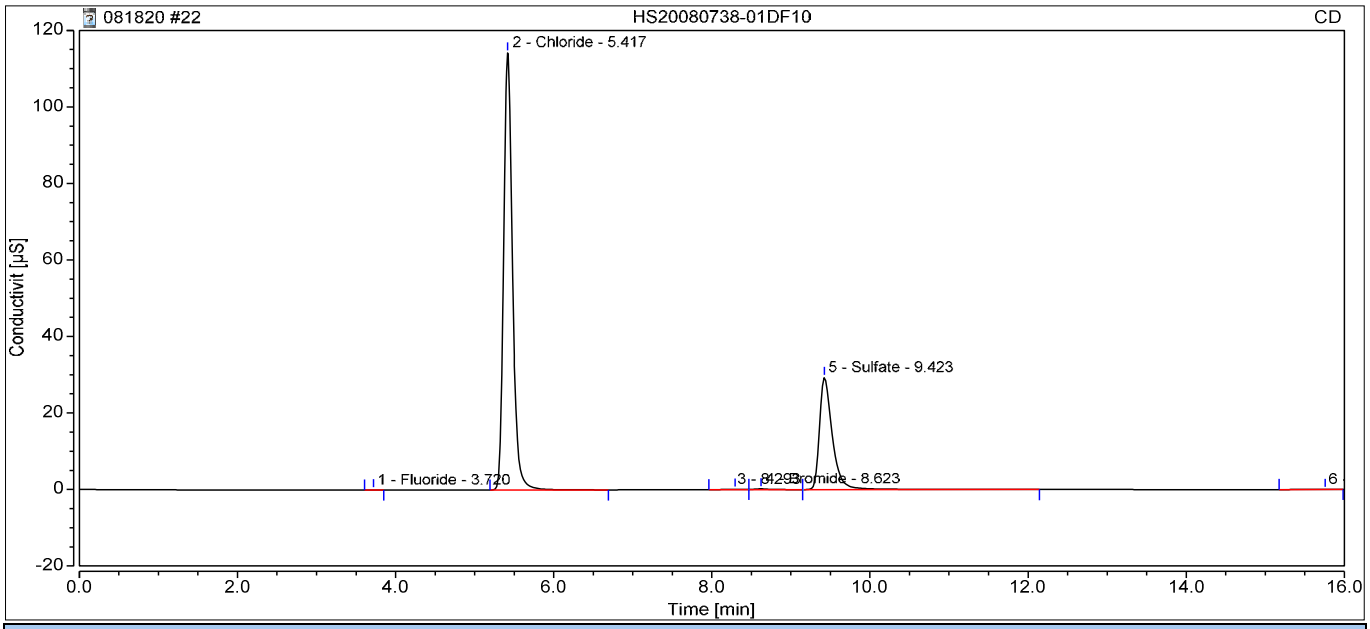
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.003	0.0198	0.0198	1.0000
2	5.43	Chloride	BMB	0.011	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	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
4	9.49	Sulfate	BM	0.024	0.1602	0.1602	1.0000
5	9.87	Nitrate	MB	0.007	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**	**0.045**		**0.18**	

22 HS20080738-01DF10

Sample Name:	**HS20080738-01DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RD5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**08/18/2020 14:55**	*Sample Weight:*	**1.0000**

Run Time:



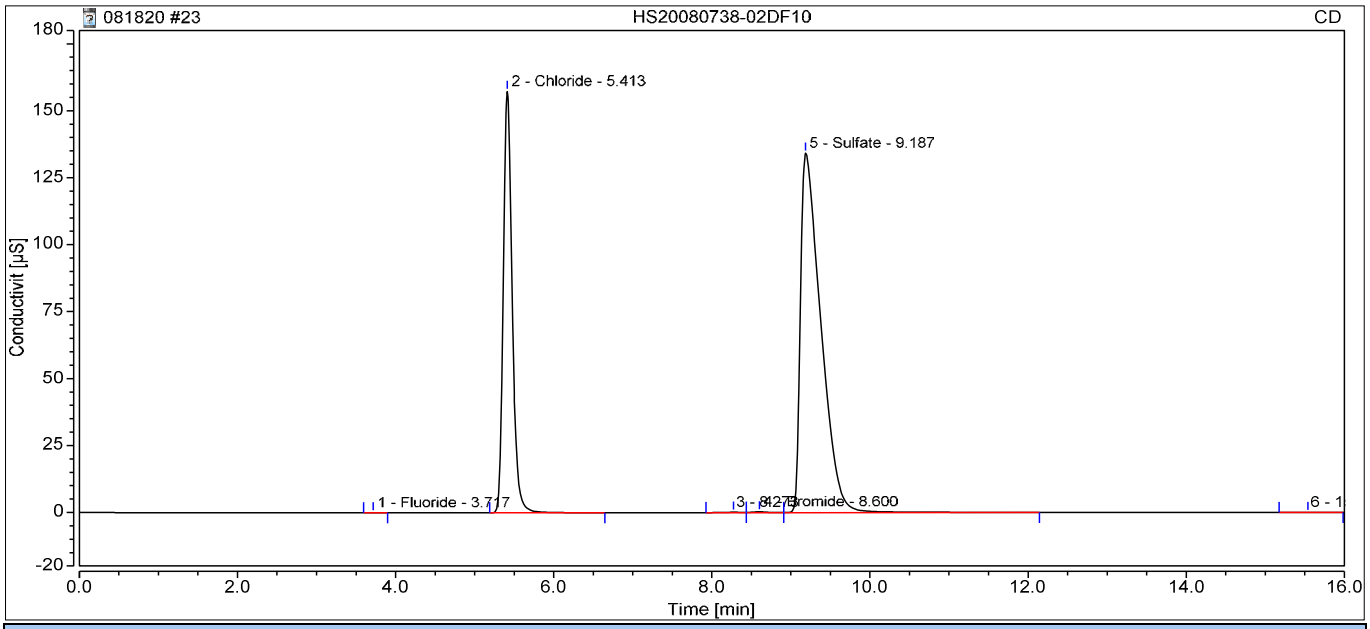
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.002	0.0171	0.1711	10.0000
2	5.42	Chloride	BMB	14.737	64.3383	643.3827	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.62	Bromide	M	0.065	0.5633	5.6327	10.0000
5	9.42	Sulfate	MB	5.564	34.7545	347.5448	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**	**20.369**		**996.73**	

23 HS20080738-02DF10

Sample Name:	**HS20080738-02DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RD6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**08/18/2020 15:13**	*Sample Weight:*	**1.0000**

Run Time:



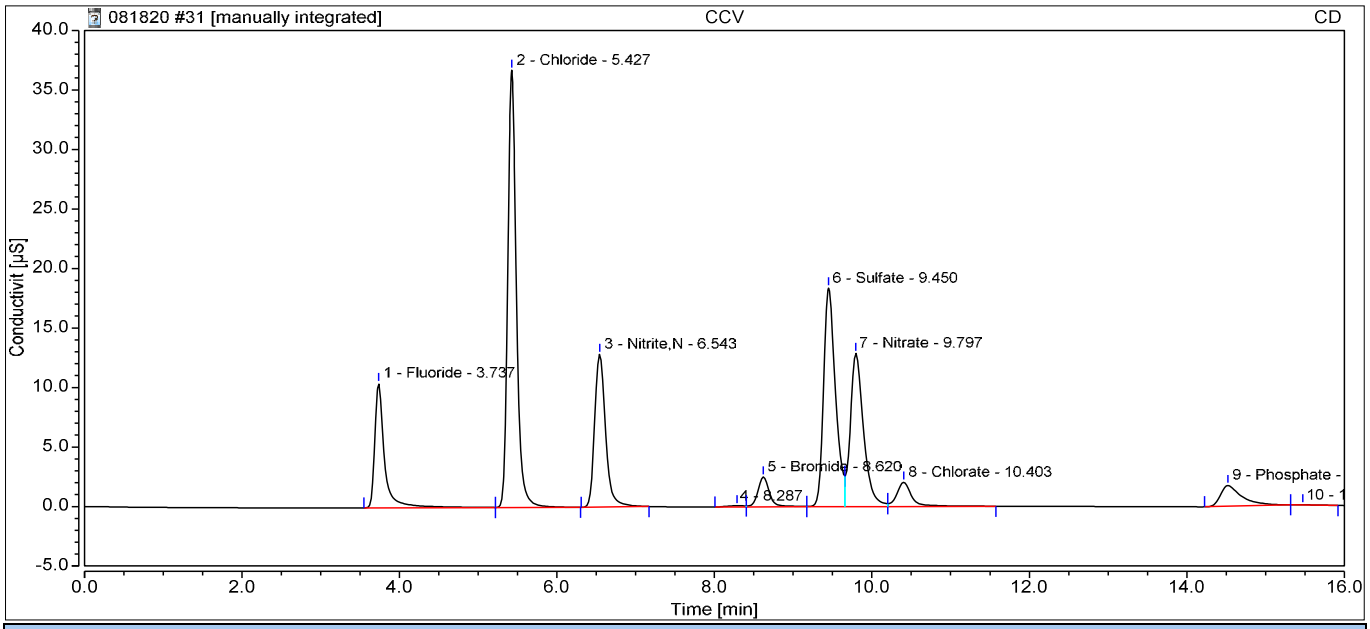
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.003	0.0192	0.1918	10.0000
2	5.41	Chloride	BMB	20.386	89.0206	890.2063	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.60	Bromide	M	0.070	0.6101	6.1010	10.0000
5	9.19	Sulfate	MB	39.895	249.1106	2491.1057	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**	**60.353**		**3387.60**	

31 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 18:49**	*Sample Weight:*	**1.0000**

Run Time:



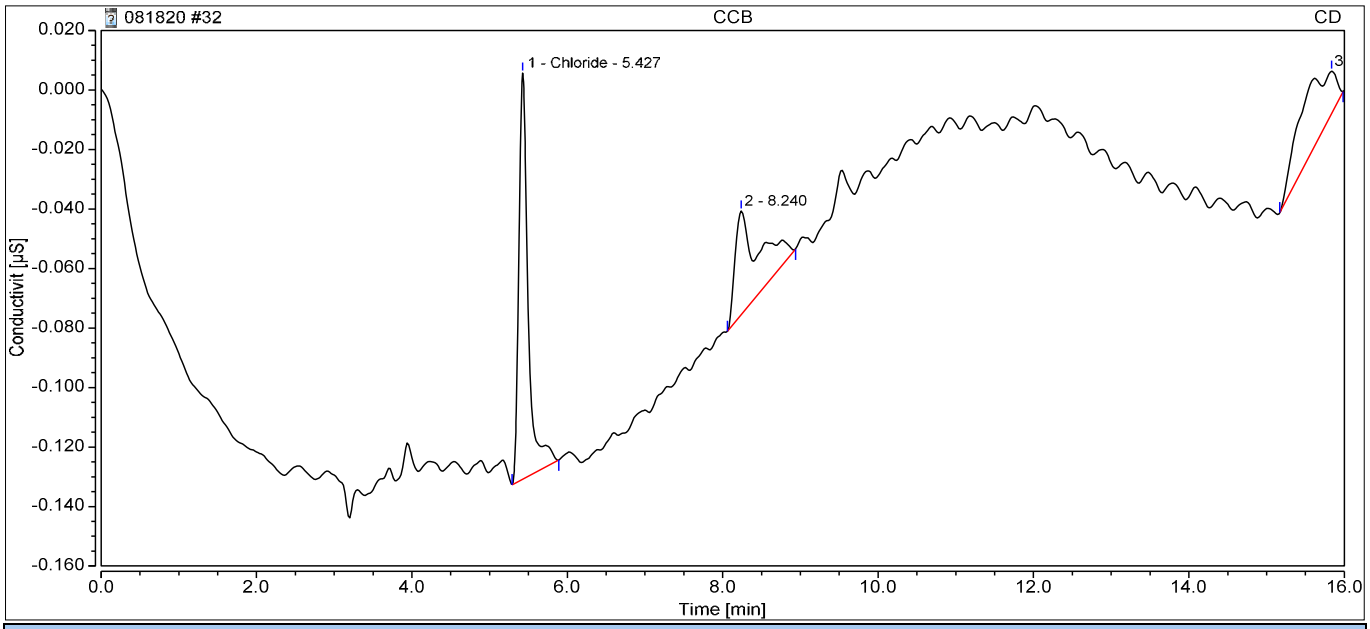
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.492	4.2308	4.2308	1.0000
2	5.43	Chloride	BMB	4.696	20.4640	20.4640	1.0000
3	6.54	Nitrite,N	BMB*	2.063	4.3398	4.3398	1.0000
5	8.62	Bromide	M	0.427	4.1537	4.1537	1.0000
6	9.45	Sulfate	M	3.235	20.2120	20.2120	1.0000
7	9.80	Nitrate	M	2.502	4.0418	4.0418	1.0000
8	10.40	Chlorate	MB	0.448	4.2608	4.2608	1.0000
9	14.52	Phosphate	BMB	0.546	3.1929	3.1929	1.0000
Total:			**0.000**	**15.410**		**64.90**	

32 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 19:07**	*Sample Weight:*	**1.0000**

Run Time:



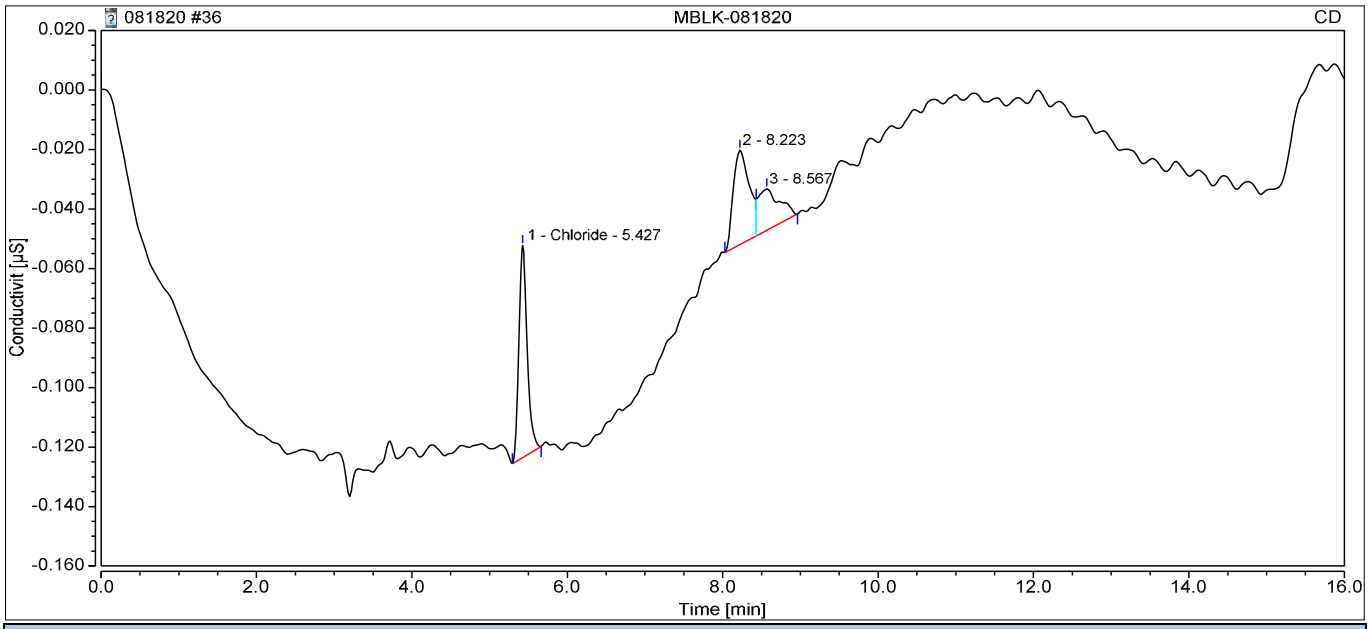
Integration Results

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
1	5.43	Chloride	BMB	0.019	0.0269	0.0269	1.0000
n.a.	n.a.	Nitrite,N	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.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.019**		**0.03**	

36 MBLK-081820

Sample Name:	**MBLK-081820**	*Injection Volume:*	**5.00**
Vial Number:	**BB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 20:20**	*Sample Weight:*	**1.0000**

Run Time:



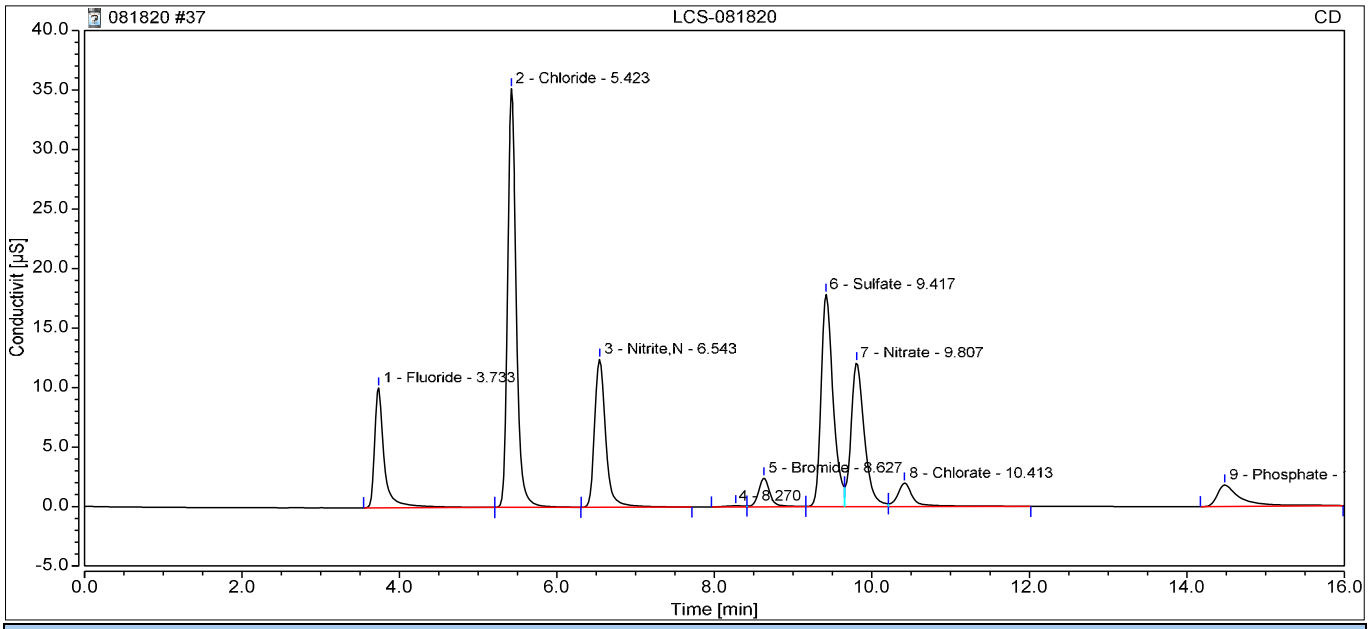
Integration Results

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	5.43	Chloride	BMB	0.009	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	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.	Sulfate	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**	**0.009**		**0.00**	

37 LCS-081820

Sample Name:	**LCS-081820**	*Injection Volume:*	**5.00**
Vial Number:	**BB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 20:38**	*Sample Weight:*	**1.0000**

Run Time:



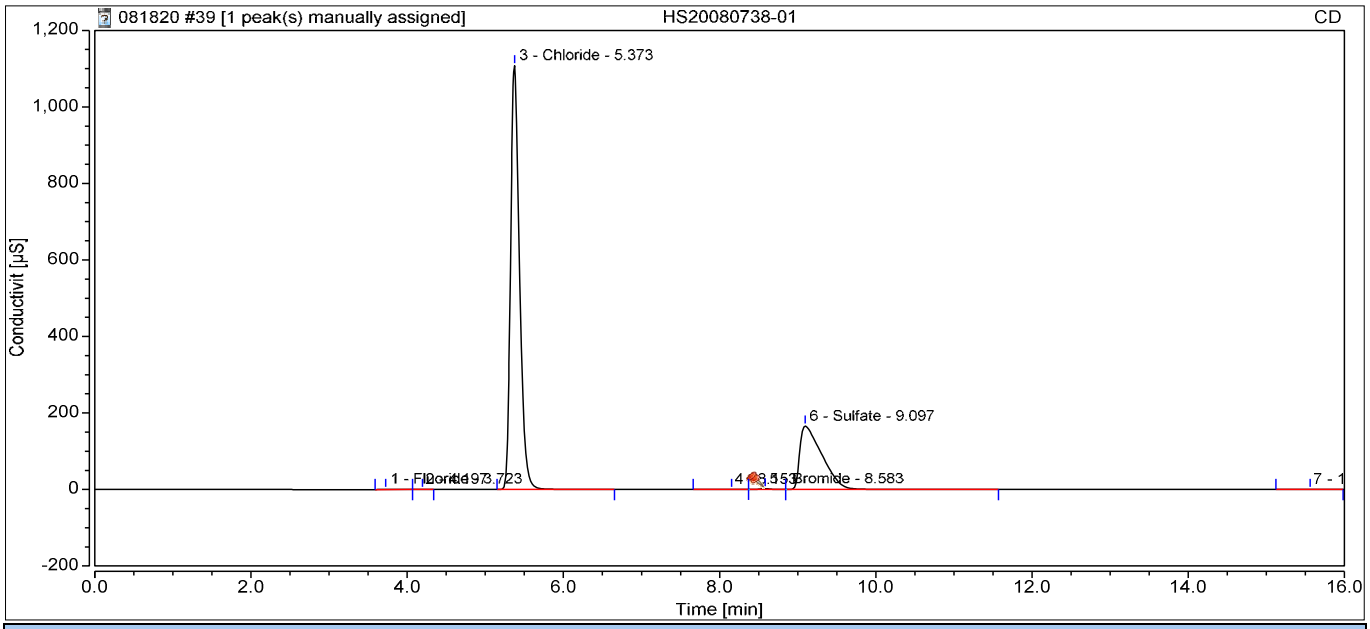
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.434	4.0671	4.0671	1.0000
2	5.42	Chloride	BMB	4.499	19.6010	19.6010	1.0000
3	6.54	Nitrite,N	BMB	2.027	4.2645	4.2645	1.0000
5	8.63	Bromide	M	0.412	4.0031	4.0031	1.0000
6	9.42	Sulfate	M	3.153	19.6991	19.6991	1.0000
7	9.81	Nitrate	M	2.371	3.8284	3.8284	1.0000
8	10.41	Chlorate	MB	0.453	4.3068	4.3068	1.0000
9	14.48	Phosphate	BMB	0.637	3.6583	3.6583	1.0000
Total:			**0.000**	**14.986**		**63.43**	

39 HS20080738-01

Sample Name:	**HS20080738-01**	*Injection Volume:*	**5.00**
Vial Number:	**RD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 21:14**	*Sample Weight:*	**1.0000**

Run Time:



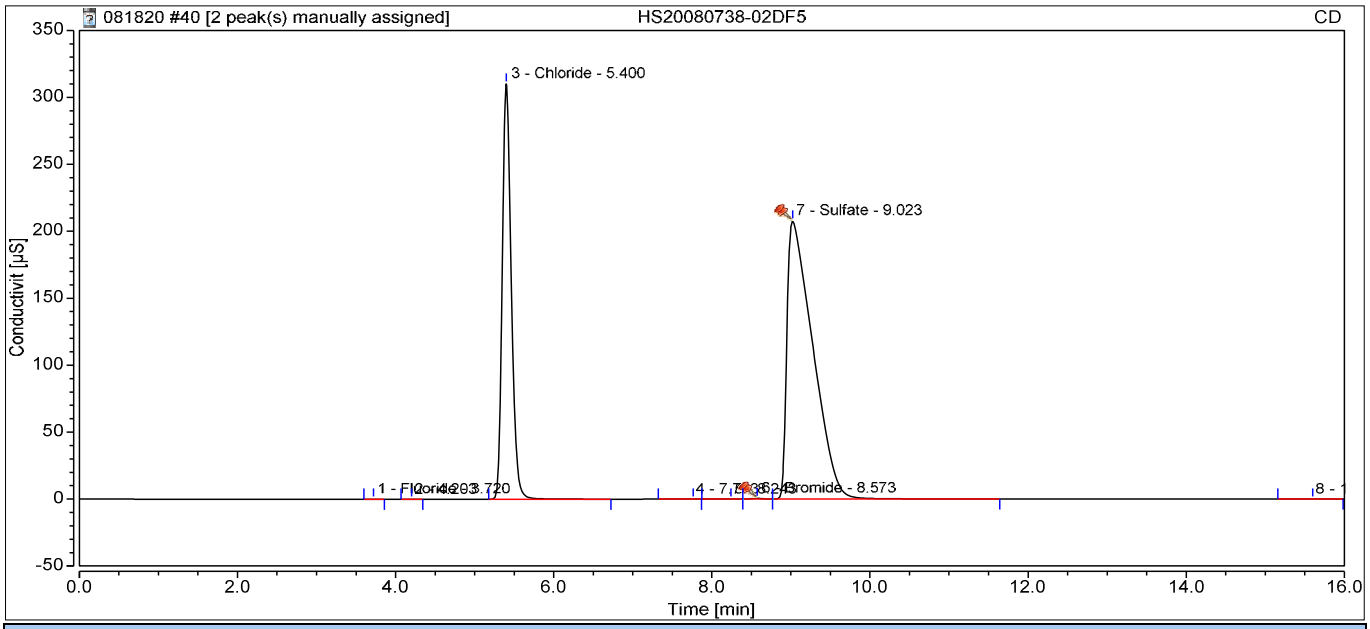
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.021	0.0718	0.0718	1.0000
3	5.37	Chloride	BMB	147.107	642.7362	642.7362	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.58	Bromide	M ^	0.353	3.4195	3.4195	1.0000
6	9.10	Sulfate	MB	54.353	339.3822	339.3822	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**	**201.834**		**985.61**	

40 HS20080738-02DF5

Sample Name:	**HS20080738-02DF5**	*Injection Volume:*	**5.00**
Vial Number:	**RE1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**08/18/2020 21:32**	*Sample Weight:*	**1.0000**

Run Time:



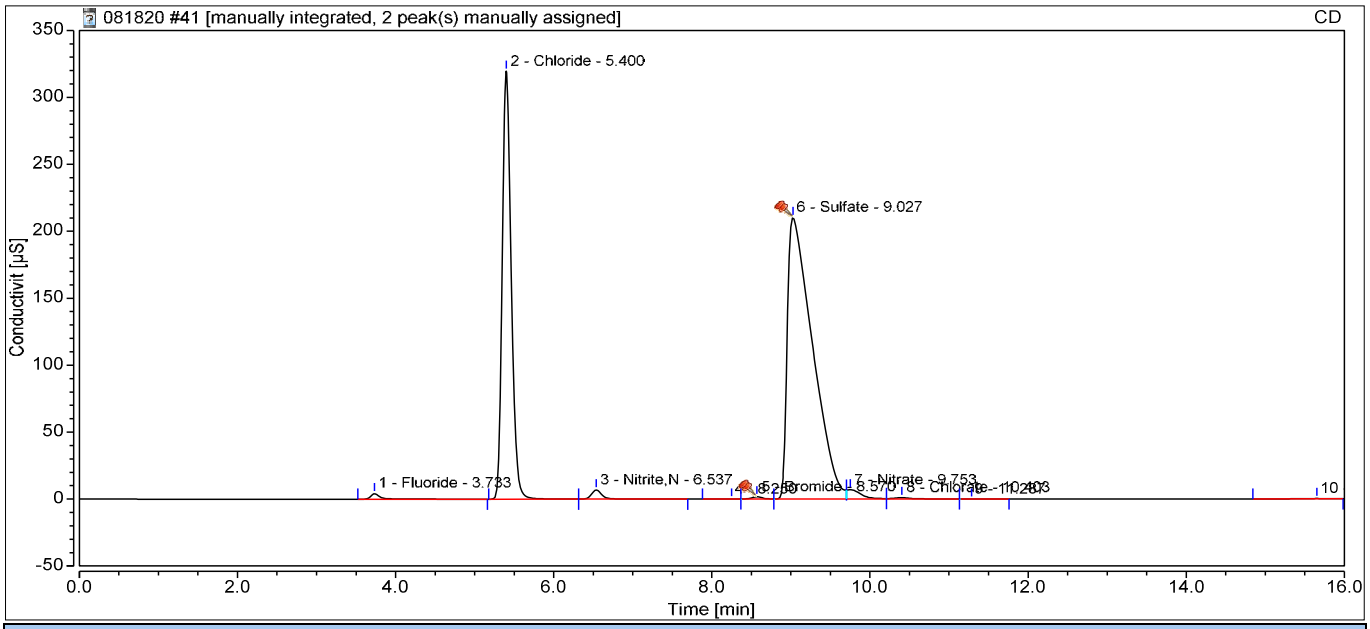
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.005	0.0241	0.1207	5.0000
3	5.40	Chloride	BMB	40.551	177.1321	885.6606	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
6	8.57	Bromide	M ^	0.103	0.9405	4.7023	5.0000
7	9.02	Sulfate	MB^	78.366	489.3174	2446.5870	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	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**	**119.024**		**3337.07**	

41 HS20080738-02MSDF5

Sample Name:	**HS20080738-02MSDF5**	*Injection Volume:*	**5.00**
Vial Number:	**RE2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**08/18/2020 21:50**	*Sample Weight:*	**1.0000**

Run Time:



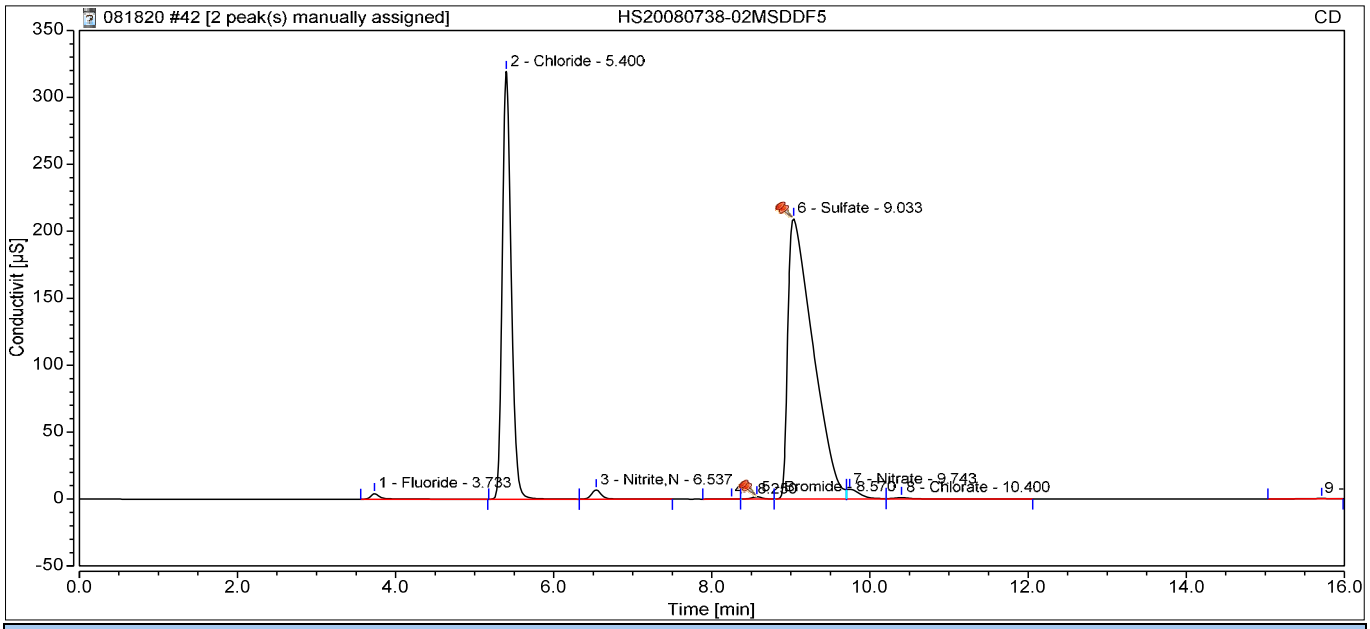
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.621	1.7674	8.8369	5.0000
2	5.40	Chloride	BMB	41.637	181.8797	909.3987	5.0000
3	6.54	Nitrite,N	BMB	1.052	2.1940	10.9701	5.0000
5	8.57	Bromide	M ^	0.296	2.8546	14.2729	5.0000
6	9.03	Sulfate	M *^	77.516	484.0092	2420.0458	5.0000
7	9.75	Nitrate	M *	1.460	2.3484	11.7420	5.0000
8	10.40	Chlorate	M	0.304	2.8487	14.2436	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**122.886**		**3389.51**	

42 HS20080738-02MSDDF5

Sample Name:	**HS20080738-02MSDDF5**	*Injection Volume:*	**5.00**
Vial Number:	**RE3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**08/18/2020 22:08**	*Sample Weight:*	**1.0000**

Run Time:



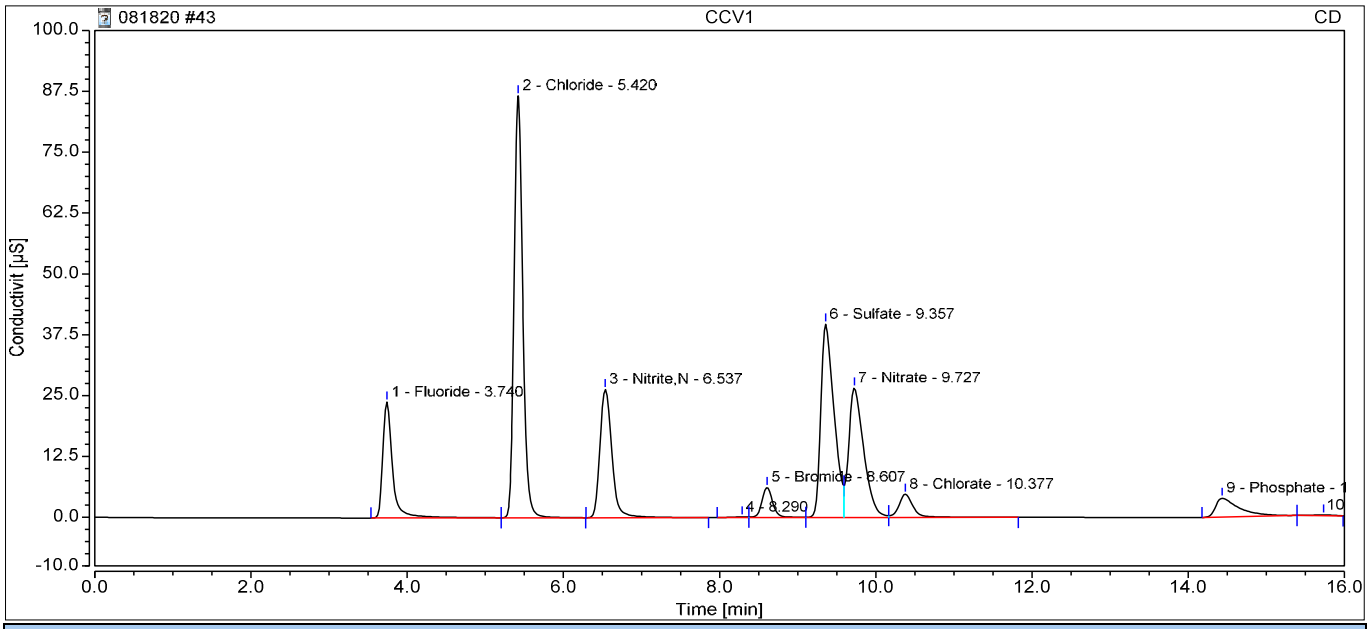
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.619	1.7612	8.8059	5.0000
2	5.40	Chloride	BMB	41.453	181.0729	905.3646	5.0000
3	6.54	Nitrite,N	BMB	1.044	2.1769	10.8843	5.0000
5	8.57	Bromide	M ^	0.297	2.8668	14.3340	5.0000
6	9.03	Sulfate	M ^	76.964	480.5610	2402.8051	5.0000
7	9.74	Nitrate	M	1.461	2.3499	11.7497	5.0000
8	10.40	Chlorate	MB	0.326	3.0655	15.3274	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**122.164**		**3369.27**	

43 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 22:26**	*Sample Weight:*	**1.0000**

Run Time:



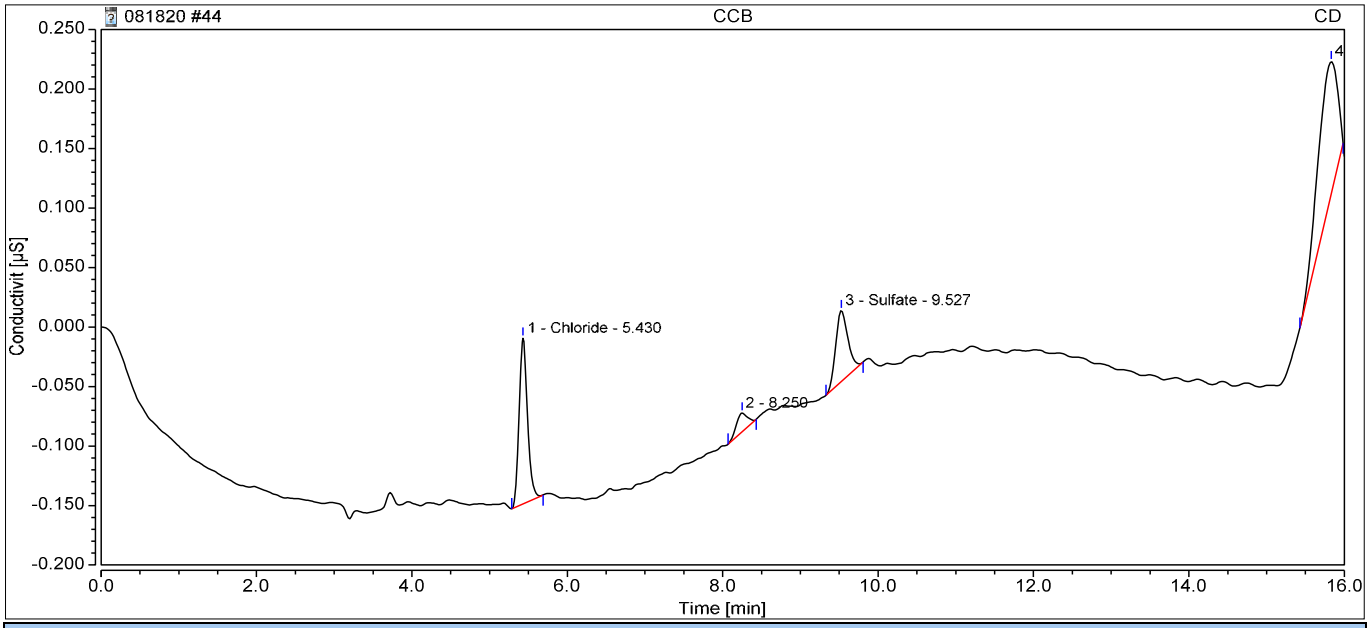
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.446	9.7550	9.7550	1.0000
2	5.42	Chloride	BMB	11.074	48.3316	48.3316	1.0000
3	6.54	Nitrite,N	BMB	4.683	9.9022	9.9022	1.0000
5	8.61	Bromide	M	0.997	9.8117	9.8117	1.0000
6	9.36	Sulfate	M	7.823	48.8553	48.8553	1.0000
7	9.73	Nitrate	M	5.924	9.6028	9.6028	1.0000
8	10.38	Chlorate	MB	1.011	9.7806	9.7806	1.0000
9	14.44	Phosphate	BMB	1.367	7.4201	7.4201	1.0000
Total:			**0.000**	**36.326**		**153.46**	

44 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/18/2020 22:44**	*Sample Weight:*	**1.0000**

Run Time:



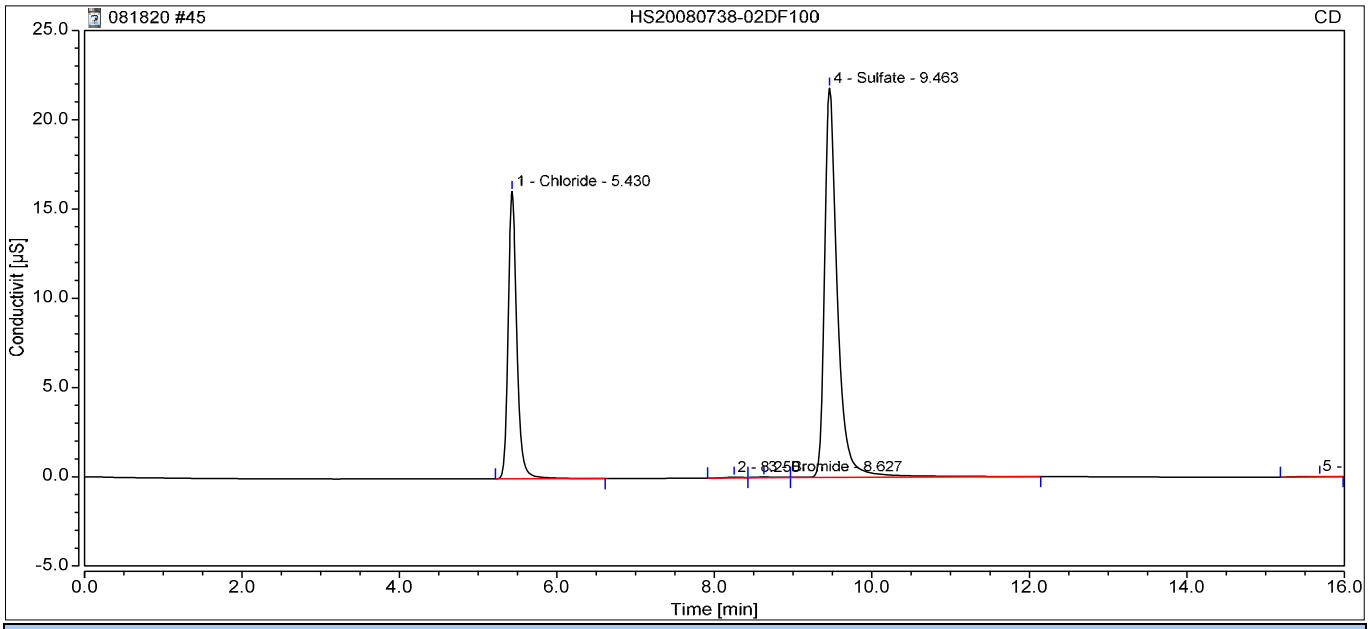
Integration Results

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.	1.0000
1	5.43	Chloride	BMB	0.017	0.0198	0.0198	1.0000
n.a.	n.a.	Nitrite,N	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
3	9.53	Sulfate	BMB	0.011	0.0796	0.0796	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**	**0.028**		**0.10**	

45 HS20080738-02DF100

Sample Name:	**HS20080738-02DF100**	*Injection Volume:*	**5.00**
Vial Number:	**RE4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**100.0000**
Recording Time:	**08/18/2020 23:02**	*Sample Weight:*	**1.0000**

Run Time:



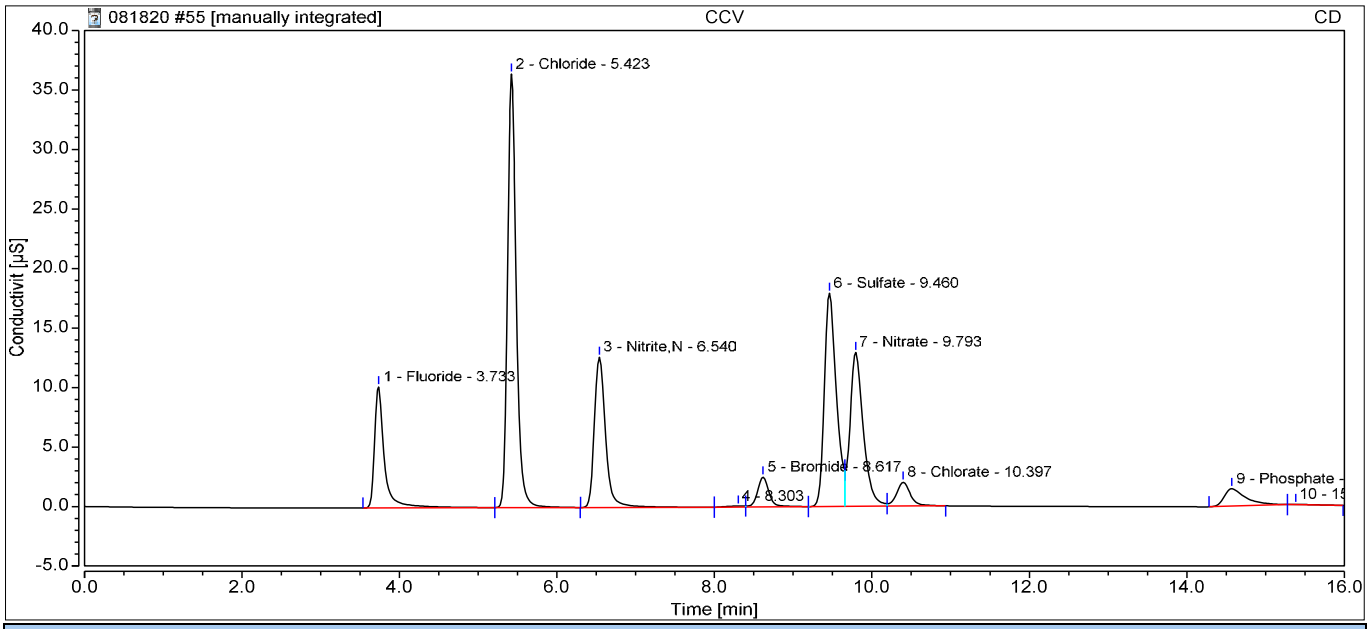
Integration Results

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.	100.0000
1	5.43	Chloride	BMB	2.076	9.0165	901.6455	100.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	100.0000
3	8.63	Bromide	M	0.017	0.0876	8.7617	100.0000
4	9.46	Sulfate	MB	4.181	26.1200	2612.0046	100.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	100.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	100.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	100.0000
Total:			**0.000**	**6.275**		**3522.41**	

55 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/19/2020 02:02**	*Sample Weight:*	**1.0000**

Run Time:



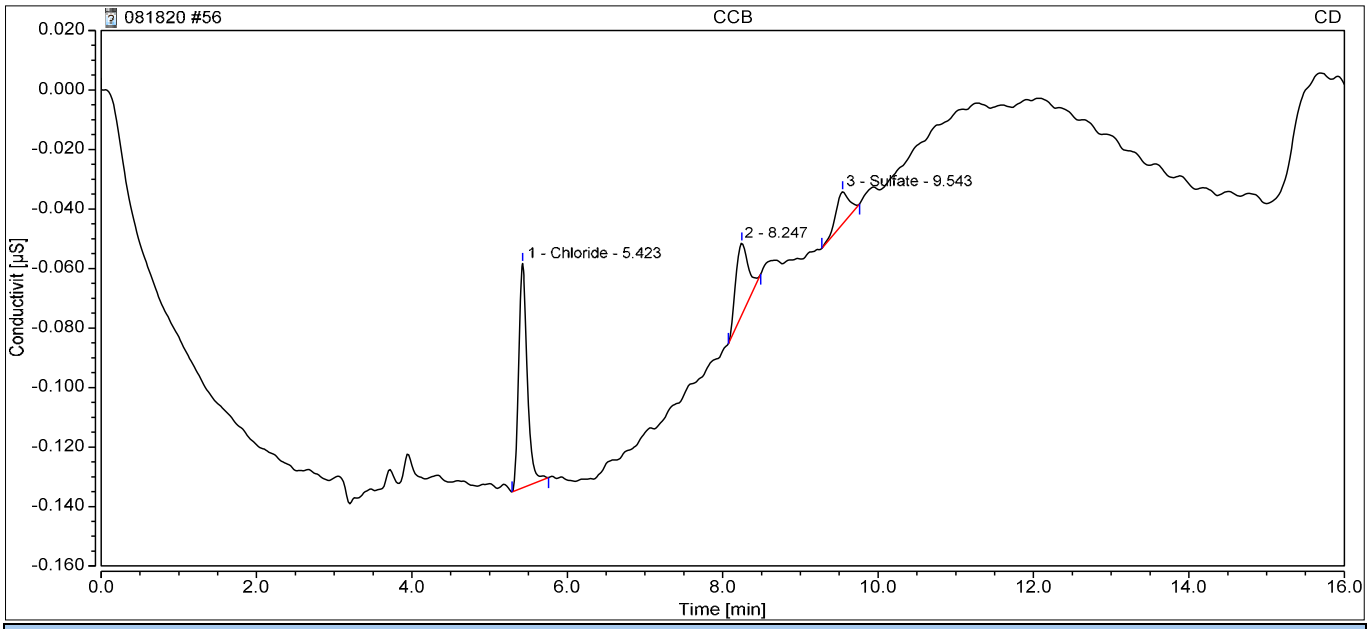
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.471	4.1708	4.1708	1.0000
2	5.42	Chloride	BMB	4.689	20.4308	20.4308	1.0000
3	6.54	Nitrite,N	BMb*	2.081	4.3773	4.3773	1.0000
5	8.62	Bromide	M *	0.418	4.0672	4.0672	1.0000
6	9.46	Sulfate	M *	3.180	19.8688	19.8688	1.0000
7	9.79	Nitrate	M *	2.528	4.0834	4.0834	1.0000
8	10.40	Chlorate	MB*	0.408	3.8672	3.8672	1.0000
9	14.57	Phosphate	BMB	0.467	2.7819	2.7819	1.0000
Total:			**0.000**	**15.241**		**63.65**	

56 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/19/2020 02:20**	*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	5.42	Chloride	BMB	0.010	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	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
3	9.54	Sulfate	BMB	0.002	0.0250	0.0250	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**		**0.02**	

HS20080738 Wet Chem Raw Data (ALK_W 2320B)

ALS WO# HS20080738

Report Date: 08/19/2020 : 5:19

PC-TitratION PLUS
Calibration Report

Calibration Record # 2269

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	08/19/2020
Channel	1	Time	5:19 PM
Probe Type	pH	Temperature	295.15 K 22.00 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-58.265	CorrCoeff	0.9999
Intercept	4.230	Equation: Y = (-58.265) X + (4.230)	

Calibration Validity **True** Operator

	Result	Minimum	Maximum
Slope	-58.265	-65.00	-53.00
Intercept	4.230	-100.00	100.00
Correlation Coefficient	0.9999	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	180.41
	7.00	1.46
	10.00	-169.18

#367090

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Report Date: 8/19/2020 8:27 PM

PC-TitratION PLUS
Water Analysis Report

Run Number 3878 **Order Number** 20200819-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
ICV-PH	8/19/2020	5:30 PM	22.10	-1.00	6.03	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
TAP WATER	8/19/2020	5:37 PM	22.31	-1.00	7.85	.00	310.26	310.26	.00	.00	.00	2.95	2.95
WBLKW1-200819	8/19/2020	5:42 PM	22.39	-1.00	5.82	.00	.50	.50	.00	.00	.00	.02	.02
LCS1-200819	8/19/2020	5:51 PM	22.32	-1.00	10.98	557.45	1,077.22	.00	1,039.55	37.67	5.31	10.26	10.26
LCSD1-200819	8/19/2020	5:59 PM	22.29	-1.00	10.99	561.00	1,082.57	.00	1,043.14	39.43	5.34	10.31	10.31
HS20080738-02	8/19/2020	6:05 PM	22.16	-1.00	6.51	.00	138.10	138.10	.00	.00	.00	1.32	1.32
HS20080738-02DUP	8/19/2020	6:11 PM	22.16	-1.00	6.53	.00	139.41	139.41	.00	.00	.00	1.33	1.33
HS20080738-01	8/19/2020	6:16 PM	22.17	-1.00	6.60	.00	97.81	97.81	.00	.00	.00	.93	.93
HS20080721-01	8/19/2020	6:21 PM	22.16	-1.00	4.82	.00	3.88	3.88	.00	.00	.00	.12	.12
NR HS20080608-02DF10	8/19/2020	6:25 PM	22.03	-1.00	4.64	.00	-1.41	-1.41	.00	.00	.00	.01	.01
HS20080608-10DF10	8/19/2020	6:28 PM	22.07	-1.00	4.67	.00	-1.03	-1.03	.00	.00	.00	.01	.01
CCV-PH	8/19/2020	6:31 PM	22.07	-1.00	7.05	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	8/19/2020	6:39 PM	22.08	-1.00	10.94	477.80	924.55	.00	893.50	31.05	4.55	8.81	8.81
DI RINSE	8/19/2020	6:44 PM	22.02	-1.00	5.96	.00	.40	.40	.00	.00	.00	.02	.02
HS20080726-01	8/19/2020	6:49 PM	21.93	-1.00	5.74	.00	.29	.29	.00	.00	.00	.02	.02
HS20080766-02	8/19/2020	6:56 PM	21.86	-1.00	7.71	.00	451.28	451.28	.00	.00	.00	4.30	4.30
HS20080766-03	8/19/2020	7:02 PM	21.82	-1.00	7.33	.00	167.15	167.15	.00	.00	.00	1.59	1.59
NR HS20080766-04	8/19/2020	7:09 PM	21.73	-1.00	7.85	.00	436.27	436.27	.00	.00	.00	4.15	4.15
HS20080766-05	8/19/2020	7:15 PM	21.69	-1.00	7.11	.00	180.23	180.23	.00	.00	.00	1.72	1.72
HS20080766-06	8/19/2020	7:21 PM	21.66	-1.00	6.79	.00	190.09	190.09	.00	.00	.00	1.81	1.81
HS20080766-07	8/19/2020	7:28 PM	21.67	-1.00	7.73	.00	383.75	383.75	.00	.00	.00	3.65	3.65
HS20080766-08	8/19/2020	7:34 PM	21.71	-1.00	7.12	.00	181.27	181.27	.00	.00	.00	1.73	1.73
CCV-PH	8/19/2020	7:36 PM	21.58	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
TH CCV-ALK	8/19/2020	7:43 PM	22.10	-1.00	6.57	.00	517.41	517.41	.00	.00	.00	4.93	4.93
DI RINSE	8/19/2020	7:47 PM	22.05	-1.00	4.09	.00	.00	.00	.00	.00	.00	.00	.00
HS20080789-01	8/19/2020	7:53 PM	21.98	-1.00	5.81	.00	413.24	413.24	.00	.00	.00	3.94	3.94
HS20080789-02	8/19/2020	7:57 PM	22.00	-1.00	4.06	.00	.00	.00	.00	.00	.00	.00	.00

PC-TitratION PLUS by Man-Tech Associates, Inc.

GENERAL RESULTS REPORT.SRW

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Run Number 3878 **Order Number** 20200819-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS20080789-03	8/19/2020	8:00 PM	22.07	-1.00	4.12	.00	-.03	-.03	.00	.00	.00	.00	.00
HS20080790-02	8/19/2020	8:04 PM	22.10	-1.00	3.82	.00	.00	.00	.00	.00	.00	.00	.00
HS20080790-03	8/19/2020	8:08 PM	22.17	-1.00	3.84	.00	.00	.00	.00	.00	.00	.00	.00
HS20080790-04	8/19/2020	8:12 PM	22.26	-1.00	3.87	.00	.00	.00	.00	.00	.00	.00	.00
CCV-PH	8/19/2020	8:15 PM	22.23	-1.00	6.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	8/19/2020	8:21 PM	22.13	-1.00	6.33	.00	516.46	516.46	.00	.00	.00	4.92	4.92
DI RINSE	8/19/2020	8:25 PM	22.00	-1.00	3.82	.00	.00	.00	.00	.00	.00	.00	.00

NR
TH

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Batch ID Exception Report

Batch ID: R367090
QC Group: 0

Sample ID	Seq No	Sample Type	Test Code	Analyzed Date	Dilution Factor
HS20080721-01	5707401	SAMP	ALK_W 2320B	19 Aug 2020 6:21 PM	1

Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated.

Analyte Type	Analyte	Qualifier
A	Alkalinity, Bicarbonate (As CaCO3)	H
A	Alkalinity, Carbonate (As CaCO3)	H

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

April 25, 2022

DAIN-ISE

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

Re: Preliminary (30%) Remedial Design for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas

Dear Ms. Palmie,

The above-referenced document is being transmitted to you for review. Hard copies of the associated drawings are also being sent by mail. In accordance with the FFA, please provide comments by 25 May 2022.

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

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

Sincerely,

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

Copies furnished:
B. Follin, USEPA Region 6, Dallas, TX (1 electronic only)
P. Bruckwicki, Caddo Lake NWR, TX (1 hard copy, 1 CD)
A. Williams, USACE, Tulsa District, OK (1 electronic only)
C. Montoya, USAE, Tulsa District OK (1 electronic only)
M. Bowlby, USAEC, San Antonio, TX (1 electronic only)
L. Sierocinski, USAEC, San Antonio, TX (1 electronic only)

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

April 25, 2022

DAIN-ISE

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

Re: Preliminary (30%) Remedial Design for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas

Dear Mr. Follin,

The above-referenced document is being transmitted to you for review. Hard copies of the associated drawings are also being sent by mail. In accordance with the FFA, please provide your comments by 25 May 2022.

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Sincerely,

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

Copies furnished:
A. Palmie, TCEQ, Austin, TX (1 electronic only)
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C. Montoya, USAE, Tulsa District OK (1 electronic only)
M. Bowlby, USAEC, San Antonio, TX (1 electronic only)
L. Sierocinski, USAEC, San Antonio, TX (1 electronic only)

Memo

Date:	Monday, April 25, 2022
Project:	Former Longhorn Army Ammunition Plant (LHAAP) 18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas
To:	USACE Tulsa District
Subject:	Preliminary (30%) Remedial Design for LHAAP18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant

1 Introduction

This preliminary (30%) remedial design (RD) approach has been prepared to present the technical basis for the design to achieve the Remedial Action Objectives (RAOs) specified in the Final LHAAP-18/24 Record of Decision (ROD [HDR, 2019]) addressing remediation of groundwater impacted by 1,4-dioxane, perchlorate, and volatile organic compounds (VOCs) at the former Longhorn Army Ammunition Plant (LHAAP) site LHAAP-18/24 Burning Ground No. 3 and Unlined Evaporation Pond (UEP) (LHAAP-18/24) located in Karnack, Texas (**Figure 1**). This preliminary RD approach is prepared based on the nature and extent of contamination determined during pre-design investigation (PDI) conducted in 2021, Final Revised Feasibility Study (AECOM, 2017) and its supporting document, Post-Screening Investigation Reports (AECOM, 2013 & 2016) to refine the extent of groundwater contaminated with perchlorate, and/or VOCs.

2 Site Background and Description

2.1 Site Description

LHAAP-18/24 is a 34.5-acre cleared area within a heavily wooded section of the larger LHAAP (**Figure 2**). The area is vegetated primarily with grass and has asphalt-paved roads. It is situated on a natural topographic high slightly west of the crest of a small topographic divide between Harrison Bayou and Saunders Branch. Topography of the site has been altered by operations over the past 35 years. The burning ground area is mostly level with more relief near the western corner and near the northern corner that contains the mounded surface of the former UEP. There are no surface water bodies or watercourses running through LHAAP-18/24. Surface drainage occurs in all directions, but flow is generally directed to the north and west by both natural and manmade ditches and drainage swales towards Harrison Bayou. Harrison Bayou drains into Caddo Lake which is located approximately 2.5 miles northeast of LHAAP-18/24 (HDR, 2019).

2.2 Site History

LHAAP-18/24 is comprised of the former Burning Ground No. 3 (LHAAP-18) and UEP (LHAAP-24). LHAAP-18 Burning Ground No. 3 operated between 1955 and 1998, while LHAAP-24 UEP was operational from 1963 to 1984. The area was used for the treatment, storage, and disposal of solid and liquid explosive, pyrotechnic, and combustible solvent waste by open burning/open detonation, incineration, evaporation, and burial (HDR, 2019). The UEP was used to collect water from the washout of rocket motor casings and process waste sumps. Sludge from the UEP was removed in 1986 and the

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impoundment was capped. Most impacts to the soil were remediated during the 1997 LHAAP-18/24 Interim Remedial Action (IRA) when approximately 32,000 cubic yards (cy) of soil was removed. A groundwater extraction system incorporating approximately 5,000 feet (ft) of ICTs and a Groundwater Treatment Plant (GWTP) were installed in 1997 to control the migration of contaminated groundwater and to protect surface water. The area within the ICTs is considered the containment area. A LHAAP-18/24 site plan with existing site features is presented as Drawing **G0003**.

2.3 Site Geology and Hydrogeology

Surficial soils at LHAAP-18/24 consist of sandy silty clays and clays underlain by a sandy silt to silty sand stratum. This clay stratum pinches out to the east of the burning grounds and becomes ill defined at the contact between the Wilcox Group and the alluvium of Harrison Bayou to the west and north of the site (Jacobs, 2001).

The shallow alluvial zone at LHAAP-18/24 is very heterogeneous consisting of discrete sand channels encapsulated in lower permeability silt/clay floodplain sediments. The thickness of the shallow alluvium is variable, because of the irregular contact with underlying Wilcox. Thickness ranges from 10 to 40 ft. The zone is characterized by potentially complex flow paths, gradients depending on where sandy channel deposits intersect and/or diverge. In general, the axes of channel deposits trend toward the north and northeast (AECOM, 2015).

The permeable intervals (sands, silty sands) associated with individual channel fill or point bar sediment packages range in thickness from 10 to 20 ft thick generally. Sands are typically fine to medium grained. Many of the channel fill sand bodies include a percentage of silt. Levee or overbank sand bodies were identified where possible. Typically, the fine levee sands display an abrupt coarsening upward grain size trend, are 5 to 10 ft in thickness, and may have some evidence of root or soil formation in the form of noted “mottling” of the sediments (AECOM, 2015).

A clay unit separating the shallow alluvium from the Wilcox sands occurs at the top of the Wilcox Formation throughout most of the site. However, this clay is missing in the northwestern corner of the site. The clay is missing where fluvial incision has occurred during both the deposition of the shallow Wilcox (incision indicated by a well-defined gravel lag deposit at 18WW06 as well as later incision by the Harrison Bayou. The thickness and extent of the “Wilcox clay” layer varies in thickness from 0 to 20 ft and may be in contact with overlying floodplain silts and clays or incised by overlying channel sands. The sands of the Wilcox Formation are homogenous and vary in grain size from medium to fine silty sands (AECOM, 2015). Potentiometric surface maps of the Shallow Zone and Wilcox Formation groundwater in the vicinity of LHAAP-18/24, based on groundwater elevations measured on 30 June 2021, are provided in **Attachment 1** (**Figures B-3, and B-6**).

2.4 Nature and Extent of Contamination

As indicated in the ROD, the collective investigative results at LHAAP-18/24 identified groundwater contamination present at concentrations that pose an unacceptable risk to human health or the environment that require remedial action. TCE, MC and perchlorate present the vast majority of the human health risk in groundwater. The concentrations of TCE and MC in some portions of the site are sufficiently high to indicate the possible presence of dense non-aqueous phase liquids (DNAPL) within the saturated zone. 1,4-dioxane is present as isolated plumes while occurrences of other VOCs and

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metals concentrations in groundwater are intermittent and their distribution is generally not contiguous across the site.

Soil has not been identified as a medium of concern for protection of human health and ecological risk; however, it was identified as a medium of potential concern for the protection of groundwater from potential cross-media transfer. Unsaturated soil exceedances are shown on **Figure 2-7** of **Attachment 1**. Groundwater at LHAAP-18/24 has been identified as the medium of concern because of the risk it poses to a hypothetical future maintenance worker. Contamination at LHAAP-18/24, as described in the Final Revised Feasibility Study (AECOM, 2017) with its supporting document, Post-Screening Investigation Reports (AECOM, 2013 & 2016), the QUARTERLY EVALUATION REPORT, 2ND QUARTER (APRIL-JUNE) 2021 (Bhate, 2021), and the 2021 PDI is as follows:

2.4.1 Soil

Most of the contaminated soil (approximately 32,000 cubic yards) was remediated during the IRA (**Attachment 1, Figure 2-7)**; however, remaining residual contaminants in the unsaturated soil may present an ongoing source of groundwater contamination as mentioned in the ROD is listed below.

- Unsaturated soil in two areas south of the former UEP contain TCE and MC as well as PCE at concentrations that exceed their respective GWP-Ind values and could leach to groundwater at concentrations exceeding the MCLs.
- Unsaturated soil in the area west of the UEP within the former Burn Burial Area contains TCE and MC as well as some perchlorate that could leach to groundwater at concentrations exceeding the MCLs or PCLs.

The leaching of contaminants from the unsaturated soil to groundwater in the above areas is considered a complete transport pathway that is being addressed in this RD.

- Two soil areas beneath the UEP had concentrations of TCE and/or MC that exceed the groundwater protection-industrial MSCs. The first area is in the vicinity of 18CPT21, and the second area is in the vicinity of 18CPT25. A conservative extent was estimated at 280 ft by 110 ft and a thickness of approximately 10 ft. Thus, the estimated in-place soil volume was estimated at 11,400 cy. These two areas will be considered for remediation in the future as a contingency remedy.

2.4.2 Groundwater

Contamination from historical activities at LHAAP-18/24 has impacted two groundwater zones: the Shallow Zone extending from the surface to a depth of approximately 45 ft below ground surface (bgs), and the Wilcox Formation below the Shallow Zone. These two units are separated by a mostly contiguous clay layer which is believed to be present across the entire site, except for the area to the west and northwest near Harrison Bayou.

The Shallow Zone is heterogeneous, composed of discrete layers of fine-grained and coarse-grained soils, while the Wilcox Formation is characterized primarily by fine-grained sand. The groundwater in the Shallow Zone flows radially outward from the northwestern portion of the site. Localized influence of groundwater extraction can be observed in the shallow aquifer. The groundwater flow pattern and gradient direction in the Wilcox Formation is similar to what is observed in the shallow zone.

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Groundwater at LHAAP is not currently being used as drinking water, nor is it anticipated to be used in the future based on its reasonably anticipated use as a national wildlife refuge. However, when establishing the RAOs for this response action, the NCP's expectation to return groundwater to its beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site was considered. The State of Texas designation of all groundwater as potential drinking water, unless otherwise classified, consistent with Texas Administrative Code, Title 30, §335.563 (h)(1) was also considered in issuing the ROD.

Groundwater in the aquifer (250 to 430 ft bgs) near LHAAP is currently used as a drinking water source. The drinking water aquifer should not be confused with the deep zone groundwater, which extends only to a depth of approximately 151 ft bgs. The deep zone groundwater and the drinking water aquifer are distinct from each other and there is no connectivity between the contaminated zone and the drinking water aquifer. There are five active water supply wells near LHAAP that are completed in the drinking water aquifer. These wells are completed deeper than the deepest zone of contamination at LHAAP.

Groundwater remains the primary focus of the RD. Historic data suggests that contaminants in the saturated zone occur as dissolved plumes within the containment area and outside the containment area where contaminants may have migrated off-site. Additionally, residual DNAPL is present in the UEP and former ACD areas.

Groundwater contaminants evaluated for this RD include perchlorate and VOCs in the Shallow Zone and perchlorate, VOCs, and 1,4-dioxane in the Wilcox Formation. Summary of the Shallow Zone groundwater analytical data (Perchlorate and TCE) from the QUARTERLY EVALUATION REPORT, 2ND QUARTER (APRIL-JUNE) 2021 (Bhate, 2021) along with the 2021 PDI data is presented in **Figure 3**. Similarly, Summary of the Wilcox Formation groundwater analytical data (Perchlorate and TCE) is presented in **Figure 4**. VOCs and perchlorate were detected in wells screened in the Shallow Zone and in localized areas of the Wilcox Formation, though Shallow Zone contamination is more widespread. Perchlorate was detected in groundwater in 1999, and in 2001 a fluidized bed reactor treatment system was installed at the GWTP. The compound 1,4-dioxane was added as a chemical of concern (COC) in 2017 after completion of a Supplement to the Updated Post Screening Investigation (PSI) Report (AECOM, 2016).

The PSI (AECOM, 2013) was conducted to fill data gaps identified in the FS, and determined that inside the contained area, the greatest contamination of VOCs and perchlorate detected in the saturated soil was attributed due to the residual DNAPL and existence of very high levels of perchlorate at the clay/sand interface occupying pore space in the saturated zone. Similar observations were made during the 2021 PDI, in which elevated levels of perchlorate were detected more widespread at locations in saturated soil within the northeast area located outside of the contained area (**Attachment 1, Figure 5)**. In the PDI, the saturated soil and groundwater contamination detected were generally collocated in the northeast area, indicating critical mass of contaminant being in groundwater media.

3 Selected Remedy

As per the 2020 ROD, the final selected remedy for LHAAP-18/24 includes:

- Enhancement of the existing groundwater extraction and treatment system

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- EISB in Shallow Zone and Wilcox Formation groundwater both inside and outside the containment area
- Thermal treatment to remove DNAPL
- Unsaturated soil excavation and off-site disposal
- Maintenance of the existing cap over the UEP
- Land Use Controls (LUCs), Monitored Natural Attenuation, (MNA) and long-term monitoring (LTM)

The final selected remedy for LHAAP-18/24 protects human health and the environment by preventing human and ecological receptors from being exposed to contaminated soil and contaminated groundwater. The human health risk assessment scenarios evaluated were based on the hypothetical future maintenance worker.

The components of the selected active remedy (**Attachment 1, Figures 2-16 & 2-17**) are summarized below:

- Excavation of unsaturated soil exceeding the Texas Commission of Environmental Quality (TCEQ) soil medium-specific concentration (MSC) for industrial use based on groundwater protection (GWP-Ind). Additional confirmation soil sampling during the RD will be needed to define the final excavation extent and volume of soil contaminated in the two areas south of the UEP and area west of the UEP. If during the Five-Year Review the results of the groundwater remedy indicate that vadose zone soil under the UEP constitutes a continuing source that requires a response, a contingency remedy to excavate soil beneath the UEP would be developed. Development and specific description of the contingency remedy are not included in this RD.
- Continued use of the existing groundwater extraction system, as needed, with the following enhancements:
    - A phased reactivation of two existing ICTs [ICT 3 and 9]) until COC concentrations are low enough that MNA can address remaining contamination within the containment area.
    - Continued operation of the current groundwater treatment plant (GWTP), or potentially a new GWTP as needed, will be determined during this RD. Should treatment for 1,4-dioxane be required, an advanced oxidation process will be implemented as a contingency remedy. Development and specific description of the contingency remedy are not included in this RD.
- Implementation of in-situ thermal desorption (ISTD), using Electrical Resistance Heating (ERH), to remove DNAPL in two distinct areas inside the containment area.
- Implementation of EISB of Shallow Zone groundwater outside the containment area at several locations; in the Wilcox Formation at three or more locations, and inside the containment at five or more locations or as needed.
- Groundwater monitoring to be conducted to evaluate inorganic COCs. The need to continue groundwater monitoring for this purpose will be evaluated at five year intervals.
- Maintenance of existing cap over the former UEP. The need to continue cap maintenance will be evaluated at five year intervals.
- Long-term monitoring and reporting will be continued until the cleanup levels are achieved.
- The LUC's objectives include maintaining the integrity of any current or future remedial or monitoring systems, preserving the integrity of the surface impoundment cap over the UEP and to restrict intrusive activities (e.g., digging) that would degrade or alter the cap, and preventing the use of groundwater contaminated above cleanup levels as a potable water source. The

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groundwater treatment and MNA remedial components include a groundwater monitoring system that will be used to characterize the condition of the groundwater during the period the groundwater remedy is in place until the groundwater remediation goals are achieved, and to demonstrate achievement of the groundwater remediation goals when the groundwater remedy is complete. As a part of this groundwater remedy, the RD will include a maintenance of the remedial and monitoring systems associated with the groundwater remedies until these components of the remedy are no longer needed to achieve cleanup levels.

4 Site Cleanup Levels

Site cleanup levels for the soil, shallow zone groundwater and Wilcox formation groundwater are defined below.

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Medium	Chemical of Concern	Cleanup Level
Shallow Zone Groundwater		**MCL (µg/L)**
	Methylene chloride	5
	Trichloroethylene	5
	cis-1,2-Dichloroethene*	70
	Tetrachloroethene	5
	Benzene	5
	1,1,2-Trichloroethane	5
	Vinyl chloride*	2
	Arsenic	10
	Barium	2,000
	Chromium	100
		TRRP $^{GW}GW_{Ing}$ PCL (µg/L)
	Bromodichloromethane	15
	1,3,5-trinitrobenzene	730
	1,4-Dioxane	9.1
	Cobalt	240
	Nickel	490
	Perchlorate	17
Wilcox Formation Groundwater		**MCL (µg/L)**
	Methylene chloride	5
	Trichloroethylene	5
	cis-1,2-Dichloroethene*	70
	Tetrachloroethene	5
	Benzene	5
	Vinyl chloride*	2
	Arsenic	10
	Barium	2,000
		TRRP $^{GW}GW_{Ing}$ PCL (µg/L)
	Bromodichloromethane	15
	1,3,5-trinitrobenzene	730
	1,4-Dioxane	9.1
	Perchlorate	17
Soil		**GWP-Ind (mg/kg)**
	Methylene Chloride[1]	0.5
	Trichloroethylene	0.5
	Perchlorate	7.2
	Tetrachloroethene	0.5

Notes:
* Trichloroethene daughter products
**TRRP $^{GW}GW_{Ing}$ PCL from April 2018, https://www.tceq.texas.gov/remediation/trrp/trrppcls.html
GWP-Ind MSC Texas Commission on Environmental Quality soil medium-specific concentration (MSC) for industrial use based on groundwater protection
µg/L micrograms per liter
MCL Safe Drinking Water Act (SDWA) maximum contaminant level
mg/kg milligrams per kilogram
MSC medium-specific concentration

5 Design Approach

For the purpose of completing this RD, it is assumed that the remedial action (RA) will be implemented in multiple phases, as the design criteria for each phase will depend on the monitoring and performance

results of RAs from the previous phase. The design approach for implementing the selected remedy as per the 2020 ROD was developed based on a multi-phase construction process as listed below.

- Phase I will consist of:
  - Excavation of unsaturated soil in three areas exceeding GWP-Ind
  - Implementation of ISTD to remove DNAPL in five identified areas
  - Implementation of EISB in groundwater source areas inside and outside of the containment area to reduce contamination within nine areas where perchlorate concentrations are greater than 20,000 parts per billion (ppb) and/or TCE concentrations are greater than 3,000 ppb
  - Continued operation of the existing groundwater extraction system and GWTP
- Phase II will consist of:
  - Implementation of EISB inside the containment area where ISTD was performed, if required
  - Implementation of EISB Barriers in the Shallow and Wilcox Formation outside of the containment area to treat the dissolved plume as it passes through the barriers
  - Continued operation of the existing groundwater extraction system and GWTP
- Phase III will consist of:
  - Continued operation of the existing groundwater extraction system and GWTP
  - Evaluation and implementation of enhancements related to the existing groundwater extraction system
  - Evaluation and implementation of advanced oxidation process for treatment of 1,4-dioxane in the existing GWTP, if data evaluation during the five year review indicates it is necessary
  - Excavation of soil beneath the UEP if, during the five year review, the results of the groundwater remedy indicate that vadose zone soil under the UEP constitutes a continuing source that requires a response

The focus of this preliminary RD is remedial components included in the phase I and II of the multi-phase construction process approach described above.

5.1 Unsaturated Soil Excavation and Off-Site Disposal

The leaching of contaminants from the unsaturated soil to groundwater was considered a complete transport pathway that needs to be addressed during the RA. The ROD identified unsaturated soil in the following areas (**Figure 2-7 provided in Attachment 1**) containing TCE and MC at concentrations that exceeded their respective GWP-Ind values, which have the potential to leach to groundwater at concentrations exceeding the MCLs:

1. Excavation Areas 1: One location to the south of the former UEP identified with TCE and MC exceedances in soil between the depths of 5.5 and 12 ft bgs around location 8A-975.
2. Excavation Areas 2: Two locations to the south of the former UEP identified with TCE and MC exceedances in soil between the depths of 8 and 12 ft bgs around locations 18-SB02 and 8A-911.
3. Excavation Area 3: An area in the former burn pit area to the west of the former UEP identified with soil exceedances of TCE, MC, and perchlorate at depths ranging from 4 to 14 ft bgs around locations 8A-940, 18CPTBB02, and 18-SB04.

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Soil samples collected during the 2021 PDI did not identify any additional areas with unsaturated soil contamination. Therefore, the extent of areas for soil excavation were estimated based on the data provided in the Final Revised FS (AECOM, 2017). Contaminated soil has been identified in these three areas totaling an area of approximately 9,950 square ft and an in-place volume of approximately 4,040 cy. The locations of the excavation areas are shown on Sheet 01C101; areal extents and excavation depth intervals and volumes are provided for each area in **Table 2** below.

Table 2 – Excavation Areas

Area ID	Length	Width	Area	Depth Interval*		Depth	Volume
	ft	ft	sf	ft bgs	ft bgs	ft	cy
Excavation Area 1	50	50	2,500	4	14	10	930
Excavation Area 2	70	40	2,800	4	14	10	1,040
Excavation Area 3	155	30	4,650	4	16	12	2,070
						TOTAL	**4,040**

Notes:

* Depth interval 0-4 ft bgs was previously excavated as an IRM.

bgs - below ground surface ft - feet

cy - cubic yards sf - square feet

The soil in the above areas will be removed to meet the cleanup levels presented in Section 4.

The estimated extent of excavation in the Excavation Area 1 with location 8A-975 conducted in 1996 is 50 ft by 50 ft for a total area of 2,500 square ft and potential total volume of 16,250 cubic ft or 602 cy. The estimated extent of excavation in the Excavation Area 2 with locations 18SB02 and 8A-911 conducted in 1996 is 40 ft by 70 ft for a total area of 2,800 square ft and potential total volume of 11,200 cubic ft or 414 cy. Soil in this area was excavated to a depth of 4 ft in 1996 and replaced with clean backfill. Therefore, shallow soil (0-4 ft bgs) will be removed and stockpiled for possible use as backfill. The backfill soil will be characterized before reuse. Post-excavation samples will be collected from the sidewalls and bottom of each excavation to confirm clean soil has been reached before backfilling with clean soil. Additional excavation will be conducted if contaminants above the cleanup levels are detected in the confirmatory samples. The contaminated soil will be stockpiled, sampled for characterization, and then hauled off-site for disposal at either a RCRA Subtitle C or Subtitle D landfill, depending on its classification. Removal of unsaturated soil containing COCs at concentrations that present a continuing source to groundwater will eliminate this potential transport pathway.

Two soil areas identified beneath the UEP had concentrations of TCE and/or MC that exceed the GWP-Ind. The first area is in the vicinity of 18CPT21, and the second area is in the vicinity of 18CPT25. A conservative extent was estimated at 280 ft by 110 ft area with a thickness of approximately 10 ft and the estimated in-place soil volume of 11,400 cy. These two areas are not considered for remediation as an active remedy under the RD since the existing cap effectively prevents human contact with contaminated soil and minimizes infiltration of precipitation/runoff that potentially mobilizes COCs in the waste and impact shallow groundwater. The cap is regularly maintained and inspected to ensure its continuing effectiveness. If during the Five-Year Review the results of the groundwater remedy indicate that vadose zone soil under the UEP constitutes a continuing source that requires a response, a contingency remedy to excavate soil beneath the UEP will be developed. Development and specific description of the contingency remedy are not part of this RD; however, the RD will address the

triggering criteria for evaluating whether a contingent remedy is needed in future design submittal. Also note that an overlapping area where DNAPL exists will be remediated using the ISTD.

5.2 DNAPL Treatment Using In-situ Thermal Desorption

The PSI and Final Revised FS delineated the extent of areas with DNAPL for implementing ISTD via ERH

ERH delivers electricity through subsurface media via an array of electrodes. The heat generated by electrical resistance typically can raise subsurface temperatures to around the boiling point of water. The steam produced from pore-water serves as a medium to carry out volatilized VOCs for capture via soil vapor extraction (SVE) and subsequent ex-situ treatment of extracted vapors. In addition, the applied heat can increase hydrolysis of chlorinated solvents, such as MC and promote in-situ biological activity in two ways. First, biological activity is boosted by moderately high temperatures (30 °C) found at the periphery of the heated area during active thermal treatment, and throughout the heated area as it cools. Second, high temperatures increase the solubility of DNAPL, resulting in an increase in contaminant concentrations in the dissolved form that the microbes are able to use, provided the concentrations of the dissolved COCs are not toxic to the microorganisms.

Thermal Conductive Heating (TCH) has been selected as the preferred ISTD technology for the preliminary evaluation; however, ERH may also be a viable technology at the site and will be evaluated prior to final technology selection. Thermal treatment and extraction will remove at least 99.9% of residual DNAPL mass, according to thermal vendors, even within low permeability zones. Thermal treatment also enhances mobilization of organic matter from the soil to groundwater, which will act to enhance biodegradation of the COCs. Additionally, higher ambient soil temperature imposed by the thermal treatment process during startup and cool down periods will increase the biodegradation rate by a factor of 2 for every 10 °C increase in ambient soil temperature up to approximately 25 °C above which bacterial activity would decrease. Groundwater extraction near the thermally treated areas will have to be ceased temporarily to reduce the groundwater flux through the area, which requires additional heating capacity. New power supply is included for implementing the ISTD system.

ISTD Treatment Areas

ISTD will be implemented to remove residual DNAPL and TCE source (concentrations greater than 10,000 ppb) areas at five on-site areas totaling 106,840 square ft, as shown on **Drawings 02C101** and **02C102** and as listed in **Table 3** below. In Area 1 near the former UEP, ISTD will be performed over 55,000 square ft to a depth of 50 ft bgs. The remaining ISTD areas will be treated to a depth of 30 ft bgs: ISTD Area 2 extends 3,220 square ft near the former Air Curtain Destructor (ACD) area, Area 3 extends 32,960 square ft near former Open Burning Pans 155 and 156, and Areas 4 (7,660 square ft) and 5 (8,000 square ft) near the center of the site's southwestern edge.

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Table 3 – ISTD Treatment Areas

Area ID	Area	Depth	Volume
	sf	ft bgs	cy
ISTD Area 1	55,000	50	101,850
ISTD Area 2	3,220	30	3,580
ISTD Area 3	32,960	30	36,620
ISTD Area 4	7,660	30	8,510
ISTD Area 5	8,000	30	8,890
TOTAL	**106,840**	**-**	**159,450**

Notes:

bgs - below ground surface
ft - feet
cy - cubic yards
sf - square feet

5.3 Enhanced In-Situ Bioremediation Treatment System

Based on 2020 ROD Table 2-10, the cleanup levels listed are the ultimate remediation goals for the treatment of the groundwater plume and areas with elevated concentrations, both within the containment area and in the northeast portions of the off-site area. Based on 2021 PDI, and the June 2021 groundwater sampling results, the source area to be targeted for active enhanced bioremediation treatment (i.e., areas amended with EVO and bioaugmented) will be confined to the estimated extent with perchlorate and TCE concentrations that exceed 20,000 and/or 3,000 ppb, respectively for the source area. The active treatment phase will be terminated once concentrations within the high-concertation areas are reduced to levels amenable to MNA, after which MNA will be used to treat the on-site and off-site areas that contain site COCs greater than the cleanup levels.

Injection of the organic substrate (I.e., ELS™ Microemulsion) will create a reduced environment conducive to microbial growth. ELS (mixed dehalorespiring bacteria including Dehalococcoides [DHC]) will be amended to the subsurface that will provide the required geochemical environment for DHC growth and activity. The population density of the DHC will be monitored, along with electron donor and contaminant concentrations. Monitoring data will be used to determine the need for additional electron donor injections, growth, and dispersion of DHC, and groundwater quality. At start up, the monitoring program will be more frequent to identify the dechlorination rate and to demonstrate complete dechlorination to ethene within the target timeframe.

The conceptual design for the full-scale EISB systems was developed based on the site hydrogeological conceptual model that was developed in the Final Revised FS (AECOM, 2017), the groundwater data from the Quarterly Evaluation Report (Bhate, 2021), and the PDI (HDR, 2021). The relevant features of the Site hydrogeologic conceptual model that impact the design of the source and plume treatment/containment system include the following:

- The distribution of TCE and Perchlorate contamination within the containment area (**Figures 3 & 4**), including the likely presence of residual DNAPL in the areas identified for ISTD.
- The predominant groundwater flow directions in shallow groundwater zone, as it is affected by the continued operation of the current GWTP and between the shallow and Wilcox zones, as indicated by groundwater elevation contours, and vertical head differences between hydrogeologic units (AECOM, 2017).

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- Spatial and/or temporal variability in the plume migration pathways, hydraulic gradients, hydraulic conductivities, and soil heterogeneity. For example, the lateral extent and continuity of the aquitard separating the shallow and Wilcox saturated zones at site is highly variable due to the heterogeneity associated with the depositional environment of the Wilcox formation. This, in turn, affects the degree of hydraulic communication between these two water-bearing units.

The remediation approach for implementing the EISB treatment system consists of two distinct methods: one for the areas estimated to have perchlorate concentrations greater than 20,000 ppb and/or TCE concentrations greater than 3,000 ppb and the other for the dissolved plume treatment as it passes through. The enhanced treatment approach for the source area will consist of a grid of injection points that cover the source areas. ISB would be applied using direct push technology (DPT) injection points. Injection via deep boreholes that are surface cased will be used for the Wilcox Formation. These injection points will be constructed temporarily so that electron donor (I.e., ELS™ Microemulsion) injection point locations can be adjusted as needed after the first injection event. The dissolved plume treatment system will consist of injection wells in a bio-barrier (wall) configuration that will transect the plume at selected locations. These transects will consist of individual well points that will allow multiple dosing of organic substrate as needed. Sections below outline the design approach for the source areas and downgradient dissolved plume treatment system.

5.3.1 EISB for Source Area Remediation (EISB Grid System)

The EISB system for source area remediation will consist of nine treatment grids to address on- and off-site areas with elevated levels of perchlorate and/or TCE in groundwater (perchlorate above 20,000 ppb and/or TCE above 3,000 ppb). Each treatment grid will be comprised of injection locations spaced 25 ft apart. The grids will cover a total area of approximately 301,200 square ft and will include a total of 648 injection points (see **Drawing 03C101**). Each grid will extend a minimum of 30 ft laterally from sample locations with elevated levels of perchlorate and/or TCE and will target a saturated thickness of 8-20 vertical ft to a maximum depth of 50 ft bgs, based on the depth of elevated perchlorate and/or TCE levels. EISB Areas 1, 2, 3, and 4 are in the northern corner of the site and the off-site area to the northeast; EISB Areas 5 and 6 are within ISTD Area 1 just south of the former UEP; EISB Areas 7 and 8 flank the former ADC area in the western corner of the site; and EISB Area 8, the largest area, overlaps ISTD Areas 3, 4, and 5 in the southern portion of the site. **Table 4** below shows the elevated perchlorate and TCE groundwater concentrations within each EISB area, as well as the areal extent and target depth zones for each area.

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Table 4 – EISB Grid Areas

Area ID	Area	Injection Points	Depth Interval		Saturated Thickness	Volume	Groundwater Sample Location ID*	PC	TCE	MC
	sf	no.	ft bgs	ft bgs	ft	cy		ppb	ppb	ppb
EISB Area 1	20,000	45	25	37	12	8,800	18WW17	136,000	0.5	1.0
EISB Area 2	10,000	25	25	33	8	2,870	MW-5	22,300	40	2.0
EISB Area 3	20,000	45	24	39	15	11,050	1824DPT29	41,000	273	0.3
							1824DPT30	35,400	29	0.6
EISB Area 4	38,120	85	28	40	12	16,380	1824DPTMW02	112,000	466	2.5
							1824DPT20	39,200	695	2.5
EISB Area 5	10,000	25	24	41	17	6,170	MW-2	0	6,200	6,400.0
EISB Area 6	10,000	25	24	41	17	6,330	MW-1	1,820	15,000	20.0
EISB Area 7	10,000	25	30	50	20	7,410	MW-14	198,000	9,000	20.0
EISB Area 8	10,000	25	12	30	18	6,570	1824DPT42	3,500	6,860	6,980.0
EISB Area 9	173,080	348	25	42	17	110,470	DPT Wells**	103,465	7,804	4.2
TOTAL	**301,200**	**648**	-	-	-	-	-	-	-	-

Notes:

* Groundwater sample location(s) within corresponding EISB area.

** Average value of PDI DPT points in the area.

bgs - below ground surface

cy - cubic yards

ft - feet

MC - methylene chloride

PC - perchlorate

ppb - parts per billion

sf - square feet

TCE - trichloroethylene

5.3.2 EISB for Plume Treatment (EISB Wall System)

The EISB system for plume treatment will consist of five on and off-site treatment walls running roughly parallel to the site boundaries to treat contaminated groundwater as it migrates downgradient from the site (see **Drawing 03C101**). Each treatment wall will consist of injection locations spaced 25 ft apart, which will be injected at varying target depths with amendment via temporary DPT points. The EISB walls will extend a total of 5,450 linear ft, with a total of 223 injection points. The two longest treatment walls will target Shallow Zone contamination and will total 3,850 ft in length: Shallow Wall 1 will be located approximately 740 ft to the northeast of the site; and Shallow Wall 2 will run from outside the southern corner of the site, along the entire southwestern boundary, and then to the north along Harrison Bayou. Three shorter treatment walls will target contamination in the deeper Wilcox Formation and will total 1,600 ft in length: Wilcox Wall 1 in the northern corner of the site; Wilcox Wall 2 in the northern corner of the site; and Wilcox Wall 3 in the northern corner of the site. **Tables 5** and **6** below show the elevated perchlorate and TCE groundwater concentrations upgradient from each EISB wall, as well as the length and target depth zones for each wall.

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Table 5 – EISB Shallow Walls

Area ID	Length	Injection Points	Depth Interval		Thickness	Groundwater Sample Location ID*	PC	TCE	MC
	ft	no.	ft bgs	ft bgs	ft		ppb	ppb	ppb
EISB Shallow Wall 1	900	37	26	38	12	18WW17	76,800	42	2.0
						1824DPT22	47,500	12.5	0.5
EISB Shallow Wall 2	2950	119	16	27	11	MW-7	13,100	2,000	10.0
TOTAL	**3850**	**156**							

Notes:

* Groundwater sample location(s) within corresponding EISB area.
bgs - below ground surface
ft - feet
MC - methylene chloride
PC - perchlorate
ppb - parts per billion
sf - square feet
TCE - trichloroethylene

Table 6 – EISB Wilcox Walls

Area ID	Length	Injection Points	Depth Interval		Thickness	Groundwater Sample Location ID*	PC	TCE	MC
	ft	no.	ft bgs	ft bgs	ft		ppb	ppb	ppb
EISB Wilcox Wall 1	625	26	45	65	20	18CPTMW08SW	17,300	35	2.0
EISB Wilcox Wall 2	500	21	30	50	20	MW-14	198,000	9,000	20.0
EISB Wilcox Wall 3	475	20	40	60	20	18CPTMW22SW	4,050	1	2.0
TOTAL	**1600**	**67**							

Notes:

* Groundwater sample location(s) within corresponding EISB area.
bgs - below ground surface
ft - feet
MC - methylene chloride
PC - perchlorate
ppb - parts per billion
sf - square feet
TCE - trichloroethylene

5.4 Existing GWTP System Enhancement

The existing groundwater extraction system is intended to remove source mass and contain contamination within the shallow zone only. **Figure 2-16** provided in **Attachment 1** shows the locations of the ICTs, extraction wells, and pipelines that convey the extracted groundwater to the GWTP. The existing groundwater extraction system currently removes water from 21 ICTs and two vertical extraction wells (EW-1 and 18WW17). This groundwater extraction hydraulically controls migration of contaminants. The extracted groundwater is pumped to the GWTP, stored in an equalization tank for batch treatment, sent through precipitation to remove metals, subjected to air stripping to remove VOCs, and treated in a biological reactor to remove perchlorate. The treated effluent is discharged to Harrison Bayou or the INF Pond or released to Burning Ground No. 3 via a sprinkler system. Five other ICTs that were previously used to extract groundwater (ICT-1, ICT-3, ICT-5, ICT-10, and ICT-12A) were deactivated on February 18, 2008, as part of a pilot test to encourage groundwater flow across the most contaminated portions of LHAAP-18/24. On December 5, 2012, ICT-12A was restored and is currently extracting groundwater.

Based on the estimates for the timeframe that will be required to remove the mass of contaminants within the containment area, the GWTP was expected to be operated for at least 20 years. The current GWTP is more than 25 years old and is aging, requiring frequent maintenance. It is anticipated that further maintenance requirements with recapitalization for major system component replacement will be required in the near future. Additionally, the existing GWTP was oversized with a design capacity of up to 300 gallons per minute (gpm), while current operations recover an average flow of 20 gpm due to its limitation of the units for perchlorate treatment (i.e. Fluidized bed reactor). Due to the age of the plant, frequent maintenance requirements, and idling conditions, the 2020 ROD included the potential for capitalization of a smaller footprint GWTP to replace the existing plant. Replacement of the new GWTP may not be required if the proposed treatment in this RD can reduce site COCs to levels amenable to MNA with in-situ remedial technologies. For the purpose of this RD, it is assumed that the existing GW treatment system will continue to be operational and will continue to hydraulically control migration of contaminants while the soil and groundwater remedial actions are being completed.

Whether operation of the current GWTP continues or a potential new GWTP is constructed will be determined through a cost/benefit analysis to be conducted during the next phase of this RD. The new plant will consist of the same processes: metals precipitation, VOC stripping, and a FBR for removal of perchlorate. Should treatment for 1,4-dioxane be required, an advanced oxidation process using the HiPOxTM technology, consisting of hydrogen peroxide with ozone, will be included as a contingency remedy. A determination as to whether 1.4-dioxane treatment will be required will be made during the next phase of this RD.

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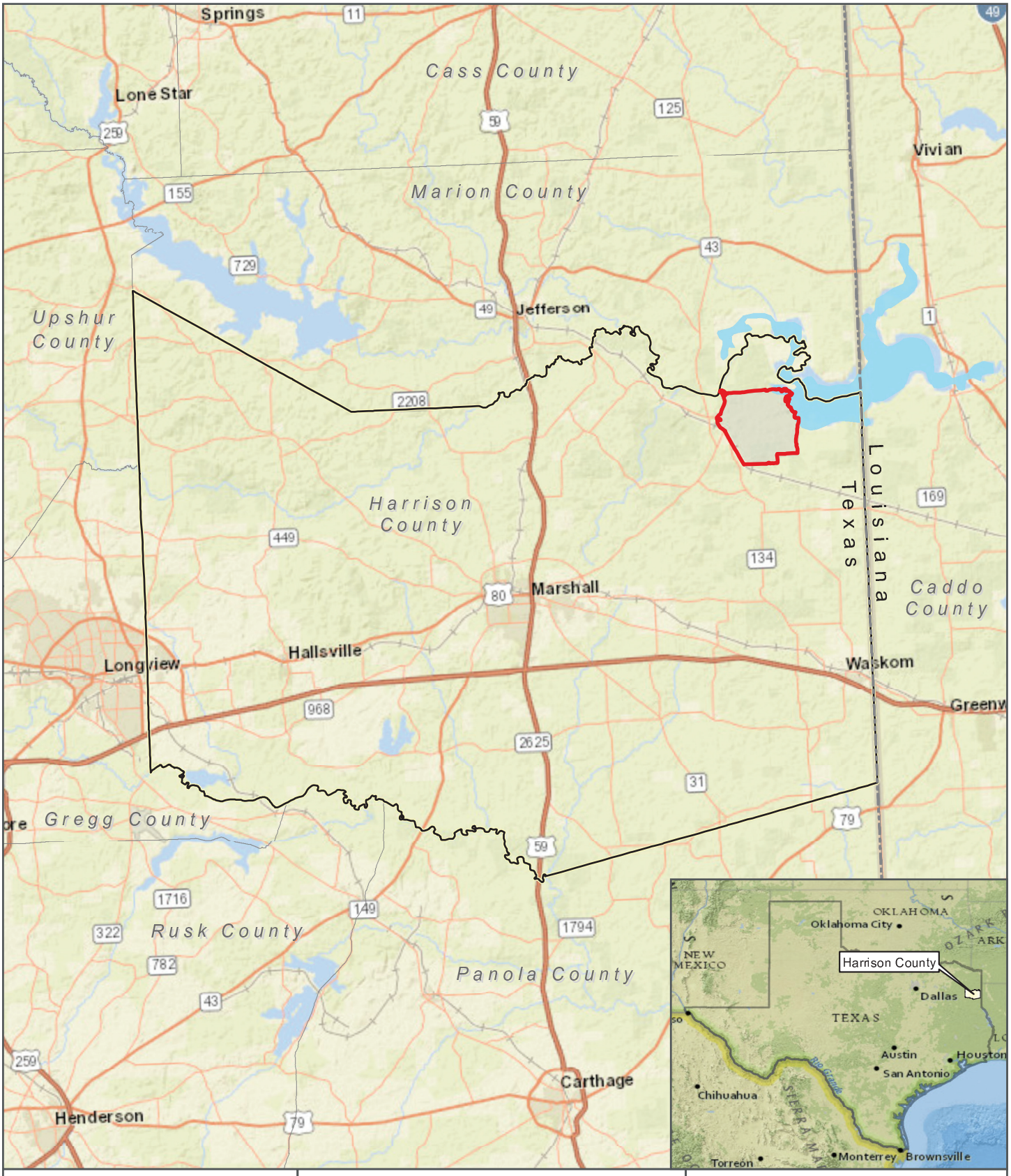

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MILES

LEGEND

- LHAAP Installation Boundary
- Harrison County
- State Boundary

SITE LOCATION

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

DATA SOURCES: AECOM, ESRI, LHAAP

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

FIGURE 1

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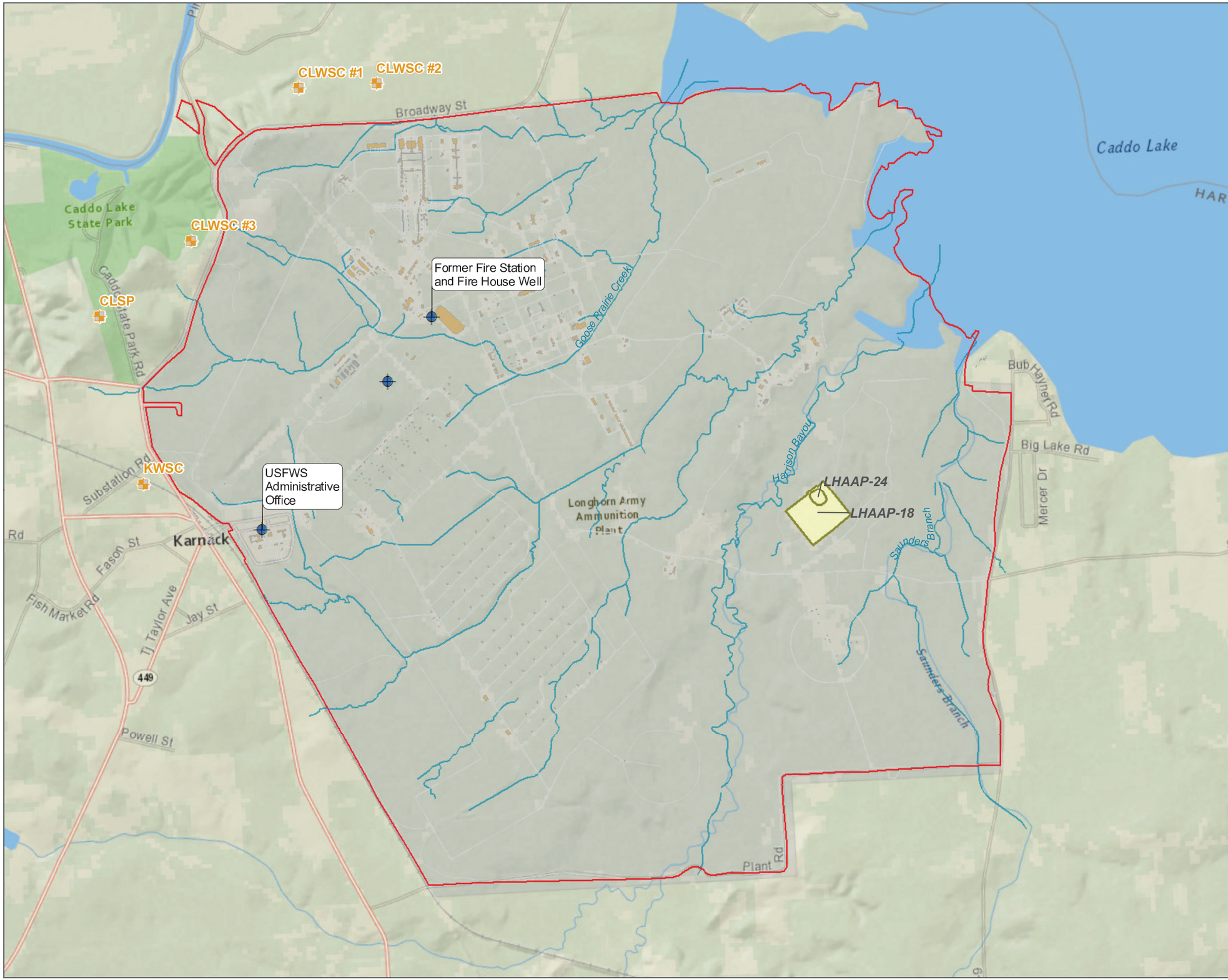

LEGEND

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

CLWSC – Caddo Lake Water Supply Corporation
KWSC – Karnack Water Supply Corporation

DATA SOURCES: AECOM, 2017. Final Revised Feasibility Study for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas, January.

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

SITE VICINTY

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

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MILES

FIGURE : 2

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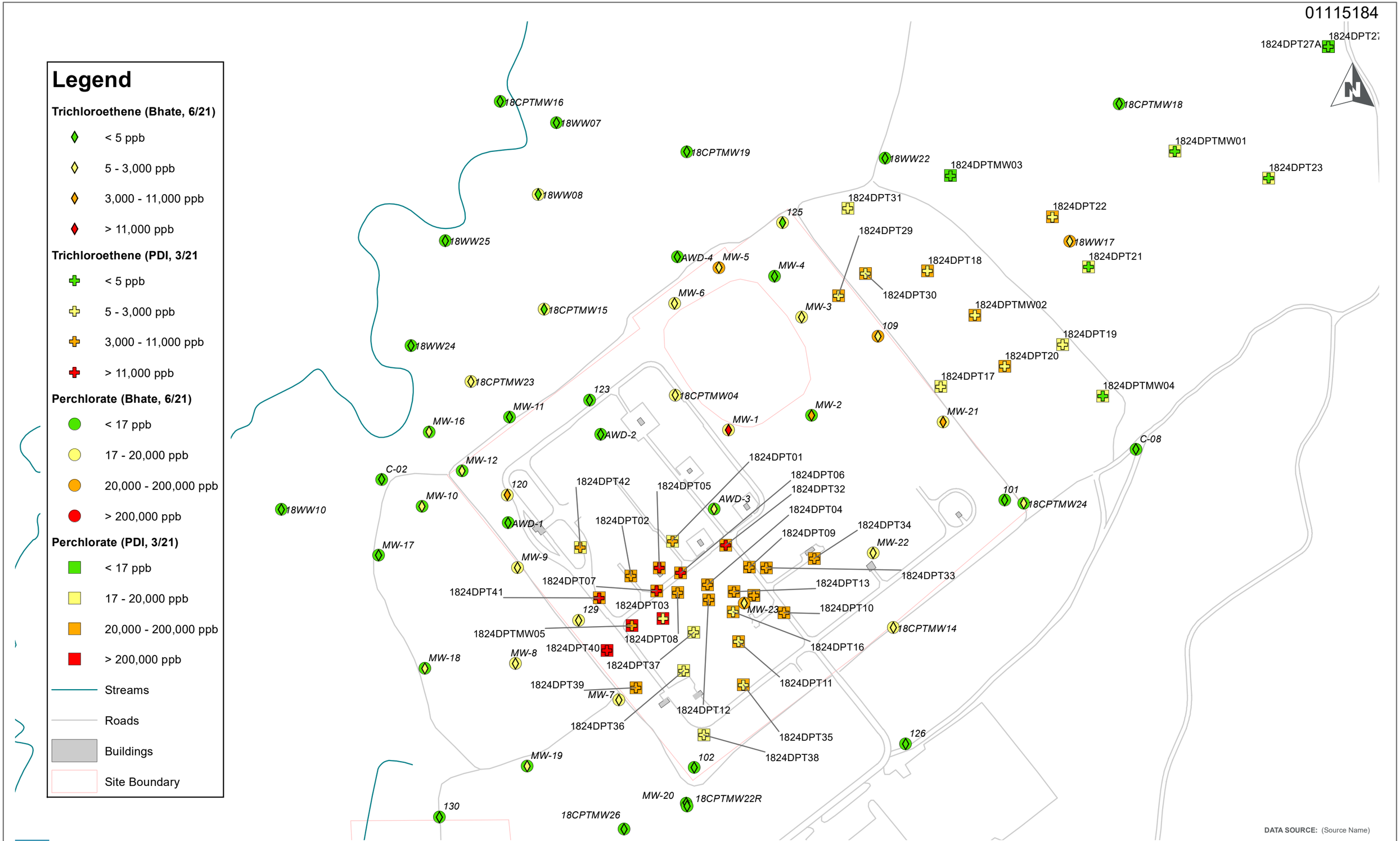

DATA SOURCE: (Source Name)

LONGHORN ARMY AMMUNITION PLANT SITE 18/24

SUMMARY OF SHALLOW ZONE GROUNDWATER PERCHLORATE AND TCE ANALYTICAL RESULTS

FIGURE 3

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PRELIMINARY DESIGN

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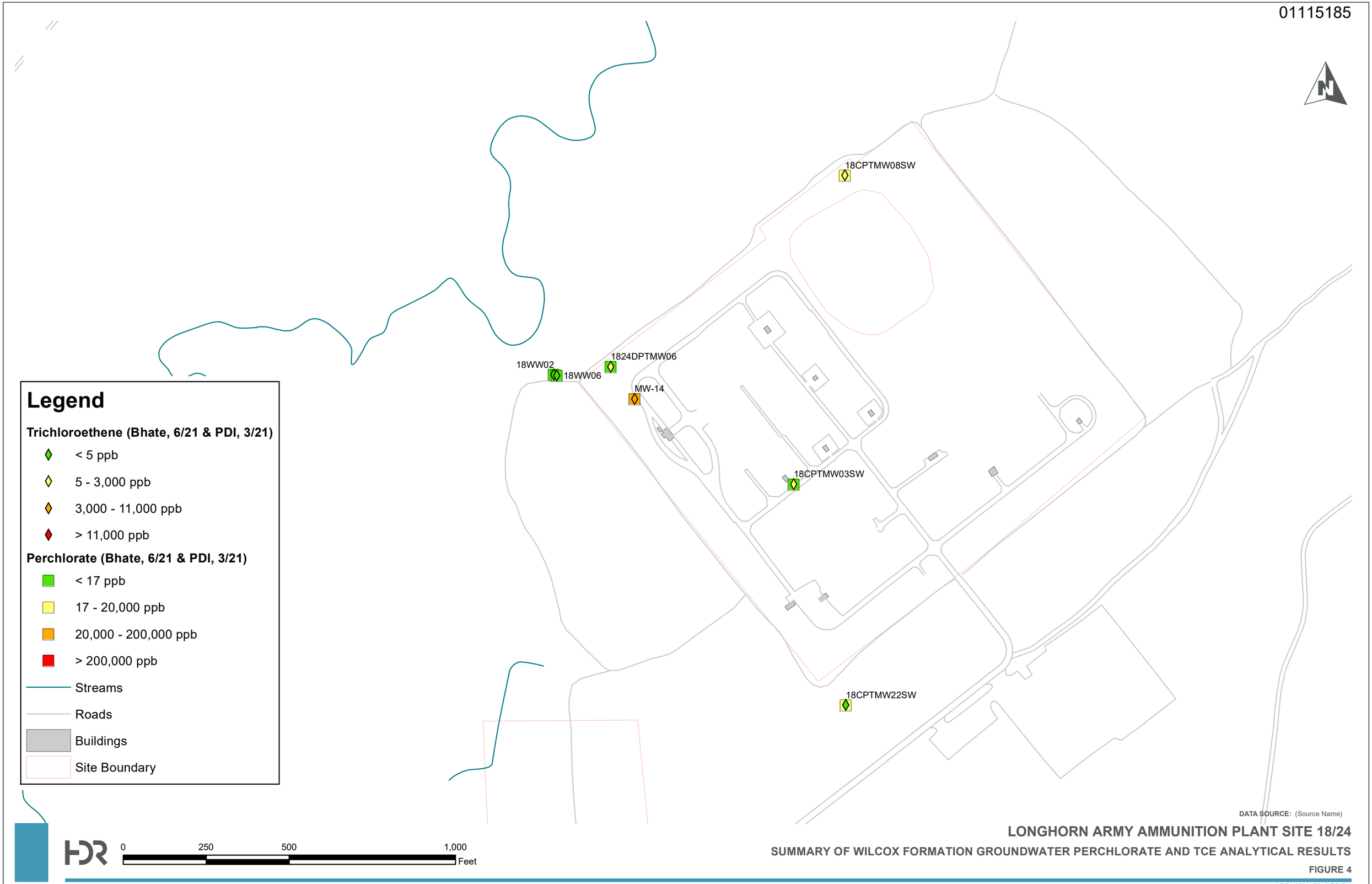

DATA SOURCE: (Source Name)

LONGHORN ARMY AMMUNITION PLANT SITE 18/24

SUMMARY OF WILCOX FORMATION GROUNDWATER PERCHLORATE AND TCE ANALYTICAL RESULTS

FIGURE 4

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PRELIMINARY DESIGN

ATTACHMENT 1

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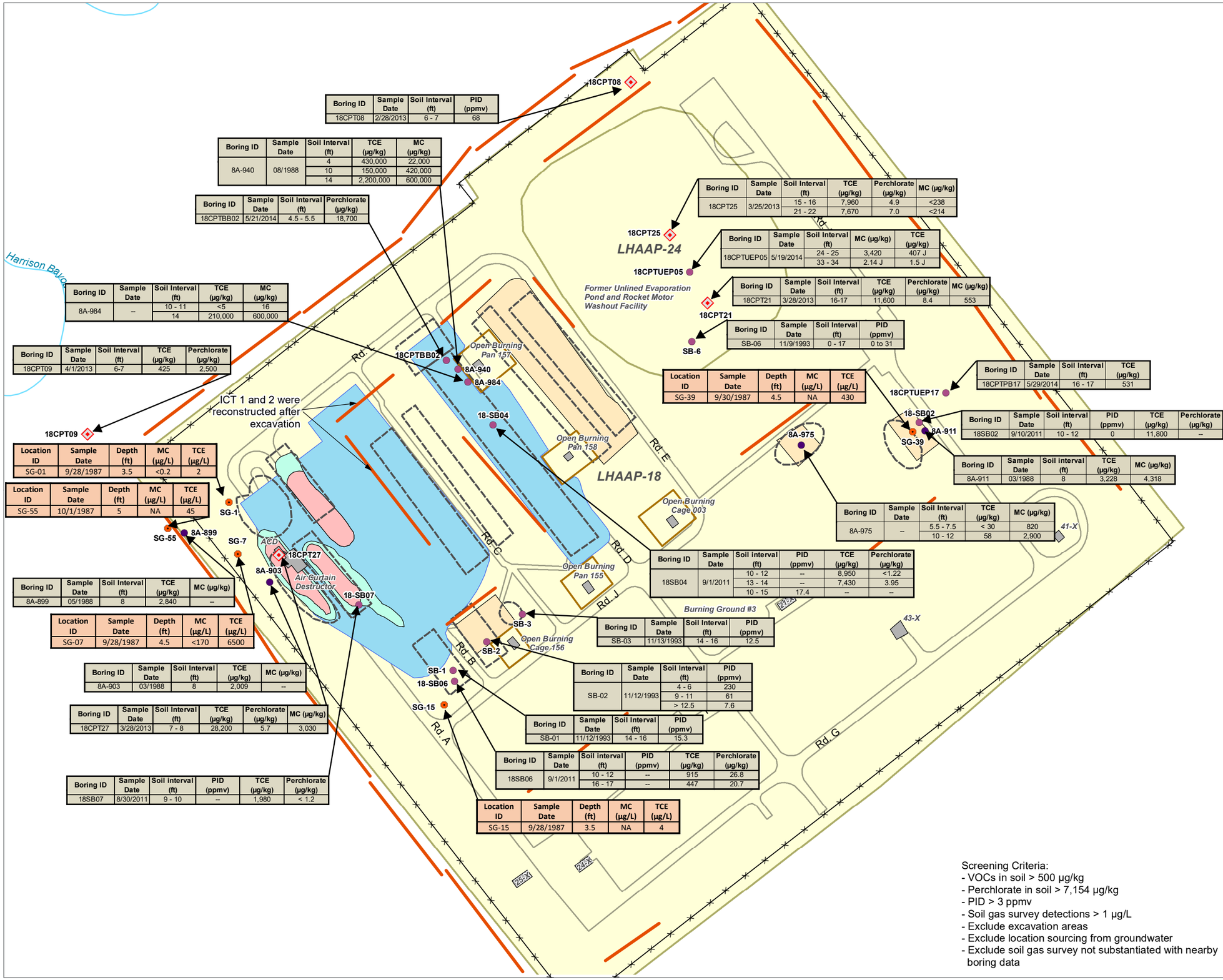


Boring ID	Sample Date	Soil Interval (ft)	PID (ppmv)
18CPT08	2/28/2013	6 - 7	68

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	MC (µg/kg)
8A-940	08/1988	4	430,000	22,000
		10	150,000	420,000
		14	2,200,000	600,000

Boring ID	Sample Date	Soil Interval (ft)	Perchlorate (µg/kg)
18CPTBB02	5/21/2014	4.5 - 5.5	18,700

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	MC (µg/kg)
8A-984	--	10 - 11	<5	16
		14	210,000	600,000

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	Perchlorate (µg/kg)
18CPT09	4/1/2013	6-7	425	2,500

Location ID	Sample Date	Depth (ft)	MC (µg/L)	TCE (µg/L)
SG-01	9/28/1987	3.5	<0.2	2

Location ID	Sample Date	Depth (ft)	MC (µg/L)	TCE (µg/L)
SG-55	10/1/1987	5	NA	45

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	MC (µg/kg)
8A-899	05/1988	8	2,840	--

Location ID	Sample Date	Depth (ft)	MC (µg/L)	TCE (µg/L)
SG-07	9/28/1987	4.5	<170	6500

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	MC (µg/kg)
8A-903	03/1988	8	2,009	--

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	Perchlorate (µg/kg)	MC (µg/kg)
18CPT27	3/28/2013	7 - 8	28,200	5.7	3,030

Boring ID	Sample Date	Soil interval (ft)	PID (ppmv)	TCE (µg/kg)	Perchlorate (µg/kg)
18SB07	8/30/2011	9 - 10	--	1,980	< 1.2

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	Perchlorate (µg/kg)	MC (µg/kg)
18CPT25	3/25/2013	15 - 16	7,960	4.9	<238
		21 - 22	7,670	7.0	<214

Boring ID	Sample Date	Soil Interval (ft)	MC (µg/kg)	TCE (µg/kg)
18CPTUEP05	5/19/2014	24 - 25	3,420	407 J
		33 - 34	2.14 J	1.5 J

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	Perchlorate (µg/kg)	MC (µg/kg)
18CPT21	3/28/2013	16-17	11,600	8.4	553

Boring ID	Sample Date	Soil Interval (ft)	PID (ppmv)
SB-06	11/9/1993	0 - 17	0 to 31

Location ID	Sample Date	Depth (ft)	MC (µg/L)	TCE (µg/L)
SG-39	9/30/1987	4.5	NA	430

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)
18CPTPB17	5/29/2014	16 - 17	531

Boring ID	Sample Date	Soil interval (ft)	PID (ppmv)	TCE (µg/kg)	Perchlorate (µg/kg)
18SB02	9/10/2011	10 - 12	0	11,800	--

Boring ID	Sample Date	Soil interval (ft)	TCE (µg/kg)	MC (µg/kg)
8A-911	03/1988	8	3,228	4,318

Boring ID	Sample Date	Soil Interval (ft)	TCE (µg/kg)	MC (µg/kg)
8A-975	--	5.5 - 7.5	< 30	820
		10 - 12	58	2,900

Boring ID	Sample Date	Soil interval (ft)	PID (ppmv)	TCE (µg/kg)	Perchlorate (µg/kg)
18SB04	9/1/2011	10 - 12	--	8,950	<1.22
		13 - 14	--	7,430	3.95
		10 - 15	17.4	--	--

Boring ID	Sample Date	Soil Interval (ft)	PID (ppmv)
SB-03	11/13/1993	14 - 16	12.5

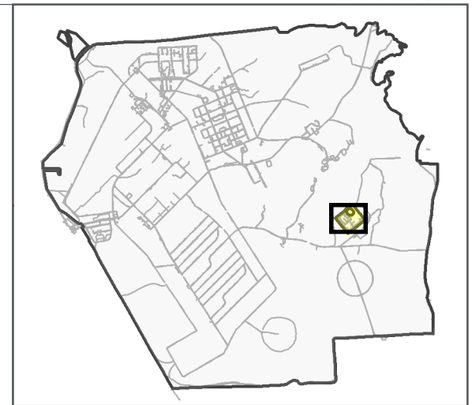
Boring ID	Sample Date	Soil Interval (ft)	PID (ppmv)
SB-02	11/12/1993	4 - 6	230
		9 - 11	61
		> 12.5	7.6

Boring ID	Sample Date	Soil Interval (ft)	PID (ppmv)
SB-01	11/12/1993	14 - 16	15.3

Boring ID	Sample Date	Soil interval (ft)	PID (ppmv)	TCE (µg/kg)	Perchlorate (µg/kg)
18SB06	9/1/2011	10 - 12	--	915	26.8
		16 - 17	--	447	20.7

Location ID	Sample Date	Depth (ft)	MC (µg/L)	TCE (µg/L)
SG-15	9/28/1987	3.5	NA	4

Screening Criteria:
- VOCs in soil > 500 µg/kg
- Perchlorate in soil > 7,154 µg/kg
- PID > 3 ppmv
- Soil gas survey detections > 1 µg/L
- Exclude excavation areas
- Exclude location sourcing from groundwater
- Exclude soil gas survey not substantiated with nearby boring data



LEGEND
- Site
- Source Units (USACE, 1993)
- Burning Cage
- Excavated Area - 4 Feet
- Excavated Area - 15 Feet
- Trench Limits
- Berm Limits
- Soil Boring
- Deep Soil Boring
- Soil Gas Survey
- Test Pit
- CPT/MIP Location (AECOM, 2013)
- ICT Trench
- Fence

Soil Result

Boring ID	Sample Date	Soil Interval (ft)	PID (ppmv)
18CPT08	2/28/2013	6 - 7	68

Soil Gas Result

Location ID	Depth (ft)	MC (µg/L)	TCE (µg/L)
SG-15	3.5	NA	4

ACD – Air Curtain Destructor

DATA SOURCES: AECOM, 2017. Final Revised Feasibility Study for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas, January.

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

RESULTS OF RECENT SOIL SAMPLING

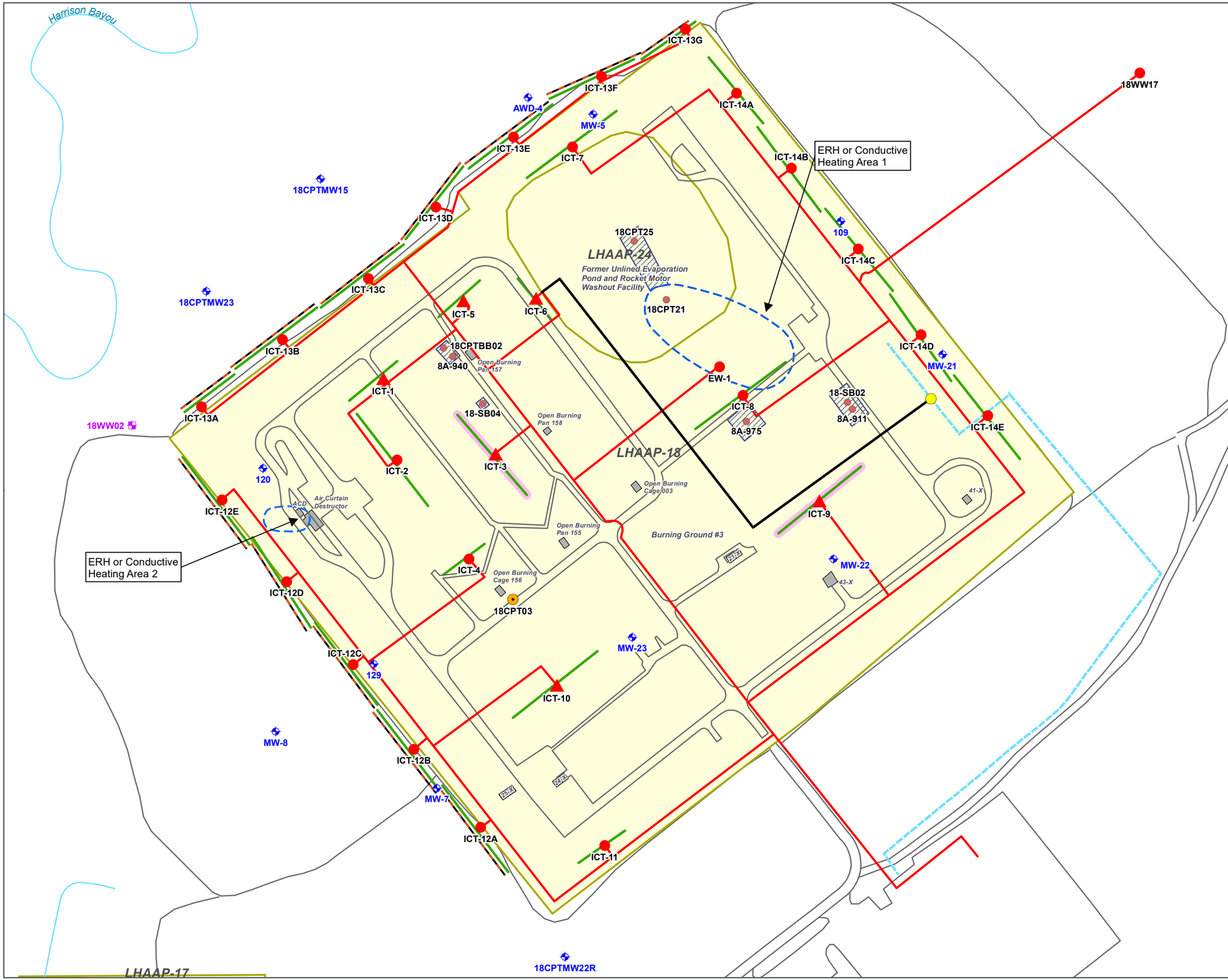
LHAAP 18/24
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

N

0 200 400
FEET

FIGURE 2-7

PATH: J:\2018\18-025_LHAAP_SITES29_47_18AND24_ROD_(WERNER)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\LHAAP18_24\LHAAP_18_24_ROD_SOILCONTAMINATION_REMEDIATION.MXD - USER: KLOFGREN - DATE: 12/26/2019



LEGEND

- Extraction Location
- Currently Deactivated Sump
- Injection Point (discontinued)
- Soil Boring
- Shallow Zone Monitoring Well
- Wilcox Formation Monitoring Well
- Soil Boring - May 2013
- Injection Line Tie In Point
- ICT Location
- HDPE Liner Installed on the Outside of the ICT
- Extraction Pipeline
- Irrigation Pipeline
- Road
- Stream
- Site
- Former Building or Concrete Slab

Alternative 5 Activities

- Reactivate Sump - Enhanced Groundwater Extraction
- DNAPL Removal Area - Thermal Treatment
- Excavation Area up to 12 Feet Below Ground Surface

ACD – Air Curtain Destructor

DATA SOURCES: AECOM, 2017. Final Revised Feasibility Study for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas, January.

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THERMAL TREATMENT (ERH OR CONDUCTIVE HEATING) AREAS, ENHANCED GROUNDWATER EXTRACTION LOCATIONS AND AREAS OF SOIL EXCAVATION

LHAAP 18/24

LONGHORN ARMY AMMUNITION PLANT

KARNACK, TEXAS

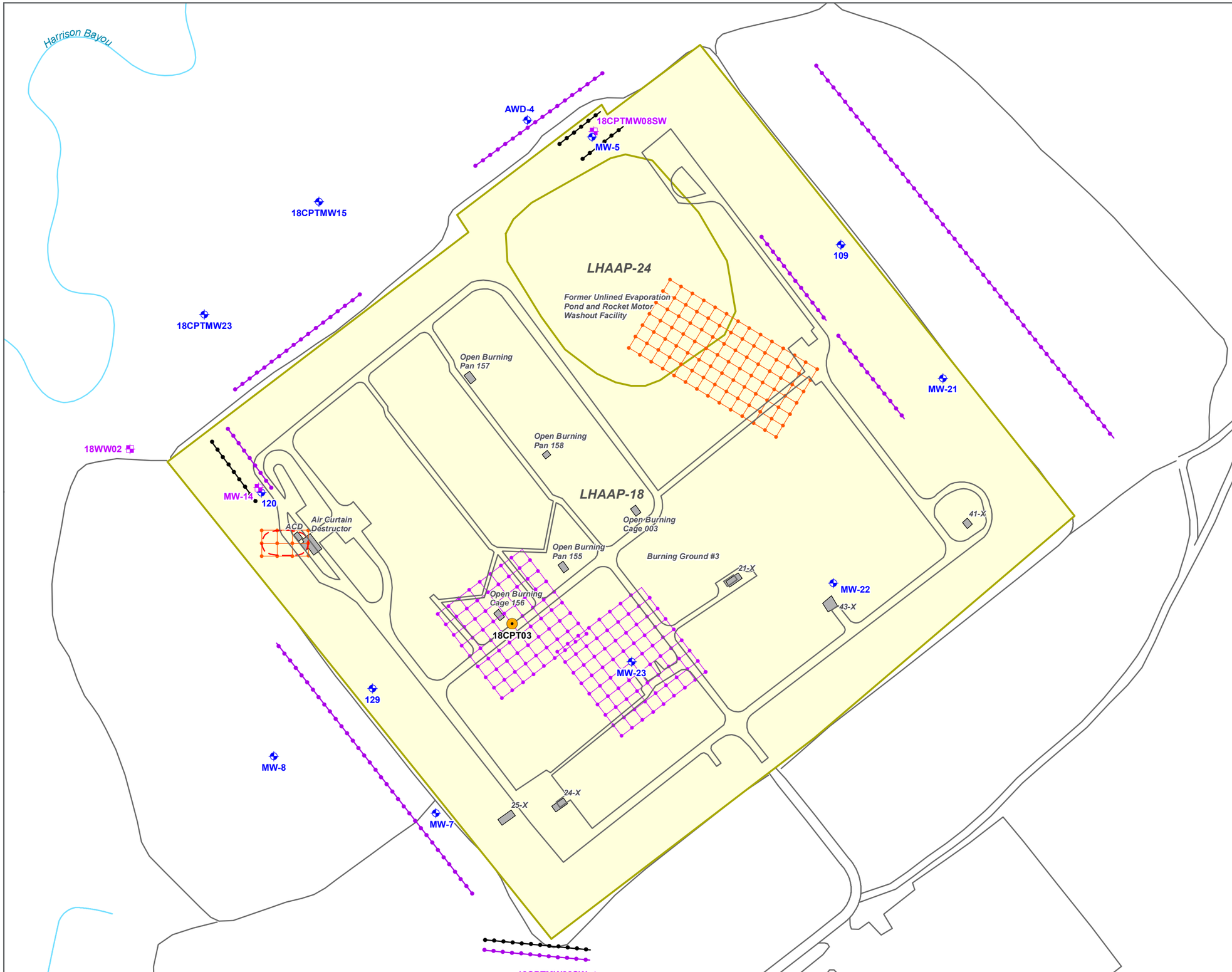
N

0 250 500

FEET

FIGURE 2-16

PATH: J:\2018\18-025_LHAAP_SITES29_47_18AND24_ROD_(WERNER)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\LHAAP18_24\LHAAP_18_24_ROD_GW_EXTRACTION_LOCATIONS.MXD - USER: KLOFGREN - DATE: 12/26/2019



LEGEND

- Road
- Stream
- Site
- Former Building or Concrete Slab
- Shallow Zone Monitoring Well
- Wilcox Formation Monitoring Well
- Soil Boring - May 2013

Alternative 5 Activities

- Shallow Zone ISB
- Wilcox ISB
- Shallow Zone ISB Grid
- Shallow Zone ISB Grid after DNAPL Removal

Notes

ISB In-Situ Bioremediation

Barriers, grids and other remedy component features shown in this figure were used to facilitate comparison of alternatives including costs. The locations, number and layout may change during Remedial Design phase.

ACD – Air Curtain Destructor

DATA SOURCES: AECOM, 2017. Final Revised Feasibility Study for LHAAP-18/24, Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant, Karnack, Texas, January.

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ENHANCED IN-SITU BIOREMEDIATION LOCATIONS

LHAAP 18/24

LONGHORN ARMY AMMUNITION PLANT

KARNACK, TEXAS

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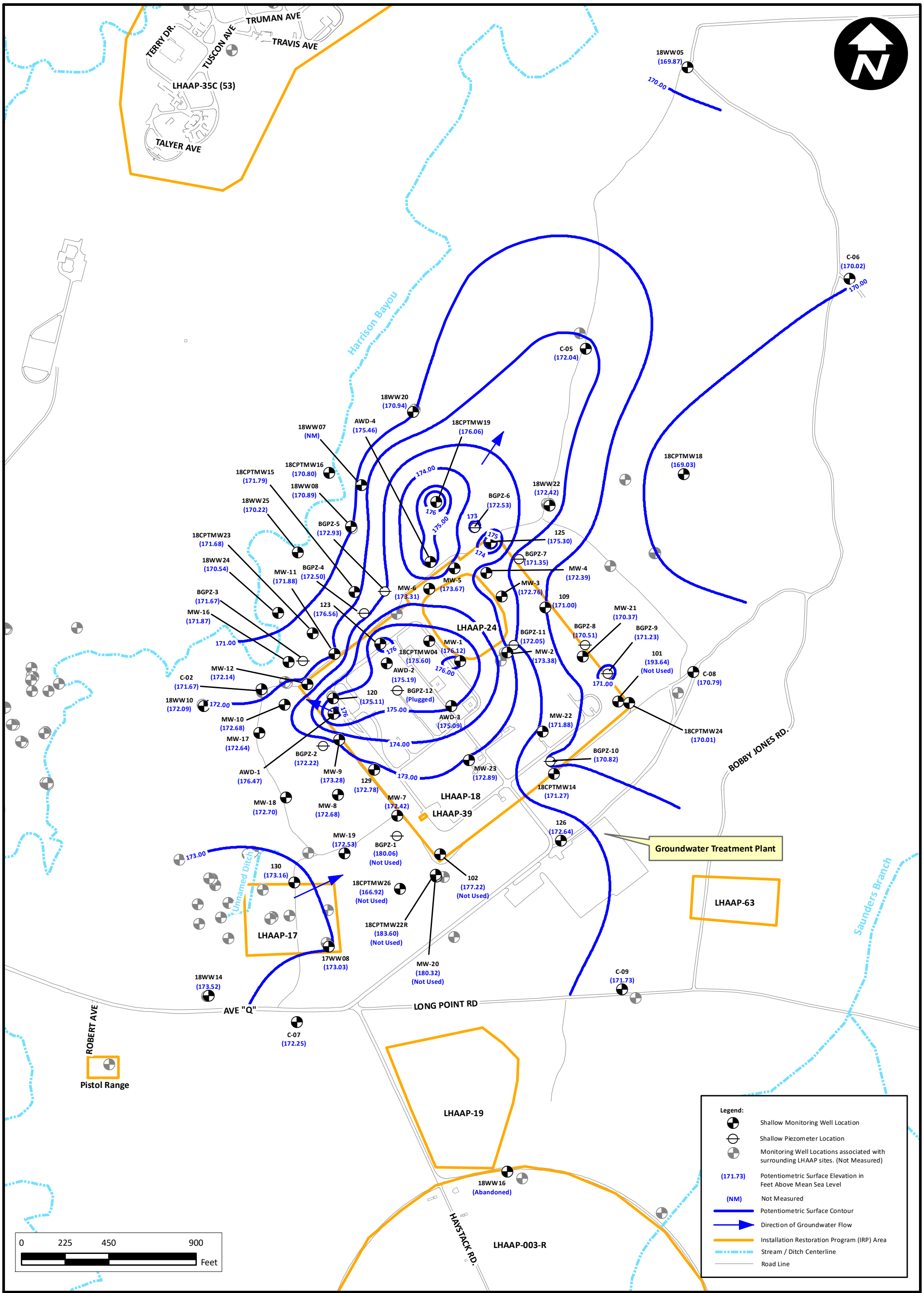
FEET

FIGURE 2-17

PATH: J:\2018\18-025_LHAAP_SITES29_47_18AND24_ROD_(WERNER)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\LHAAP18_24\LHAAP_18_24_ROD_EISB_LOCATIONS.MXD - USER: KLOFGREN - DATE: 12/26/2019



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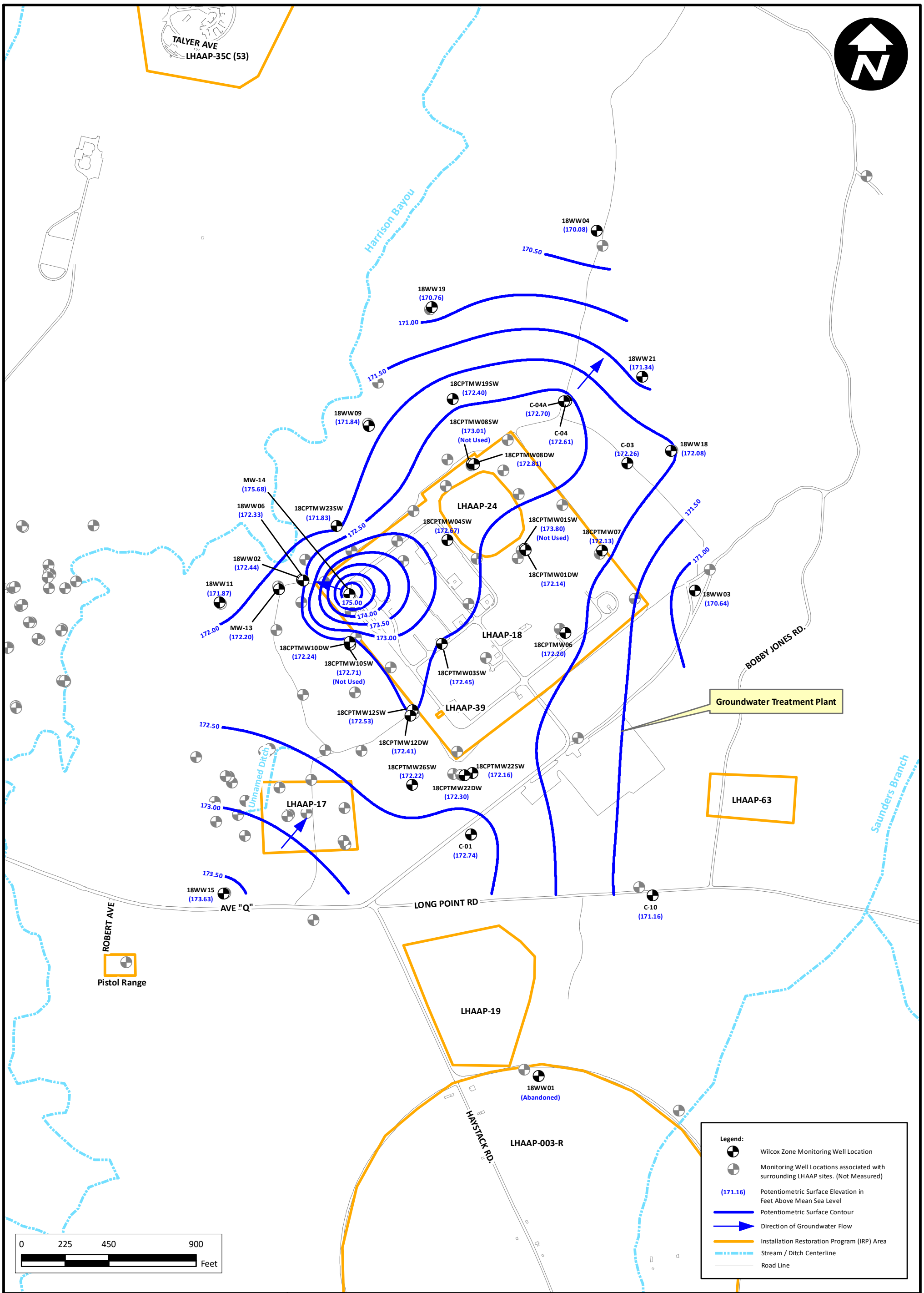
Quarterly Evaluation Report 2nd Quarter (April – June) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	7/12/2021	MRM

Groundwater Potentiometric Surface Map
Shallow Zone (June 30, 2021) LHAAP-18/24

Figure B-3



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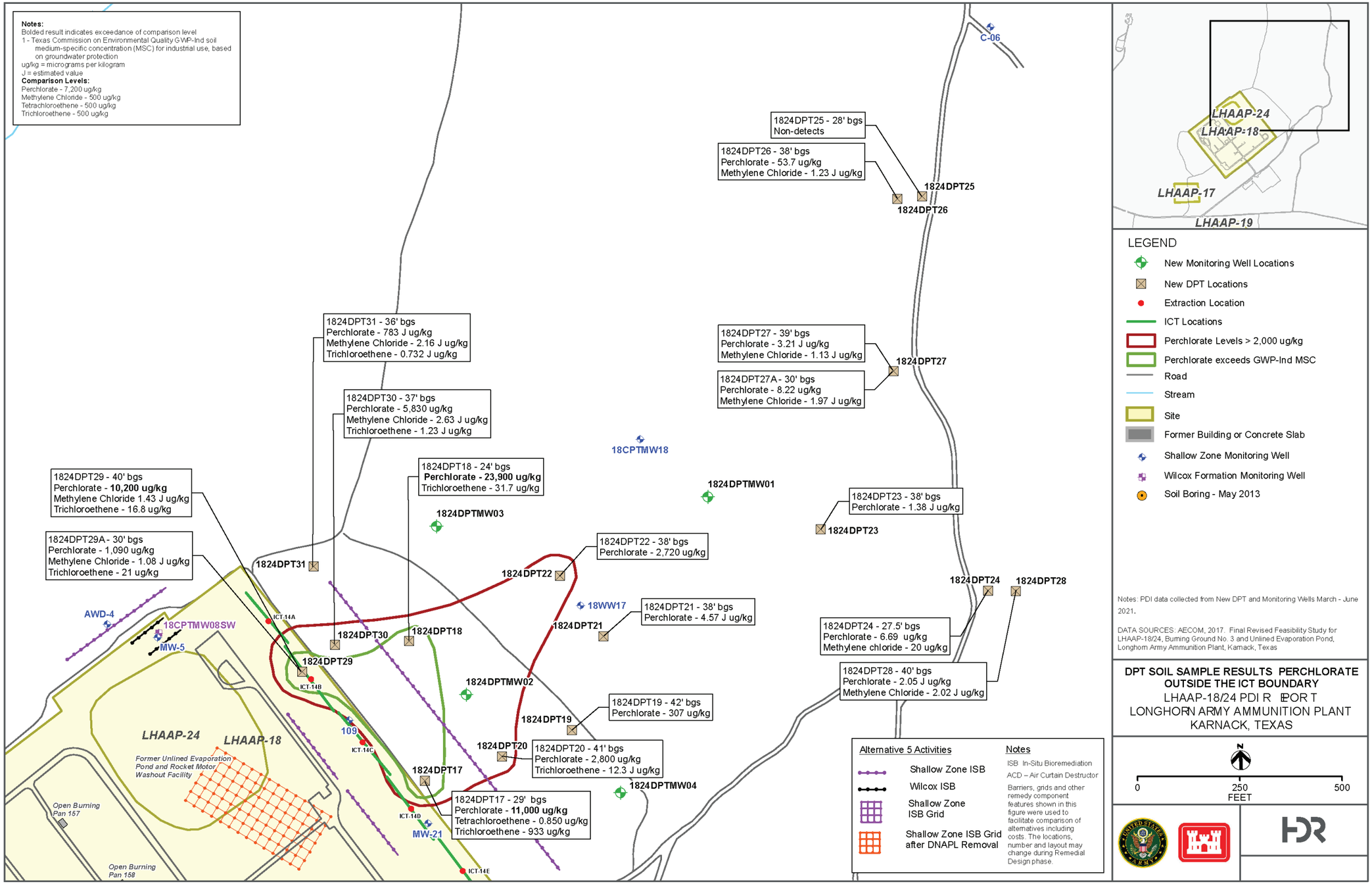
Quarterly Evaluation Report 2nd Quarter (April – June) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	7/12/2021	MRM

Groundwater Potentiometric Surface Map
Wilcox Zone (June 30, 2021) LHAAP-18/24

Figure B-6

Figure 5. Extent of Perchlorate Soil Contamination Outside the Northeast ICT Boundary



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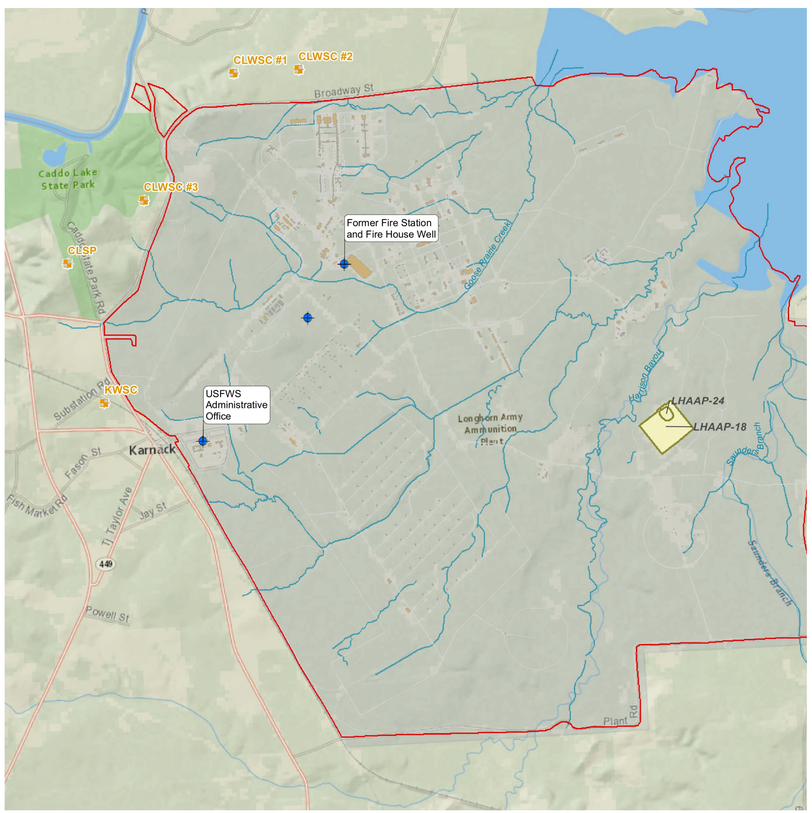

Contract Drawings For

LHAAP - 18 / 24

BURNING GROUND NO. 3 AND UNLINED EVAPORATION POND

PRELIMINARY DESIGN

REMEDIAL ACTION DESIGN

CONTRACT NO. W912BV 19 D0016
TASK ORDER NO. W912BV20F0096

KARNACK, TEXAS
MARCH 2022

DRAFT

INDEX OF DRAWINGS

GENERAL (G)

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G002	GENERAL NOTES AND LEGEND	
G003	SITE PLAN	(INCLUDED IN PRELIMINARY DESIGN PACKAGE)
G004	REMEDIAL ACTION SITE PLAN	(INCLUDED IN PRELIMINARY DESIGN PACKAGE)

EXCAVATION AREAS CIVIL (C)

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01C102	EXCAVATION AREAS GRADING AND EROSION CONTROL PLAN	
01C401	SITE STAGING AND ACCESS PLAN	
01C501	EROSION CONTROL DETAILS	
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ISTD AREA CIVIL (C)

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02C301	ISTD SECTION PLAN	
02C401	ISTD SITE STAGING AND ACCESS PLAN	
02C501	CONSTRUCTION DETAILS 1	
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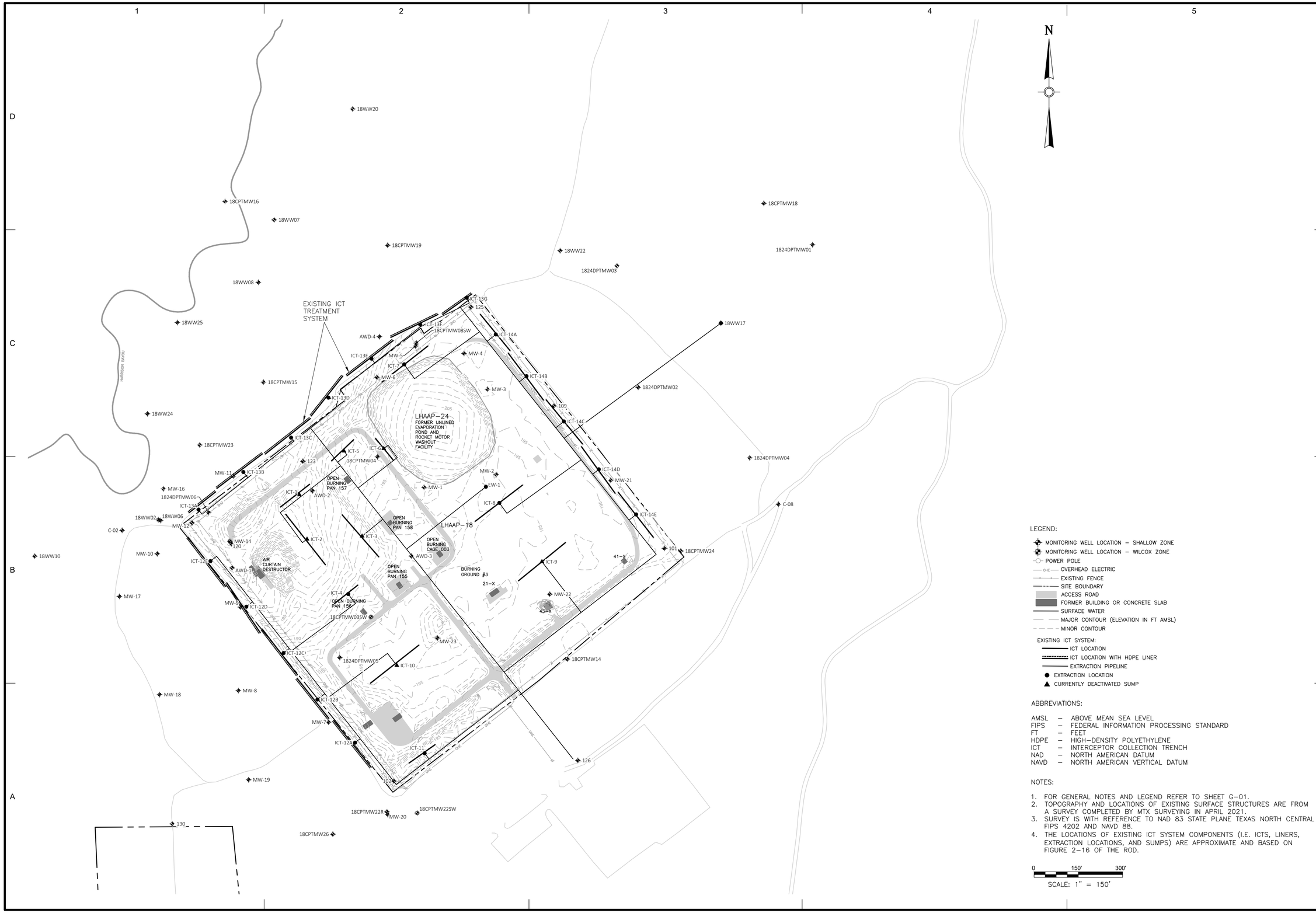
02C601	TREATMENT SYSTEM SCHEMATIC	

EISB AREA CIVIL (C)

03C101	EISB AREAS SITE PLAN 1	(INCLUDED IN PRELIMINARY DESIGN PACKAGE)
03C102	EISB AREA WELL LAYOUT	
03C301	EISB SECTION PLAN	
03C401	EISB SITE STAGING AND ACCESS PLAN	
03C501	CONSTRUCTION DETAILS 1	
03C502	CONSTRUCTION DETAILS 2	
03C601	TREATMENT SYSTEM SCHEMATIC	



LEGEND:

- MONITORING WELL LOCATION – SHALLOW ZONE
- MONITORING WELL LOCATION – WILCOX ZONE
- POWER POLE
- OHE — OVERHEAD ELECTRIC
- EXISTING FENCE
- SITE BOUNDARY
- ACCESS ROAD
- FORMER BUILDING OR CONCRETE SLAB
- SURFACE WATER
- MAJOR CONTOUR (ELEVATION IN FT AMSL)
- MINOR CONTOUR

EXISTING ICT SYSTEM:

- ICT LOCATION
- ICT LOCATION WITH HDPE LINER
- EXTRACTION PIPELINE
- EXTRACTION LOCATION
- CURRENTLY DEACTIVATED SUMP

ABBREVIATIONS:

AMSL – ABOVE MEAN SEA LEVEL
FIPS – FEDERAL INFORMATION PROCESSING STANDARD
FT – FEET
HDPE – HIGH–DENSITY POLYETHYLENE
ICT – INTERCEPTOR COLLECTION TRENCH
NAD – NORTH AMERICAN DATUM
NAVD – NORTH AMERICAN VERTICAL DATUM

NOTES:

1. FOR GENERAL NOTES AND LEGEND REFER TO SHEET G–01.
2. TOPOGRAPHY AND LOCATIONS OF EXISTING SURFACE STRUCTURES ARE FROM A SURVEY COMPLETED BY MTX SURVEYING IN APRIL 2021.
3. SURVEY IS WITH REFERENCE TO NAD 83 STATE PLANE TEXAS NORTH CENTRAL FIPS 4202 AND NAVD 88.
4. THE LOCATIONS OF EXISTING ICT SYSTEM COMPONENTS (I.E. ICTS, LINERS, EXTRACTION LOCATIONS, AND SUMPS) ARE APPROXIMATE AND BASED ON FIGURE 2–16 OF THE ROD.

0 150' 300'

SCALE: 1" = 150'

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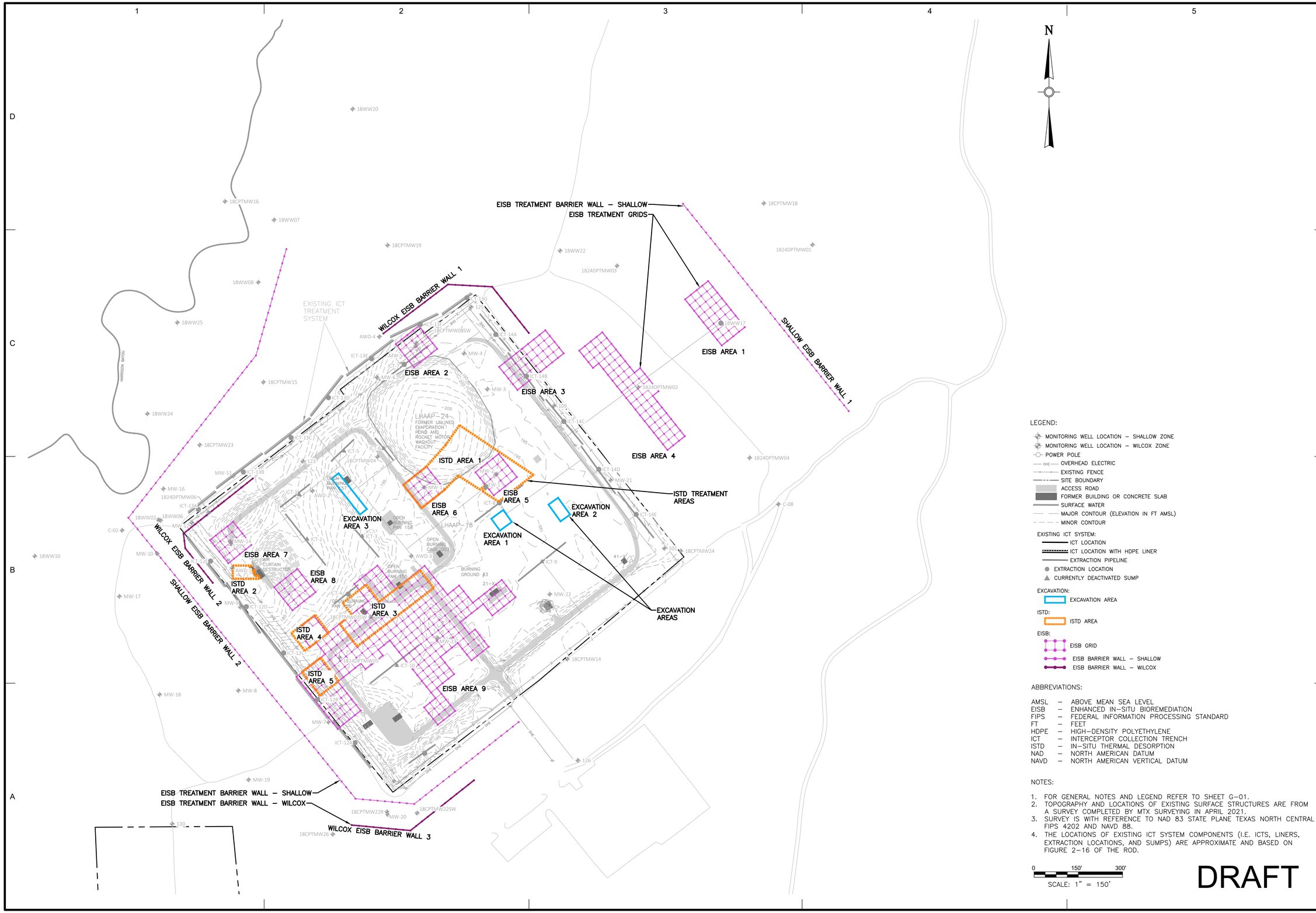
LHAAP - 18 / 24
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

SITE PLAN

SHEET IDENTIFICATION
G003
SHEET X OF X



LEGEND:

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- MONITORING WELL LOCATION – WILCOX ZONE
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EXISTING ICT SYSTEM:

- ICT LOCATION
- ICT LOCATION WITH HDPE LINER
- EXTRACTION PIPELINE
- EXTRACTION LOCATION
- CURRENTLY DEACTIVATED SUMP

EXCAVATION:

- EXCAVATION AREA

ISTD:

- ISTD AREA

EISB:

- EISB GRID
- EISB BARRIER WALL – SHALLOW
- EISB BARRIER WALL – WILCOX

ABBREVIATIONS:

AMSL	–	ABOVE MEAN SEA LEVEL
EISB	–	ENHANCED IN–SITU BIOREMEDIATION
FIPS	–	FEDERAL INFORMATION PROCESSING STANDARD
FT	–	FEET
HDPE	–	HIGH–DENSITY POLYETHYLENE
ICT	–	INTERCEPTOR COLLECTION TRENCH
ISTD	–	IN–SITU THERMAL DESORPTION
NAD	–	NORTH AMERICAN DATUM
NAVD	–	NORTH AMERICAN VERTICAL DATUM

NOTES:

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0 150' 300'
SCALE: 1" = 150'

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KARNACK, TEXAS

REMEDIAL ACTION SITE PLAN

SHEET IDENTIFICATION
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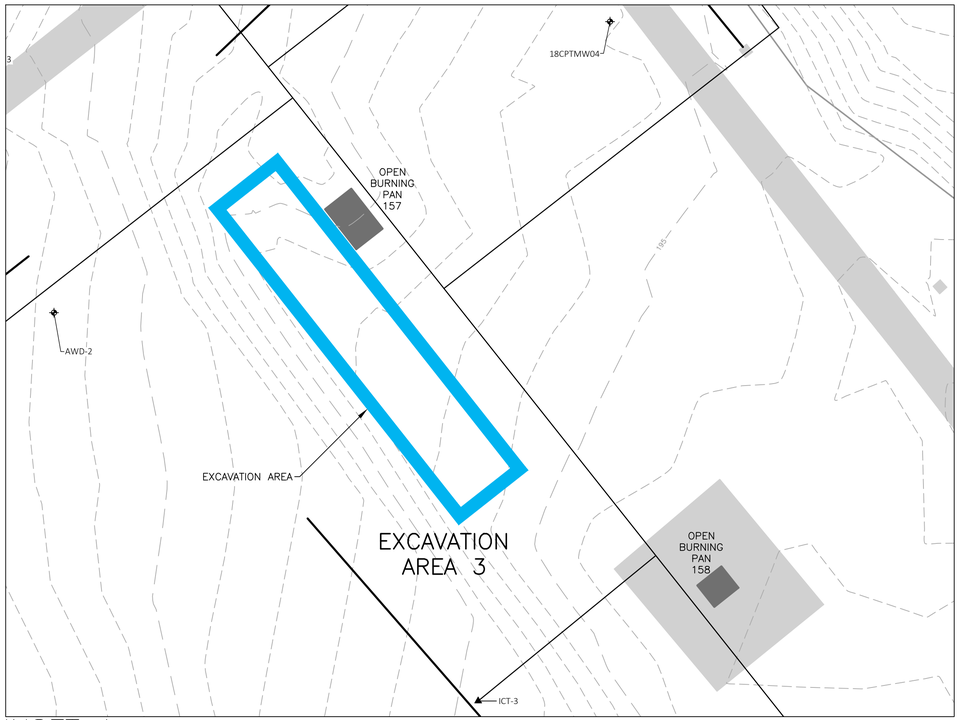
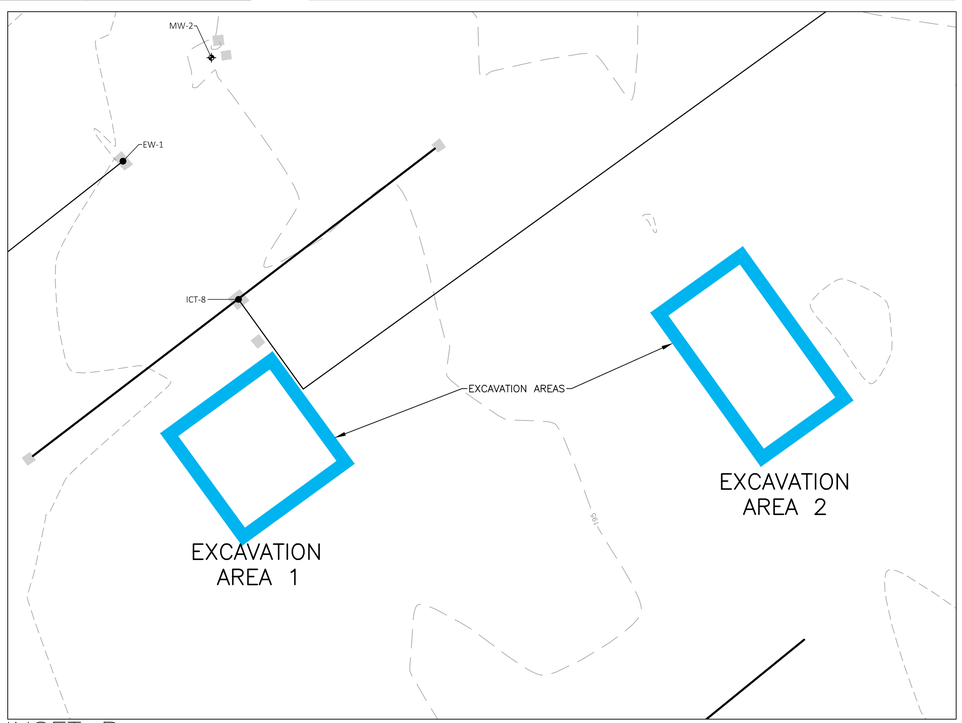


INSET A

0 30' 60'
SCALE: 1" = 30'

Area ID	Length	Width	Area	Depth Interval		Depth	Volume	Volume
	ft	ft	ft^2	ft	ft	ft	ft^3	yd^3
1 (8A-975)	50	50	2,500	4	14	10	25,000	926
2 (8A-911 & 18-SB02)	70	40	2,800	4	14	10	28,000	1,037
3 (8A-940, 18CPT BB02, & 18-SB04)	155	30	4,650	4	16	12	55,800	2,067
						TOTAL	108,800	4,030



INSET B

0 30' 60'
SCALE: 1" = 30'

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KEY MAP

0 600' 1200'
SCALE: 1" = 600'

LEGEND:

- MONITORING WELL LOCATION – SHALLOW ZONE
- MONITORING WELL LOCATION – WILCOX ZONE
- POWER POLE
- OHE — OVERHEAD ELECTRIC
- EXISTING FENCE
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- EXTRACTION LOCATION
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EXCAVATION:

- EXCAVATION AREA

ABBREVIATIONS:

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EXCAVATION AREAS SITE PLAN

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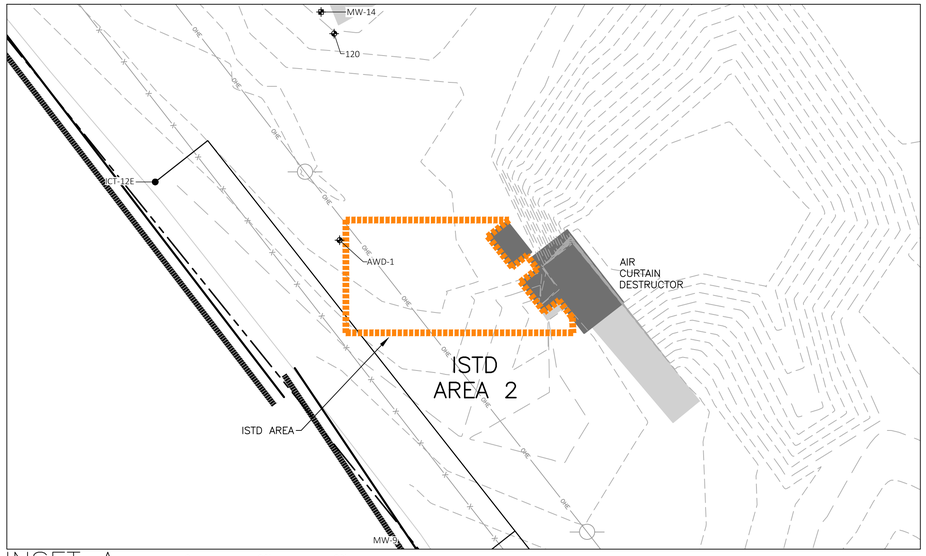
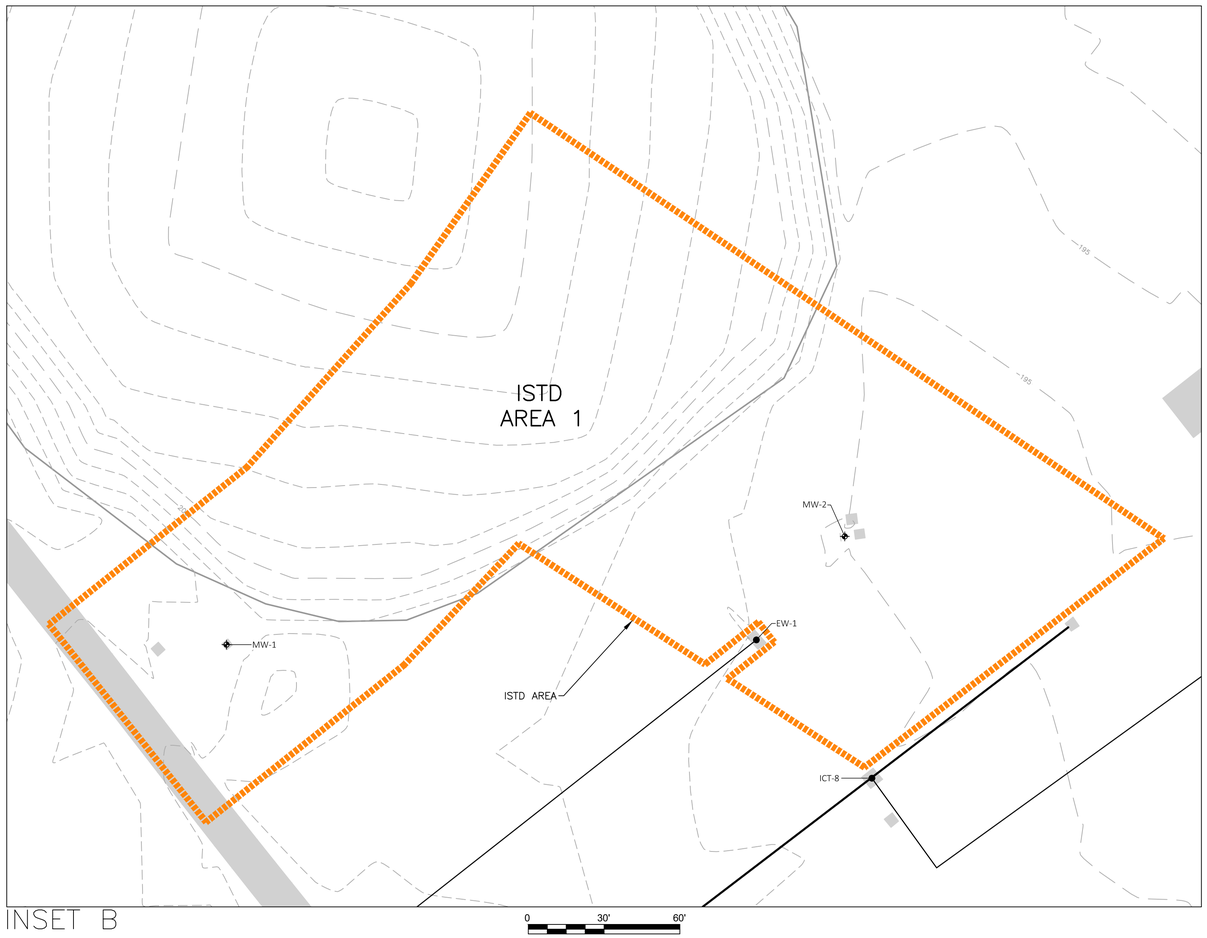


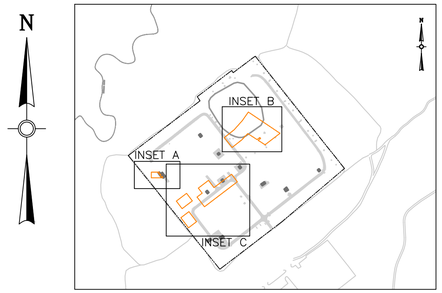
INSET A

0 30' 60'
SCALE: 1" = 30'



INSET B

0 30' 60'
SCALE: 1" = 30'



KEY MAP

0 600' 1200'
SCALE: 1" = 600'

LEGEND:

- MONITORING WELL LOCATION – SHALLOW ZONE
- MONITORING WELL LOCATION – WILCOX ZONE
- POWER POLE
- OHE — OVERHEAD ELECTRIC
- EXISTING FENCE
- SITE BOUNDARY
- ACCESS ROAD
- FORMER BUILDING OR CONCRETE SLAB
- SURFACE WATER
- MAJOR CONTOUR (ELEVATION IN FT AMSL)
- MINOR CONTOUR

EXISTING ICT SYSTEM:

- ICT LOCATION
- ICT LOCATION WITH HDPE LINER
- EXTRACTION PIPELINE
- EXTRACTION LOCATION
- CURRENTLY DEACTIVATED SUMP

ISTD:

- ISTD AREA

ABBREVIATIONS:

AMSL – ABOVE MEAN SEA LEVEL
FIPS – FEDERAL INFORMATION PROCESSING STANDARD
FT – FEET
HDPE – HIGH–DENSITY POLYETHYLENE
ICT – INTERCEPTOR COLLECTION TRENCH
ISTD – IN–SITU THERMAL DESORPTION
NAD – NORTH AMERICAN DATUM
NAVD – NORTH AMERICAN VERTICAL DATUM

NOTES:

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3. SURVEY IS WITH REFERENCE TO NAD 83 STATE PLANE TEXAS NORTH CENTRAL FIPS 4202 AND NAVD 88.
4. THE LOCATIONS OF EXISTING ICT SYSTEM COMPONENTS (I.E. ICTS, LINERS, EXTRACTION LOCATIONS, AND SUMPS) ARE APPROXIMATE AND BASED ON FIGURE 2–16 OF THE ROD.

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TULSA DISTRICT

MARK	DESCRIPTION	DATE	APPR.
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CITY, STATE

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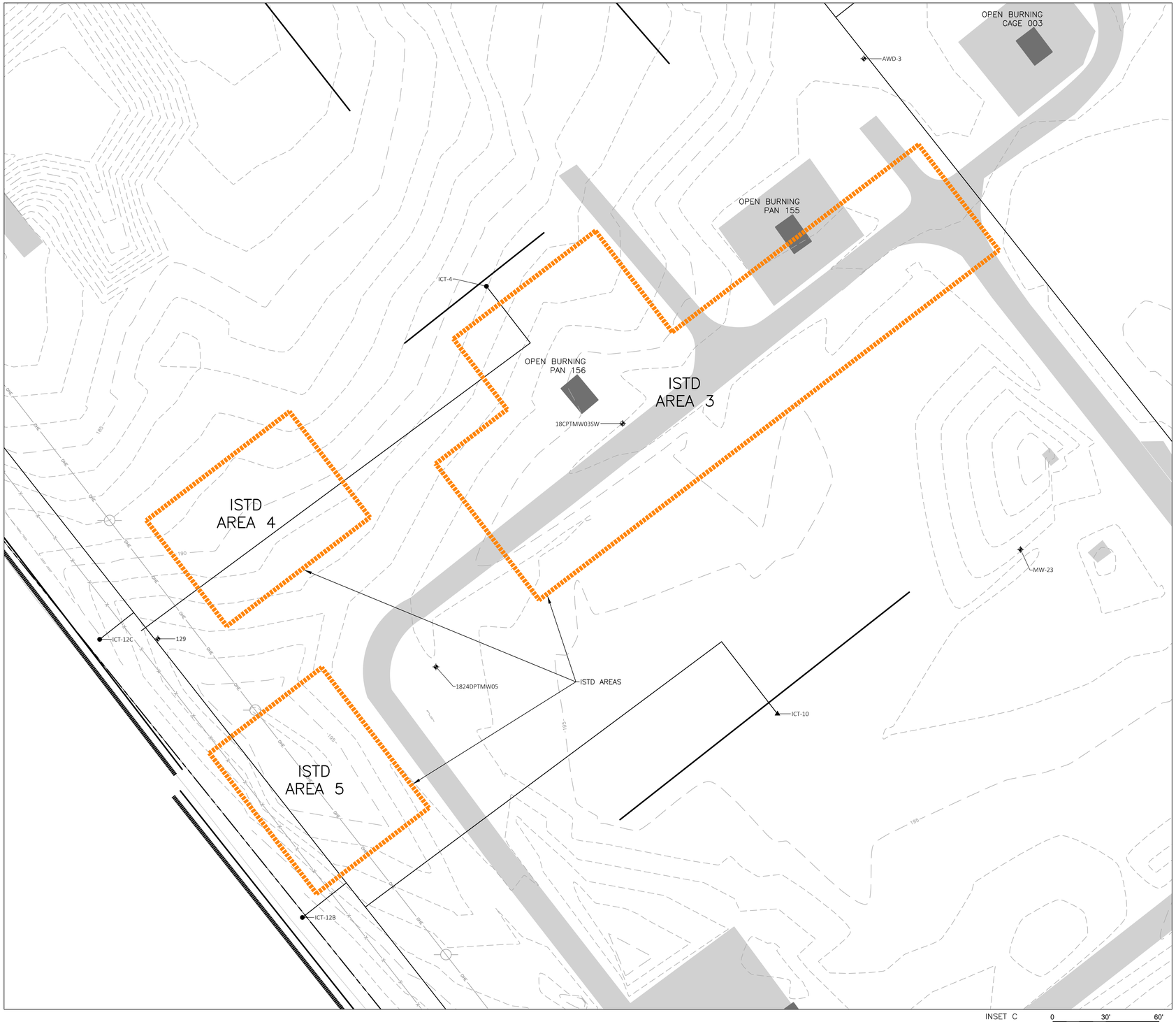
OMAHA, NE 68106
(402) 399-1000
HDR Engineering, Inc.

LHAAP - 18 / 24
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

ISTD AREAS
SITE PLAN

SHEET IDENTIFICATION
02C101
SHEET X OF X



LEGEND:

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MARK	DESCRIPTION	DATE	APPR.	MARK	DESCRIPTION	DATE	APPR.
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U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
CITY, STATE

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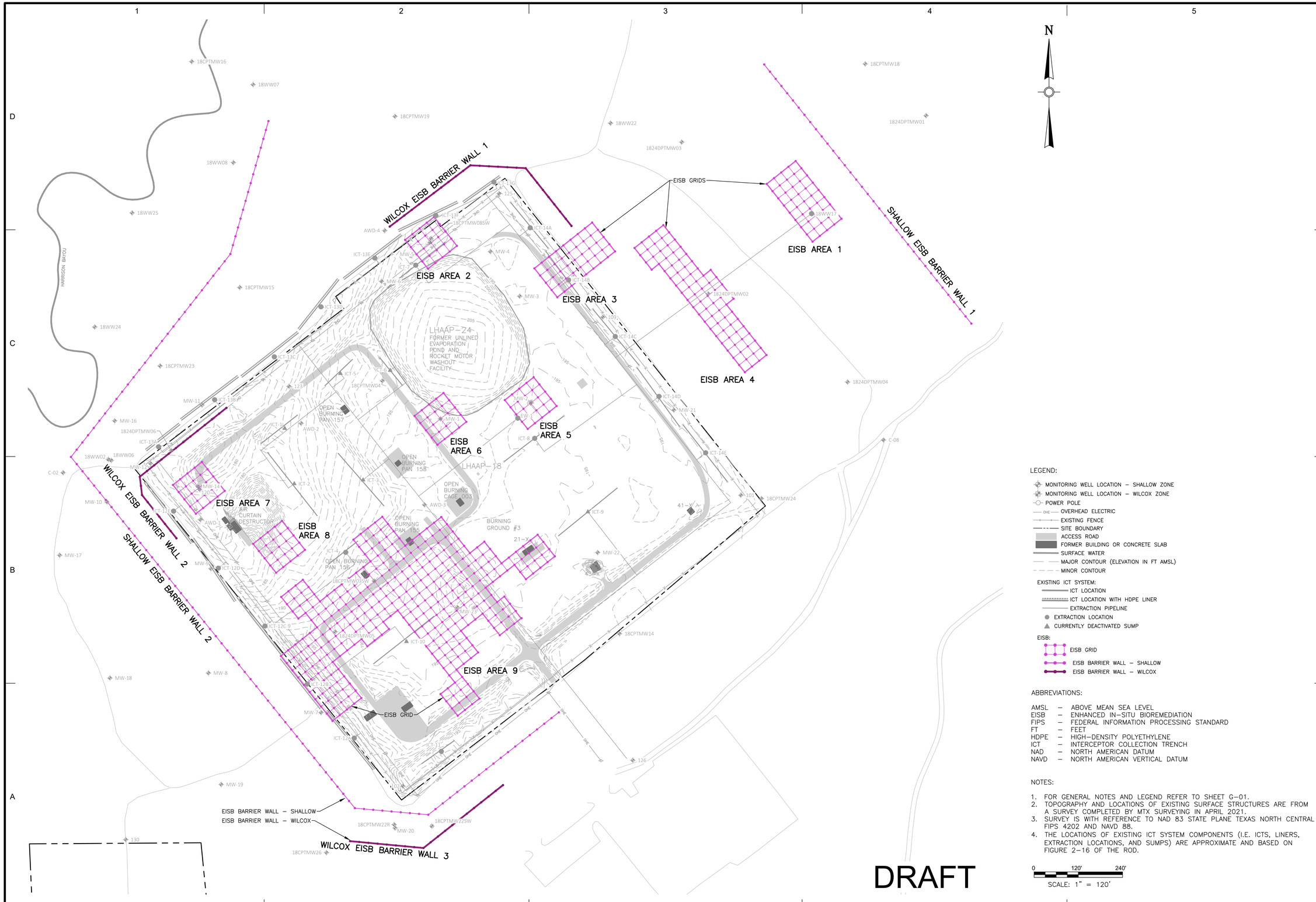
LHAAP - 18 / 24
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

ISTD AREAS SITE PLAN

SHEET IDENTIFICATION
02C102
SHEET X OF X



DRAFT

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EXISTING ICT SYSTEM:

- ICT LOCATION
- ICT LOCATION WITH HDPE LINER
- EXTRACTION PIPELINE
- EXTRACTION LOCATION
- CURRENTLY DEACTIVATED SUMP

EISB:

- EISB GRID
- EISB BARRIER WALL – SHALLOW
- EISB BARRIER WALL – WILCOX

ABBREVIATIONS:

AMSL – ABOVE MEAN SEA LEVEL
EISB – ENHANCED IN-SITU BIOREMEDIATION
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0 120' 240'
SCALE: 1" = 120'

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TULSA DISTRICT

MARK	DESCRIPTION	DATE	APPR.	MARK	DESCRIPTION	DATE	APPR.
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LHAAP - 18 / 24
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

EISB AREAS SITE PLAN

SHEET IDENTIFICATION
03C101
SHEET X OF X

CONSTRUCTION COST ESTIMATE

Site: LHAAP-18/24 - Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant
Location: Karnack, Texas
Phase: Preliminary Remedial Design
Base Year: 2022
Date: March 31, 2022

	Item	Quantity	Unit	Unit Cost	Estimated Cost	Subtotal	Note
1: Unsaturated Soil Excavation Remedial Action							
1.1 General							
1.1.1	Submittals/Implementation Plans	1	LS	$80,000.00	$80,000		Work Plan, QAPP, HASP, CQCP, Air Monitoring Plan, Waste Mgmt Plan
1.1.2	Permits	1	LS	$15,000.00	$15,000		
1.1.3	Pre-construction Meetings and Community Relations	1	LS	$15,000.00	$15,000		
1.1.3	Post-Construction Submittals	1	LS	$80,000.00	$80,000		Manifests, asbuilts, air monitoring results, verification sample results, boring logs, etc.
	Subtotal					**$190,000**	
1.2 Mobilization/Demobilization for Excavation							
1.2.1	General Mobilization/Demobilization	1	LS	$20,000.00	$20,000		Excavators, loader, dozer, etc.
	Subtotal					**$20,000**	
1.3 Site Preparation for Excavation							
1.3.1	Pre-Construction Survey	1	Acre	$420.00	$420		Existing conditions survey and stakeout
1.3.2	Clearing and grubbing	0.3	acre	$6,400.00	$1,920		
1.3.3	Silt Fence	1,000	LF	$1.69	$1,692		assume silt fence around excavation perimeters
1.3.4	Erosion Control Measures	1	LS	$10,000.00	$10,000		
1.3.5	Access Roads	0	SY	$10.88	$0		8" Gravel depth; 25-ft wide
1.3.6	Equipment Staging Areas	1	EA	$13,100.00	$13,100		
1.3.7	Decontamination Pad	1	EA	$17,800.00	$17,800		Lined stone decon pad with sump
1.3.8	Truck Loading Area	3	EA	$800.00	$2,400		Bermed loading area with geo-membrane liner
1.3.9	Utility Mark-Out	3	EA	$1,800.00	$5,400		
1.3.10	Temporary Facilities Rentals	3	Mo	$600.00	$1,800		
1.3.11	Construction Fence	1,000	LF	$1.80	$1,800		Orange construction fence to signify excavation area
	Subtotal					**$56,000**	
1.4 Health and Safety for Excavation							
1.4.1	Perimeter Air Monitoring	30	Day	$800.00	$24,000		
1.4.2	H&S Monitoring	6	Week	$1,200.00	$7,200		
1.4.3	PPE and Field Supplies	1	LS	$2,100.00	$2,100		
1.4.4	H&S Superintendant	300	Hr	$120.00	$36,000		
	Subtotal					**$69,000**	
1.5 Excavation							
1.5.1	Excavation, Stockpile & Handling	5,600	BCY	$7.00	$39,200		Excavate soil and loading of trucks for off-site disposal; includes factor of 1.5
1.5.2	Survey Work	30	Day	$2,100.00	$63,000		1 day field per excavation; 3 days office per excavation
1.5.3	Confirmation Sample Collection	240	HR	$120.00	$28,800		VOCs and perchlorate analysis
1.5.4	Confirmation Sample Analysis - Perchlorate	67	EA	$259.00	$17,353		48 hr TAT
1.5.5	Confirmation Sample Analysis - VOCs	67	EA	$462.50	$30,988		48 hr TAT
	Subtotal					**$179,000**	
1.6 Waste Disposal for Excavation							
1.6.1	Non-Hazardous Waste Transport & Disposal	6,200	Tons	$110.00	$682,000		Assumes 1.5 conversion from cy to tons
1.6.2	Truck Liner	310	EA	$55.91	$17,331		
1.6.4	Waste Characterization Samples	10	EA	$1,874.30	$18,743		
	Subtotal					**$718,000**	
1.7 Post-Excavation Restoration							
1.7.1	Backfill	5,000	LCY	$15.83	$79,150		Importing certified clean soil; includes placement, hauling, compaction
1.7.2	Backfill Source Sampling	5	EA	$520.00	$2,600		1 sample per 1,000 cy
1.7.3	Hydro Seed	9,950	SF	$0.15	$1,472		
	Subtotal					**$83,000**	
					Subtotal for 1.0 Excavation Remedial Action	**$1,315,000**	
2: In-Situ Thermal Desorption (ISTD) Remedial Action							
2.1 Pre-Construction							
2.1.1	Submittals/Implementation Plans	1	LS	$163,800.00	$163,800		QAPP, HASP, shop drawings, and work plans
2.1.2	Permits	1	LS	$14,400.00	$14,400		
2.1.3	Pre-construction Meetings and Community Relations	1	LS	$5,000.00	$5,000		
2.1.4	Post-Construction Submittals	1	LS	$50,000.00	$50,000		ISTD Completion Report
	Subtotal					**$233,200**	
2.2 Mobilization/Demobilization for ISTD							
2.2.1	General Mobilization/Demobilization	1	LS	$27,700.00	$27,700		Electrode Materials Mobilization
	Subtotal					**$27,700**	
2.3 Site Preparation for ISTD							
2.3.1	Perimeter Fence	2,950	LF	$40.28	$118,825		
2.3.2	Clearing and grubbing	2.5	acre	$6,400.00	$15,697		
2.3.3	Erosion Control Measures	1	LS	$7,310.54	$7,311		
2.3.4	Equipment Staging Area	1	EA	$13,100.00	$13,100		
2.3.5	Access Road	0	SY	$10.88	$0		No access road assumed
2.3.6	Utility Mark-Out	1	LS	$1,800.00	$1,800		
2.3.7	Well Abandonment	150	LF	$35.00	$5,250		
2.3.8	Temporary Facilities Rentals	4	Mo	$600.00	$2,400		
	Subtotal					**$164,000**	
2.4 Health and Safety for ISTD							
2.4.1	Perimeter Air Monitoring	36	Week	$2,500.00	$90,000		VOCs monitoring
2.4.2	H&S Monitoring	36	Week	$1,200.00	$43,200		VOCs monitoring
2.4.3	PPE and Field Supplies	1	LS	$10,436.07	$10,436		
2.4.4	H&S Superintendant	360	Hr	$120.00	$43,200		
2.7.4	ERH System Security	3,024	HR	$50.00	$151,200		security guard during non-working hours; 12 hrs/day; 30 days per mo.
	Subtotal					**$187,000**	
2.5 Power Drop for ISTD							
2.5.1	Power Drop and Transformer Installation	1	LS	$150,000.00	$150,000		3/3/2015 Jack Spring Electrical Contractors, Inc. Quote with 1.25 escalation factor
	Subtotal					**$150,000**	

CONSTRUCTION COST ESTIMATE

Site: LHAAP-18/24 - Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant
Location: Karnack, Texas
Phase: Preliminary Remedial Design
Base Year: 2022
Date: March 31, 2022

Item		Quantity	Unit	Unit Cost	Estimated Cost	Subtotal	Note
2.6 ISTD - Low Temp Thermal Conductive Heating (TCH) System							
2.6.1	ERH System Installation and Operations	1	LS	$11,060,000.00	$11,060,000		Quote from TerraTherm
	Subtotal					**$11,060,000**	
2.8 Post-ISTD Restoration							
2.8.1	Hydro Seed	106,840	SF	$0.15	$15,808		
2.8.2	Well Replacement	1	LS	$52,747.87	$52,748		Replacement of wells abandoned prior to ISTD
2.8.3	Demobilization	1	LS	$58,731.11	$58,731		Labor, equipment and disposal
	Subtotal					**$127,000**	
	Subtotal for 2.0 ISTD Remedial Action					**$11,949,000**	
3: Enhanced In-Situ Bioremediation Remedial Action Phase I							
3.1 Pre-Construction							
3.1.1	Submittals/Implementation Plans	1	LS	$163,800.00	$163,800		QAPP, HASP, shop drawings, and work plans
3.1.2	Permits	1	LS	$14,400.00	$14,400		
3.1.3	Pre-construction Meetings and Community Relations	1	LS	$5,000.00	$5,000		
3.1.4	Post-Construction Submittals	1	LS	$50,000.00	$50,000		EISB Completion Report
	Subtotal					**$233,200**	
3.2 Mobilization/Demobilization for EISB							
3.2.1	General Mobilization/Demobilization	1	LS	$29,700.00	$29,700		Drill Rig and Organic Substrate Materials Mobilization
	Subtotal					**$29,700**	
3.3 Site Preparation for ESIB							
3.3.1	Silt Fence	6,000	LF	$1.29	$7,760		
3.3.2	Clearing and grubbing	6.9	acre	$6,400.00	$44,253		
3.3.3	Erosion Control Measures	1	LS	$7,310.54	$7,311		
3.3.4	Equipment Staging Area	1	EA	$13,100.00	$13,100		
3.3.5	Access Road	0	SY	$10.88	$0		No access road is needed
3.3.6	Utility Mark-Out	1	LS	$1,800.00	$1,800		
3.3.7	Well Abandonment	21,868	LF	$15.00	$328,020		
3.3.8	Temporary Facilities Rentals	7	Mo	$600.00	$4,200		
	Subtotal					**$406,000**	
3.4 Health and Safety for ESIB							
3.4.1	Perimeter Air Monitoring	28	Week	$2,500.00	$70,000		VOCs monitoring
3.4.2	H&S Monitoring	28	Week	$1,200.00	$33,600		VOCs monitoring
3.4.3	PPE and Field Supplies	1	LS	$10,436.07	$10,436		
3.4.4	H&S Superintendant	1,400	Hr	$120.00	$168,000		
	Subtotal					**$282,000**	
3.5 ESIB Grid Injection Using DPT							
3.5.1	DPT Drilling for Temporary Injections	154	Day	$2,625.00	$404,250		Probe/Drill Rig Daily Rental W/ Operator
3.5.2	EISB Substrate Material and Delivery	1	LS	$969,330.17	$969,330		Material cost plus 10% delivery fee
3.5.3	External Water Source	160	Load	$562.50	$90,000		Each load is ~6000 gallons
3.5.4	Decontamination Equipment (Water and Steam Cleaner Rental)	140	Day	$220.00	$30,800		
3.5.5	Decontamination of Drilling Equipment	140	Day	$110.00	$15,400		
3.5.6	Injection Labor and Equipment	140	Day	$2,900.00	$406,000		
3.5.7	IDW Management	1	LS	$10,000.00	$10,000		
	Subtotal					**$1,926,000**	
3.6 Post-EISB Restoration							
3.6.1	Hydro Seed	301,200	SF	$0.15	$44,565		
3.6.3	Demobilization	1	LS	$20,000.00	$20,000		Labor, equipment and disposal
	Subtotal					**$65,000**	
	Subtotal for 3: Enhanced In-Situ Bioremediation Remedial Action Phase I					**$2,942,000**	
4: Enhanced In-Situ Bioremediation Remedial Action Phase II							
4.1 Pre-Construction							
4.1.1	Submittals/Implementation Plans	1	LS	$163,800.00	$163,800		QAPP, HASP, shop drawings, and work plans
4.1.2	Permits	1	LS	$14,400.00	$14,400		
4.1.3	Pre-construction Meetings and Community Relations	1	LS	$5,000.00	$5,000		
4.1.4	Post-Construction Submittals	1	LS	$50,000.00	$50,000		EISB Completion Report
	Subtotal					**$233,200**	
4.2 Mobilization/Demobilization for EISB							
4.2.1	General Mobilization/Demobilization	1	LS	$35,700.00	$35,700		Drill Rigs & Organic Substrate Materials Mobilization
	Subtotal					**$35,700**	
4.3 Site Preparation for ESIB							
4.3.1	Silt Fence	6,000	LF	$1.29	$7,760		
4.3.2	Clearing and grubbing	1.8	acre	$6,400.00	$11,670		
4.3.3	Erosion Control Measures	1	LS	$7,310.54	$7,311		
4.3.4	Equipment Staging Area	1	EA	$13,100.00	$13,100		
4.3.5	Access Road	0	SY	$10.88	$0		8" Gravel depth; 25-ft wide
4.3.6	Utility Mark-Out	1	LS	$1,800.00	$1,800		
4.3.7	Well Abandonment	13,114	LF	$15.00	$196,710		
4.3.8	Temporary Facilities Rentals	5	Mo	$600.00	$3,000		
	Subtotal					**$241,000**	
3.4 Health and Safety for ESIB							
3.4.1	Perimeter Air Monitoring	20	Week	$2,500.00	$50,000		VOCs monitoring
3.4.2	H&S Monitoring	20	Week	$1,200.00	$24,000		VOCs monitoring
3.4.3	PPE and Field Supplies	1	LS	$10,436.07	$10,436		
3.4.4	H&S Superintendant	1,000	Hr	$120.00	$120,000		
	Subtotal					**$204,000**	

CONSTRUCTION COST ESTIMATE

Site: LHAAP-18/24 - Burning Ground No. 3 and Unlined Evaporation Pond, Longhorn Army Ammunition Plant
Location: Karnack, Texas
Phase: Preliminary Remedial Design
Base Year: 2022
Date: March 31, 2022

	Item	Quantity	Unit	Unit Cost	Estimated Cost	Subtotal	Note
3.5 ESIB Grid & Shallow/Wilcox Wall Injection - 1st Event							
3.5.1	DPT Drilling for Temporary Injections	81	Day	$2,625.00	$212,625		Probe/Drill Rig Daily Rental W/ Operator with two days per each area for 7 areas
3.5.2	Injection Well Installation for ESIB Shallow Wall 1	37	EA	$2,100.00	$77,700		EISB Shallow Wall 1: 4-inch diameter PVC casing / 10-ft PVC screen; 40 ft deep
3.5.3	Injection Well Installation for 50% of the ESIB Shallow Wall 2	60	EA	$1,600.00	$96,000		EISB Shallow Wall 2: 4-inch diameter PVC casing / 10-ft PVC screen; 30 ft deep
3.5.4	EISB Substrate Material and Delivery	1	LS	$601,422.07	$601,422		Material cost plus 10% delivery fee
3.5.5	External Water Source	89	Load	$562.50	$50,063		Each load is ~6000 gallons
3.5.6	Decontamination Equipment (Water and Steam Cleaner Rental)	100	Day	$220.00	$22,000		
3.5.7	Decontamination of Drilling Equipment	100	Day	$110.00	$11,000		
3.5.8	Injection Labor and Equipment	100	Day	$2,900.00	$290,000		
3.5.9	IDW Management	1	LS	$10,000.00	$10,000		
	Subtotal					**$1,371,000**	
3.6 ESIB Shallow/Wilcox Wall Injection - 2nd Event							
3.6.1	DPT Drilling for Temporary Injections - Wilcox	29	Day	$2,625.00	$76,125		Probe/Drill Rig Daily Rental W/ Operator with two days per each area for 7 areas
3.6.2	EISB Substrate Material and Delivery	1	LS	$321,790.37	$321,790		Material cost plus 10% delivery fee; includes 3 Wilcox and 2 Shallow ESIB Walls
3.6.3	External Water Source	41	Load	$562.50	$23,063		Each load is ~6000 gallons
3.6.4	Decontamination Equipment (Water and Steam Cleaner Rental)	85	Day	$220.00	$18,700		
3.6.5	Decontamination of Drilling Equipment	85	Day	$110.00	$9,350		
3.6.6	Injection Labor and Equipment	85	Day	$2,900.00	$246,500		
3.6.7	IDW Management	1	LS	$10,000.00	$10,000		
	Subtotal					**$706,000**	
3.7 Post-EISB Restoration							
3.6.1	Hydro Seed	68,530	SF	$0.15	$10,140		
3.6.3	Demobilization	1	LS	$20,000.00	$20,000		Labor, equipment and disposal
	Subtotal					**$30,000**	
	Subtotal for 4: Enhanced In-Situ Bioremediation Remedial Action Phase II					**$2,821,000**	
Total Costs							
	Subtotal for Remedial Actions:					**$19,027,000**	
	Contingency:				30%	$5,708,100	
	Subtotal for Remedial Actions:					**$24,735,000**	
	Construction Oversight:				6%	$1,142,000	
	Construction Management:				8%	$1,522,000	
	Total Costs:					**$27,399,000**	

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

April 26, 2022

DAIN-ISE

Mr. Brian Follin
U.S. Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas, Texas 75270-2002

Re: Request for Schedule Extension for Submittal of the LHAAP-18/24 Draft (60%) Remedial Design (RD), Longhorn Army Ammunition Plant, Karnack, TX

Dear Mr. Follin,

An extension to the schedule as referenced above is respectfully requested in accordance with Federal Facility Agreement (FFA) Section XVII.B.4 where a delay is caused by the grant of an extension in regard to another timetable and deadline or schedule. The Federal Facility Agreement (FFA) representatives agree that a comment resolution period is necessary for the 30% RD which impacts the schedule for submittal of the draft RD.

The draft RD submittal would change from May 24, 2022 to August 25, 2022. It will also impact the submittal of the Draft Remedial Action Work Plan, not yet under contract. No other document schedules are directly impacted by the extension.

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

Sincerely,

Rose M. Zeiler

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

Copies furnished:
April Palmie, TCEQ
Project File

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

April 26, 2022

DAIN-ISE

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

Re: Request for Schedule Extension for Submittal of the LHAAP-18/24 Draft (60%) Remedial Design (RD), Longhorn Army Ammunition Plant, Karnack, TX

Dear Ms. Palmie,

An extension to the schedule as referenced above is respectfully requested in accordance with Federal Facility Agreement (FFA) Section XVII.B.4 where a delay is caused by the grant of an extension in regard to another timetable and deadline or schedule. The Federal Facility Agreement (FFA) representatives agree that a comment resolution period is necessary for the 30% RD which impacts the schedule for submittal of the draft RD.

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

Sincerely,

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

Copies furnished:
Brian Follin, USEPA Region 6
Project File

Subject: **Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting: **WebEx Conference Call**
Date of Meeting: **16 March 2022 – 10:00 AM Central Standard Time (CST)**

Attendees:

Army BRAC:	Rose M. Zeiler (RMZ)
USEPA:	Brian Follin (BF) and Chris Braun and Patty Ging with USGS in support of the USEPA
TCEQ:	April Palmie (AP)
USACE:	Aaron Williams
AEC:	Lena Sierocinski (LS) and Mike Bowlby (MB)
Bhate:	Zack Beck (ZB)
APTIM:	William Foss (WF) and Praveen Srivastav (PS)
TLI:	Patrick Tatman (PT)
HDR:	Phil Werner (PW)

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

- Action items from previous call were completed ahead of the meeting.

Groundwater Treatment Plant (GWTP) – ZB stated that Scott Beesinger (SB) had a right knee replacement surgery on 14 February 2022. ZB said that SB's surgery went well, and SB returned to work on 7 March 2022. ZB stated that there has been increased rainfall over the last couple weeks. ZB said that the most recent storm on Monday evening, 14 March 2022, had high winds which damaged two power poles. Although power was not lost to the GWTP, the power poles had to be replaced. ZB explained that Ark-La-Tex was replacing the power poles on 16 March 2022, requiring power be shut off to the GWTP for one to two hours. ZB stated that the GWTP plant has been operating consistently for several weeks, running at a minimum of two days per week. ZB explained that, throughout much of February and March 2022, treated effluent was being discharged to the Intermediate Range Nuclear Forces (INF) pond following ion exchange (IX) vessel treatment. ZB stated that with the increased rainfall, sufficient flow in the Harrison Bayou has been monitored. Therefore, as of 7 March 2022 treated groundwater has been discharged directly to the Harrison Bayou from the GWTP. ZB stated that treated groundwater is still going through IX vessel treatment prior to discharge to the Harrison Bayou. ZB said that IX vessel treatment will continue until confirmation samples confirm that the fluidized bed reactor is operating properly. ZB stated that recent repairs to the GWTP included a programmable logic controller (PLC) reset to the pump on the air stripper and replacement of the acetic acid pump flow meter and tubing. ZB explained that three interceptor collection trench (ICT) well pumps and motors were replaced the week of 14 March 2022 along with three flow meters. ZB said that additional ICT repairs are ongoing, which should be completed by the end of March 2022. ZB said that the additional repairs should ensure that the entire ICT well network is functioning properly.

Field Work – WF stated that the Year 8 annual LHAAP-46 groundwater sampling was completed in February 2022. WF stated that no field work is currently going on; however, the Year 2 Quarter 4 LHAAP-50 groundwater sampling was coming up in April 2022. ZB said that SB is making preparations to complete the LHAAP-50 sampling in April 2022 including ordering supplies and planning mowing operations at the site.

ZB asked everyone to refer to the Document and Issues (DI) Tracking Table dated 16 March 2022.

- **Task 1** (Project Management) – ZB said that the February 2022 MMM minutes were issued to the regulators on 2 March 2022. ZB said that the January 2022 Restoration Advisory Board (RAB) meeting minutes had been issued to RAB members. ZB said that the next RAB meeting, which was scheduled for 15 June 2022, may be moved to the following week. RMZ confirmed that the Army would like to move the next RAB meeting to 22 June 2022. ZB said that an **action item** for Bhate will be to notify the RAB members of the proposed meeting date change.
- **Task 4** (LHAAP-04) –PS stated that the Year 3 Semiannual 1, Remedial Action – Operation (RA-O) groundwater sampling event was completed in February 2022. The validated data for the event will be provided for the April 2022 MMM. PS stated that the LHAAP-04 Year 2 Annual RA-O Report is in preparation with a tentative delivery date in May 2022.
- **Task 5** (LHAAP-12) – PS said that the LHAAP-12 2021 Annual RA-O Report is under preparation with a tentative delivery date to the regulators in April 2022.
- **Task 6** (LHAAP-16) – PS stated that the Year 2 Quarter 4 groundwater sampling was completed in January 2022. The validated data for the January 2022 event is included in this month's validated data package. WF presented a summary of the LHAAP-16 Year 2 Quarter 4 groundwater analytical results. WF highlighted data from within each treatment area to discuss whether the treatment areas were showing effectiveness. At 16IW09 in Landfill Biobarrier (BB) #1, total organic carbon (TOC) remains well above 20 milligrams per liter (mg/L) (102 mg/ L in January 2022), and contaminants of concern (COCs) are below the maximum contaminant level (MCL), while ethene has become detectable, indicating the BB is still working. WF stated that 16IW03 in Landfill BB #2 showed steadily decreasing trichloroethene (TCE), with increasing cis-1,2 dichloroethene (DCE), and stable vinyl chloride (VC) and ethene production. The TOC remains high, indicating no reinjection is needed. WF indicated that at 16IW10 in Landfill BB #3, COCs had dropped below the MCLs for 2 quarters in a row and the TOC remained high (211 mg/L). WF stated that at 16IW20, in the Bayou BB, TCE and DCE have both dropped below their respective MCLs for the last two sampling events (October 2021 and January 2022). WF said that, despite the fact that TOC at 16IW20 is not very high at 9.73 mg/L and the oxidation-reduction potential (ORP) is not ideal for treatment to occur, there is degradation being observed within the Bayou BB. Highlighting wells downgradient of the treatment areas, WF said that at 16PM14 downgradient of BB #2 and #3, TCE has been decreased by half since October 2020. WF stated that this indicates treatment is extending downgradient of the Biobarriers, which was not observed during the Year 1 RA-O sampling. Similarly, at 16WW36 downgradient of BB #3, a steady decline of TCE has been observed with a decrease from 22,000 micrograms per liter (µg/L) in October 2020 to 8,100 µg/L in January 2022. WF said that TCE at 16WW39, downgradient of the shallow mid-plume area has decreased from 350 µg/L in October 2020 to 120 µg/L in January 2022. WF said that this is another example showing the downgradient migration of treatment. WF said that at monitoring well 16WW40, between the Bayou BB and Harrison Bayou, TCE decreased from 1,700 µg/L October 2020 to 540 µg/L in January 2022. WF said that within the intermediate zone monitoring wells 16WW49 and 16WW51 downgradient of the Mid Plume treatment area, TCE is displaying an increasing trend. WF noted that Scrud Remover™ activities occurred, upgradient of 16WW49 and 16WW51, at nearby wells 16EW05, 16EW06, and 16EW07. WF said that 16WW49 and 16WW51 will be monitored closely over time. WF explained that additional treatment may be necessary in the future in this area. WF said the two wells (16WW57 and 16WW58) to the east of Harrison Bayou have had relatively steady contaminant trends with neutral ORP and dissolved oxygen (DO) levels (neither highly reducing nor highly aerobic). WF stated that there are relatively high

TCE levels at 16WW58 but perchlorate has not been detected above the MCL at either 16WW57 or 16WW58 during the Year 2 monitoring. WF stated that it is not unexpected that the influence of the treatment areas has not yet migrated to 16WW57 and 16WW58.

PS stated that the Draft Final Year 1 RA-O Report and response to comments (RTCs) were submitted to the regulators on 7 March 2022.

- **Task 9** (LHAAP-37) – PS said that the Year 4 RA-O Report has gone Final with Draft Final approvals from Texas Commission on Environmental Quality (TCEQ) and United States Environmental Protection Agency (USEPA) received in February 2022. PS said that the Year 5 Second Semi-Annual sampling will be performed in May 2022 with the validated data presented at the July 2022 MMM.
- **Task 10** (LHAAP-46) – PS said that the Year 7 RA-O Report has gone Final with Draft Final approvals from TCEQ and USEPA received in February 2022. PS said that the Year 8 RA-O groundwater sampling was completed in February 2022 with the validated data to be presented at the April 2022 MMM.
- **Task 11** (LHAAP-50) **–** PS stated the Year 2 Quarter 3 sampling was completed in January 2022. The validated data for the January 2022 event is included in this month's validated data package. WF discussed the Year 2 Quarter 3 analytical data. WF noted that after the recent decreases in perchlorate observed at 50WW12 in the middle of the shallow treatment area, the concentrations have increased in January 2022. However, perchlorate remains well below the high concentration observed a few quarters ago when perchlorate was at approximately 90,000 µg/L. In January 2022 perchlorate at 50WW12 was detected at 68,000 µg/L an increase from 25,000 µg/L in Year 2 Quarter 2 (October 2021). WF said these seasonal fluctuations have been observed at LHAAP-50, both before and after treatment. WF said that when concentrations decrease in wells 50WW11, 50WW13, and 50WW14, concentration increase at 50WW12 and vice versa, indicated an opposite seasonal trend. RMZ asked if LHAAP-50 has seen a variation in flow direction along with the seasonal concentration fluctuations. WF said that LHAAP-67 is where there is a seasonal variation in flow direction, but the flow direction has remained constant at LHAAP-50. WF said that an evaluation will be done with the upper and lower shallow wells that may indicate contaminant flow within those zones.
  PS said that the Draft Year 7 RA-O Report comments were received from the regulators on 1 February 2022. PS said that the RTCs and the Draft Final Year 7 RA-O Report were submitted on 1 March 2022.
- **Task 12** (LHAAP-58) – ZB stated that the responses to comments on the Year 7 RA-O Report and the Draft Final Year 7 RA-O Report were accepted by the Regulators. ZB stated that the western plume semi-annual sampling was completed in December 2021. The validated data for the December 2021 semi-annual sampling event is included in this month's validated data package. ZB discussed the December 2021 analytical results. AP requested that the font size on the LHAAP-58 analytical results table be increased as it is difficult to read. ZB said that the table will be reformatted for legibility. ZB said that analytical results are relatively consistent with previous sampling events, with the highest contaminants of concern detected at monitoring well 35AWW20. ZB said that LHAAP-58 has seasonal fluctuates with higher detections in June compared to December. ZB said that although contaminants in December 2021 have decreased compared to June 2021, the December 2021 analytical results are consistent to December 2020. ZB said that there does not appear to be contamination migrating offsite. However, downgradient monitoring well 35AWW04, which was part of the sampling effort was dry in December 2021. ZB said that 35AWW04 has been dry for several years now.

- **Task 13** (LHAAP-67) – PS stated that the Year 8 Annual RA-O Report is in progress and is expected to be ready for regulatory review in April 2022.
- **Task 14** (LHAAP-001-R and –003-R) – No discussion.
- **Task 16** (GWTP) **–** ZB said that the 3rd Quarter 2021 GWTP Report comments were received from the regulators in February 2022 and that the 4th Quarter 2021 GWTP 2021 was being prepared. The 4th Quarter 2021 GWTP Report will incorporate comments received on the 3rd Quarter 2021 GWTP Report.
- **Task 17** (LHAAP-18/24) – ZB said that the next sampling event is scheduled for June 2022. The 4th Quarter 2021 GWTP Report will include the analytical data from semi-annual groundwater sampling completed in December 2021
- **Task 18** (Surface Water) – ZB stated that Annual Surface Water Report was submitted in January 2022 and TCEQ has accepted the report as Final.
- **Task 19:** (2021 LUC Management Plan) – No discussion.
- **Administrative Record (AR) –** PS said that the July – September 2021 AR documents have been compiled and will be going out for printing in March 2022. PS said that compiling of the October – December 2021 AR is ongoing. PS said that an update to the LHAAP website is upcoming in March 2022.

Update on other DERP Sites:

- **LHAAP 18/24 –** PW stated that the Draft Final Pre-Design Investigation (PDI) Report was submitted to the Regulators on 24 February 2022. PW said that the 30-percent (Conceptual Design) LHAAP-18/24 Remedial Design (RD) is in development and on track for regulatory submittal in April 2022.
- **LHAAP-29** – PW said that the additional LHAAP-29 PDI Field Work has been scheduled to start 21 March 2022. PW said that the additional field work involves direct push technology drilling of soil borings for the collection of soil samples for explosives at various locations and depths to fill in data gaps. PW said that the field work also involves the installation of temporary monitoring wells. PW said the temporary wells will allow for monitoring of depth to groundwater ensuring soil sample collection of unsaturated media. AP pointed out that the DI Tracker has the 30 and 60-percent conceptual designs scheduled to be sent out 30 days apart. AP asked if that is enough time to review the 30–percent conceptual design and incorporate comments into the 60-percent design. RMZ said that this isn't enough time and that Army will take a closer look at the schedule and adjust accordingly.
- **LHAAP-47** – PW said that the Revised Draft Final Record of Decision was submitted to the Regulators on 2 March 2022. AP said that TCEQ has received the Revised Draft Final Record of Decision and will evaluate if an extension will be needed closer to the due date. BF said that USEPA has received the Revised Draft Final Record of Decision and has started review.
- **LHAAP-17** – PT said that the sifted and stockpiled soil has been removed from LHAAP-17 for offsite disposal. PT said that additional personnel have been mobilized to complete the surface clearance of the site in preparation of digital geophysical mapping (DGM) activities. PT said that the DGM activities will begin Friday, 18 March, 2022. PT said that the Remedial Action Completion Report is in preparation and the Munitions of Explosive Concern (MEC) LUC notices will not be started until all the field work is completed.

Transfer Update: No update.

Schedule Next Managers' Meeting: The next MMM will be held on Wednesday, 20 April 2022 at 11:00 am Central Standard Time (CST) via a WebEx. The next RAB will be held on 22 June 2022,

at the Karnack Community Center. AP said that she will not be attending in person, but will call in. RMZ said that the move, to 22 June 2022, is so that the director will be able attend. LS said that MB will not be involved much directly with LHAAP, but is available if there are any questions for AEC.

Meeting concluded at approximately 10:49 am CST.

ACRONYM LIST

AP	April Palmie
APTIM	APTIM Federal Services, LLC
AR	Administrative Record
AW	Aaron Williams
BB	Biobarrier
BF	Brian Follin
Bhate	Bhate Environmental Associates, Inc.
BRAC	Base Realignment and Closure
COC	Contaminant of Concern
CST	Central Standard Time
DCE	cis-1,2-Dichoroethene
DERP	Defense Environmental Restoration Program
DGM	Digital Geophysical Mapping
DI	Documents and Issues
DO	Dissolved Oxygen
FBR	Fluizided Bed Reactor
GWTP	Groundwater Treatment Plant
HDR	HDR, Inc.
ICT	Interception-collection trenches
INF	Intermediate Range Nuclear Forces
IX	Ion Exchange
LHAAP	Longhorn Army Ammunition Plant
LUC	Land use control
MB	Mike Bowlby
MCL	Maximum Contaminant Level
MEC	Munitions of Explosive Concern
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MMM	Monthly Managers' Meeting
ORP	Oxidation-Reduction Potential
PBR	Performance-Based Remediation
PCE	Tetrachloroethene
PCL	Protective Concentration Levels
PLC	Programmable Logic Controller
PS	Praveen Srivastav
PT	Patrick Tatman
PW	Phil Werner
RAB	Restoration Advisory Board
RA-O	Remedial Action – Operation
RD	Remedial Design
RMZ	Rose M. Zeiler
RTC	Response to Comments
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
TLI	TLI Solutions
TOC	Total Organic Carbon
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

USGS	United States Geological Survey
USFWS	United Fish and Wildlife Service
WF	William (Bill) Foss
ZB	Zack Beck

LHAAP Data Validated
March 2022 Monthly Manager's Meeting

LHAAP-16 *Remedial Performance Monitoring (Year 2, Quarter 4)-January 2022*
Volatile Organic Compounds (8260C)
Metals (SW6020)
Perchlorate (EPA 6850)
Dissolved Gases (RSK-175)
Bromide (SW9056A)
Total Organic Carbon (SM5310B)
Dechlorinating Bacteria (Census)
Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, and pH)

LHAAP-50 *Remedial Performance Monitoring (Year 2, Quarter 3)-January 2022*
Volatile Organic Compounds (8260C)
Perchlorate (EPA 6850)
Alkalinity (SM2320B)
Chloride, Nitrate, Nitrite, and Sulfate (SW9056A)
Total Organic Carbon (SM5310B)
Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, Ferrous Iron, and pH)

LHAAP-58 *Semi-Annual Sampling Event– December 2021*
Anions (9056)
VOC (8260C)
Total Organic Carbon (415.1)
Metabolic Acids (HPLC-METACIDS)
Dechlorinating Bacteria (CENSUS)
Dissolved Gases (RSK-175)
Arsenic (6020A)

LHAAP-16 Year 2 Quarter 4 Remedial Performance Monitoring
January 2022

		Injection Area	Landfill Biobarrier #1											
		Location Code	16IW09		16RW01		16RW02				16RW04		16RW05	
		Sample ID	16IW09-220125		16RW01-220124		16RW02-220124		16RW02-220124-FD		16RW04-220124		16RW05-220124	
		Sample Date	1/25/2022		1/24/2022		1/24/2022		1/24/2022		1/24/2022		1/24/2022	
		Sample Type	REG		REG		REG		FD		REG		REG	
		Sample Purpose	Performance Data Within Landfill Biobarrier #1; Shallow Zone		Upgradient Well for 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	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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	0.58		0.54		0.76		0.76		0.57		0.69	
Oxidation Reduction Potential	mV	NV	65		210		226		226		222		117	
pH	SU	NV	6.29		4.84		4.98		4.98		4.93		7.01	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	< 0.5	U	NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	6.6	J	NA		NA		NA		NA		NA	
Methane	µg/L	NV	936		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	782		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	5.23		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	0.0407	J	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	2.38		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	102		NA		NA		NA		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	0.16	J	0.053	J	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 2.5	U	< 0.5	U	< 0.5	U	0.64	J	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	2.4		64		0.67	J	< 0.5	U	66		0.86	J
Methylene chloride	µg/L	5	< 2	U	**< 10**	U	< 2	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	**1200**		2.7		2.6		**970**		0.81	J
Vinyl chloride	µg/L	2	< 0.5	U	< 2.5	U	< 0.5	U	< 0.5	U	1.2		0.9	J

LHAAP-16 Year 2 Quarter 4 Remedial Performance Monitoring
January 2022

		Injection Area	Landfill Biobarrier #1						Landfill Biobarrier #2					
		Location Code	16WW26		16WW42				16IW03		16PM02		16PM03	
		Sample ID	16WW26-220112-FD		16WW41-220113		16WW42-220127		16IW03-220127		16PM02-220124		16PM03-220124	
		Sample Date	1/12/2022		1/13/2022		1/27/2022		1/27/2022		1/24/2022		1/24/2022	
		Sample Type	REG		REG		FD		REG		REG		REG	
		Sample Purpose	Downgradient Well for Landfill Biobarrier #1; Shallow Zone		Downgradient Well for Landfill Biobarrier #1; Shallow Zone				Performance Data Within Landfill Biobarrier #2; Shallow Zone		Upgradient Well for Landfill Biobarrier #2; Shallow Zone		Upgradient Well for Landfill Biobarrier #2; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)														
Dehalococcoides	cells/mL	NV	NA		0.5	J	NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.69		0.56		0.46		0.23		0.78		0.6	
Oxidation Reduction Potential	mV	NV	117		44		223		35		245		187	
pH	SU	NV	7.01		6.57		5.54		5.46		5.42		6.03	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	NA		NA	
Ethylene	µg/L	NV	< 0.5	UJ	8.32	J	< 0.5	UJ	876	J	NA		NA	
Methane	µg/L	NV	3.86		7.22		8.45		3210	J	NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	44.3		908		NA		1320		NA		NA	
Bromide	mg/L	NV	0.522		< 1	U	NA		12.6		NA		NA	
Nitrate	mg/L	NV	0.0376	J	0.188	J	NA		< 0.2	U	NA		NA	
Sulfate	mg/L	NV	370		6990		NA		< 1	U	NA		NA	
Total organic carbon	mg/L	NV	6.48	J	43		6.93		2630		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	**59.1**		< 1	U	< 1	U	< 0.2	U	**278**	
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 10	U	< 5	U	< 25	U	< 25	U	< 10	U
1,1-Dichloroethene	µg/L	7	0.76	J	**12**		< 2.5	U	**42**	J	**48**		**31**	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 5	U	< 2.5	U	< 12	U	**23**	J	**25**	
cis-1,2-Dichloroethene	µg/L	70	41		**1600**		**1200**		**15000**		**4500**		**7100**	
Methylene chloride	µg/L	5	< 2	U	< 20	U	< 10	U	< 50	U	< 50	U	10	J
Trichloroethene	µg/L	5	**380**		**3800**		**190**		**5600**		**31000**		**6800**	
Vinyl chloride	µg/L	2	0.69	J	**210**		< 2.5	U	**3000**	J	**99**		**200**	

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		Injection Area	Landfill Biobarrier #2								Landfill Biobarrier #3			
		Location Code	16PM06		16PM09		16PM14		16WW36		16RW06		16RW07	
		Sample ID	16PM06-220124		16PM09-220124		16PM14-220124		16WW36-220111		16RW06-220125		16RW07-220125	
		Sample Date	1/24/2022		1/24/2022		1/24/2022		1/11/2022		1/25/2022		1/25/2022	
		Sample Type	REG		REG		REG		REG		REG		REG	
		Sample Purpose	Downgradient Well for Landfill Biobarrier #2; Shallow Zone		Downgradient Well for Landfill Biobarrier #2; Shallow Zone		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	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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		1200		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.48		0.52		0.63		0.54		0.57		0.48	
Oxidation Reduction Potential	mV	NV	120		137		176		154		59		87	
pH	SU	NV	5.84		5.41		6.06		6.58		6.03		6.07	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	NA		NA		NA		< 0.5	U	NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		3.3	J	NA		NA	
Methane	µg/L	NV	NA		NA		NA		101	J	NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		NA		NA		490		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		< 0.5	U	NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		0.225	J	NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		2310		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		21.7		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	< 0.2	U	< 0.2	U	0.098	J	0.089	J	0.27	
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 25	U	3.7	J	< 10	U	< 10	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	**36**		**52**		**13**		**39**		< 0.5	U	3.4	
1,2-Dichloroethane	µg/L	5	**33**		< 2.5	U	**21**		**8**	J	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	**17000**		**950**		**3100**		**6700**		5.3		38	
Methylene chloride	µg/L	5	< 50	U	< 10	U	< 20	U	< 20	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	**28000**		**1300**		**2300**		**8100**		**37**		**540**	
Vinyl chloride	µg/L	2	**350**		**84**		**81**		**49**		1.2		**15**	

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		Injection Area	Landfill Biobarrier #3						Bayou Biobarrier					
		Location Code	16RW09		16RW10		16IW10		16IW20		16RW11			
		Sample ID	16RW09-220121		16RW10-220126		16IW10-220125		16IW20-220125		16RW11-220126		16RW11-220126-FD	
		Sample Date	1/26/2022		1/26/2022		1/25/2022		1/25/2022		1/26/2022		1/26/2022	
		Sample Type	REG		REG		REG		REG		REG		FD	
		Sample Purpose	Downgradient Well for Landfill Biobarrier #3; Shallow Zone		Downgradient Well for Landfill Biobarrier #3; Shallow Zone		Performance Data Within Landfill Biobarrier #3; Shallow Zone		Performance Data Within the Bayou Biobarrier; Shallow Zone		Performance Data Within the Bayou Biobarrier; Shallow Zone			
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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		0.61		0.51		0.44		0.36		0.36	
Oxidation Reduction Potential	mV	NV	230		221		-16		83		101		101	
pH	SU	NV	5.89		6.26		6.52		6.4		6.58		6.58	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	< 0.5	U	2.83		< 0.5	UJ	< 0.5	U	NA		NA	
Ethylene	µg/L	NV	2.54	J	5.76	J	3.28	J	11.1	J	NA		NA	
Methane	µg/L	NV	95.8		413		343		2080		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		NA		1130		361		NA		NA	
Bromide	mg/L	NV	NA		NA		56.5		6.27		NA		NA	
Nitrate	mg/L	NV	NA		NA		< 0.2	U	0.09	J	NA		NA	
Sulfate	mg/L	NV	NA		NA		< 1	U	227		NA		NA	
Total organic carbon	mg/L	NV	6.29		5.35		211		9.73		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	4.1		0.13	J	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	4.4		6.7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	**18**		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	**160**		**620**		2		1.1		< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	16		< 2	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	**730**		**1300**		0.91	J	0.96	J	1.1		0.83	J
Vinyl chloride	µg/L	2	**25**		**49**		< 0.5	U	**4.6**		< 0.5	U	< 0.5	U

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		Injection Area	Bayou Biobarrier						Mid Plume and Bayou Biobarrier		Mid Plume Area			
		Location Code	16WW12		16WW22		16WW40		16WW39		16EW01		16EW02	
		Sample ID	16WW12-220126		16WW22-220111		16WW40-220126		16WW39-220111		16EW01-220113		16EW02-220112	
		Sample Date	1/26/2022		1/11/2022		1/26/2022		1/11/2022		1/13/2022		1/12/2022	
		Sample Type	REG		REG		REG		REG		REG		REG	
		Sample Purpose	Upgradient Well for Bayou Biobarrier; Shallow Zone		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	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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		38		NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.49		0.61		0.35		0.51		0.67		0.76	
Oxidation Reduction Potential	mV	NV	93		139		85		176		42		69	
pH	SU	NV	6.47		6.33		6.42		5.87		6.3		6.42	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	NA	
Ethylene	µg/L	NV	NA		1.04	J	< 0.5	UJ	NA		51.8	J	NA	
Methane	µg/L	NV	NA		1.86	J	214		NA		122		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		214		NA		NA		598		NA	
Bromide	mg/L	NV	NA		3.44		NA		NA		0.85		NA	
Nitrate	mg/L	NV	NA		0.0496	J	NA		NA		0.22	J	NA	
Sulfate	mg/L	NV	NA		157		NA		NA		3410		NA	
Total organic carbon	mg/L	NV	NA		6.19		10.2		NA		18.8		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	**30.5**		0.4		0.55		4		**61**		1.6	
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 1	U	< 1	U	< 1	U	< 10	U	< 25	U
1,1-Dichloroethene	µg/L	7	< 2.5	U	< 0.5	U	1.5		< 0.5	U	**9.6**	J	**50**	
1,2-Dichloroethane	µg/L	5	4.8	J	< 0.5	U	3.7		< 0.5	U	**9.6**	J	**35**	
cis-1,2-Dichloroethene	µg/L	70	**77**		2.9		**120**		10		**3600**		**16000**	
Methylene chloride	µg/L	5	5.1	J	< 2	U	< 2	U	< 2	U	< 20	U	< 50	U
Trichloroethene	µg/L	5	**1100**		**13**		**540**		**120**		**1800**		**19000**	
Vinyl chloride	µg/L	2	**5**	J	< 0.5	U	**2.9**		0.73	J	**260**		**340**	

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		Injection Area	Mid Plume Area											
		Location Code	16EW03		16EW04		16EW05				16EW06		16EW07	
		Sample ID	16EW03-220127		16EW04-220112		16EW05-220127		16EW05-220127-FD		16EW06-220127		16EW07-220125	
		Sample Date	1/27/2022		1/12/2022		1/27/2022		1/27/2022		1/27/2022		1/25/2022	
		Sample Type	REG		REG		REG		FD		REG		REG	
		Sample Purpose	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; Intermediate Zone				Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone		Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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	0.3		0.79		0.35		0.35		0.27		0.35	
Oxidation Reduction Potential	mV	NV	-95		43		63		63		25		14	
pH	SU	NV	7.09		6.11		5.27		5.27		5.89		5.43	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	< 0.5	U	NA		34.2		35.2	J	NA		NA	
Ethylene	µg/L	NV	175	J	NA		26.1	J	29.2	J	NA		NA	
Methane	µg/L	NV	574		NA		6440		7470		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	1160		NA		346	J	501	J	< 10	U	NA	
Bromide	mg/L	NV	7.37		NA		70.2		70.1		< 0.996	U	NA	
Nitrate	mg/L	NV	< 0.1	U	NA		< 0.2	U	0.156	J	0.449	J	NA	
Sulfate	mg/L	NV	1920		NA		104	J	2.4	J	< 4.98	U	NA	
Total organic carbon	mg/L	NV	20.9		NA		161000		165000		161000		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	< 0.2	U	0.16	J	0.19	J	< 0.50	U	< 2	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 10	U	< 5000	U	< 5000	U	< 5000	U	< 10000	U
1,1-Dichloroethene	µg/L	7	< 2.5	U	5.5	J	< 2500	U	< 2500	U	< 2500	U	< 5000	U
1,2-Dichloroethane	µg/L	5	< 2.5	U	< 5	U	< 2500	U	< 2500	U	< 2500	U	< 5000	U
cis-1,2-Dichloroethene	µg/L	70	**1000**		**1300**		< 2500	U	< 2500	U	< 2500	U	< 5000	U
Methylene chloride	µg/L	5	< 10	U	< 20	U	< 10000	U	< 10000	U	< 10000	U	< 20000	U
Trichloroethene	µg/L	5	**84**		**3400**		< 2500	U	< 2500	U	< 2500	U	< 5000	U
Vinyl chloride	µg/L	2	**230**		**11**		< 2500	U	< 2500	U	< 2500	U	< 5000	U

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		Injection Area	Mid Plume Area											
		Location Code	16EW08		16WW21		16WW29		16WW30		16WW48		16WW49	
		Sample ID	16EW08-220112		16WW21-220113		16WW29-220112		16WW30-220112		16WW48-220113		16WW49-220113	
		Sample Date	1/12/2022		1/13/2022		1/12/2022		1/12/2022		1/13/2022		1/13/2022	
		Sample Type	REG		REG		REG		REG		REG		REG	
		Sample Purpose	Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone		Downgradient Well for Mid-Plume; Upgradient Well for Bayou Biobarrier; Upper Deep Zone		Downgradient Well for Mid-Plume; Intermediate Zone		Downgradient Well for Mid-Plume; Shallow Zone		Downgradient Well for Mid-Plume; Shallow Zone		Performance Data for Mid-Plume ISB Injection Area; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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		43.8		NA		563		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.47		0.88		0.44		0.68		0.7		0.45	
Oxidation Reduction Potential	mV	NV	76		112		-12		67		66		100	
pH	SU	NV	5.5		5.93		6.74		6.28		6.33		5.96	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	NA		NA		< 0.5	U	NA		< 0.5	U	NA	
Ethylene	µg/L	NV	NA		NA		0.859	J	NA		< 0.5	UJ	NA	
Methane	µg/L	NV	NA		NA		29.1		NA		2.69		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		NA		23.4		NA		411		NA	
Bromide	mg/L	NV	NA		NA		< 0.5	U	NA		3.48		NA	
Nitrate	mg/L	NV	NA		NA		0.254	J	NA		0.212	J	NA	
Sulfate	mg/L	NV	NA		NA		1950		NA		3130		NA	
Total organic carbon	mg/L	NV	NA		NA		22		NA		13.7		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	14.8		< 0.2	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 10	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	**29**		< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	**33**		< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	11		< 0.5	U	< 0.5	U	1.1	J	**13000**		60	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 2	U	< 2	U	< 20	U	< 2	U
Trichloroethene	µg/L	5	3.4		0.95	J	< 0.5	U	**31**		**13000**		**46**	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	**48**		< 0.5	U

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		Injection Area	Mid Plume Area		MNA and LTM Performance Wells from RAWP Table 4-9									
		Location Code	16WW51		16WW13		16WW14		16WW16				16WW23	
		Sample ID	16WW51-220113		16WW13-220127		16WW14-220110		16WW16-220111		16WW26-220112		16WW23-220127	
		Sample Date	1/13/2022		1/27/2022		1/10/2022		1/11/2022		1/12/2022		1/27/2022	
		Sample Type	REG		REG		REG		REG		FD		REG	
		Sample Purpose	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 #3; Shallow Zone		MNA Evaluation; Upgradient of Landfill Biobarrier #2; Shallow Zone				MNA Evaluation; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)														
Dehalococcoides	cells/mL	NV	NA		NA		NA		0.4	J	35.7		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.54		0.56		0.42		0.73		0.59		0.5	
Oxidation Reduction Potential	mV	NV	57		239		165		191		155		90	
pH	SU	NV	6.11		5.47		5.17		6.14		5.04		6.3	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	NA		NA		NA		2.63		< 0.5	U	NA	
Ethylene	µg/L	NV	NA		NA		NA		3.93	J	0.997	J	NA	
Methane	µg/L	NV	NA		NA		NA		490	J	4.01		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		NA		NA		365		43		NA	
Bromide	mg/L	NV	NA		NA		NA		2.54		0.457		NA	
Nitrate	mg/L	NV	NA		NA		NA		0.0442	J	0.0479	J	NA	
Sulfate	mg/L	NV	NA		NA		NA		372		372		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		4.69	J	4.58	J	NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	< 1	U	0.21		**561**		< 0.2	U	< 1	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 10	U	< 1	U	< 25	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 5	U	< 5	U	< 0.5	U	**25**		0.79	J	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 5	U	< 5	U	< 0.5	U	**35**		< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	**220**		**690**		0.63	J	**14000**		44		< 0.5	U
Methylene chloride	µg/L	5	< 20	U	< 20	U	< 2	U	< 50	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	**3200**		**2300**		**17**		**29000**		**440**		< 0.5	U
Vinyl chloride	µg/L	2	< 5	U	**10**		< 0.5	U	**170**		0.65	J	< 0.5	U

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		Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9											
		Location Code	16WW24		16WW25				16WW27		16WW31		16WW32	
		Sample ID	16WW24-220127		16WW25-220112		16WW25-220112-FD		16WW27-220125		16WW31-220111		16WW32-220110	
		Sample Date	1/27/2022		1/12/2022		1/12/2022		1/25/2022		1/11/2022		1/10/2022	
		Sample Type	REG		REG		FD		REG		REG		REG	
		Sample Purpose	MNA Evaluation; Shallow Zone		MNA Evaluation; Intermediate Zone				MNA Evaluation; Downgradient of Landfill Biobarrier #2; Intermediate Zone		MNA Evaluation; Intermediate Zone		MNA Evaluation; Upgradient of Bayou Biobarrier; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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		3.2		NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.72		0.62		0.62		0.68		0.64		0.76	
Oxidation Reduction Potential	mV	NV	312		40		40		63		172		105	
pH	SU	NV	3.76		6.42		6.42		6.14		5.82		6.69	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	NA		< 0.5	U	< 0.5	U	NA		NA		NA	
Ethylene	µg/L	NV	NA		< 0.5	UJ	< 0.5	UJ	NA		NA		NA	
Methane	µg/L	NV	NA		16.6		16.9		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		44.7	J	65.1	J	NA		NA		NA	
Bromide	mg/L	NV	NA		< 5	U	< 5	U	NA		NA		NA	
Nitrate	mg/L	NV	NA		0.324	J	0.201	J	NA		NA		NA	
Sulfate	mg/L	NV	NA		4840		4780		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		33.8		32.6		NA		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	0.089	J
Volatile Organic Compounds (8260C)														
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	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

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January 2022

		Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9											
		Location Code	16WW33		16WW34				16WW35		16WW37		16WW38	
		Sample ID	16WW33-220110		16WW34-220110		16WW34-220110-FD		16WW35-220111		16WW37-220110		16WW38-220110	
		Sample Date	1/10/2022		1/10/2022		1/10/2022		1/11/2022		1/10/2022		1/10/2022	
		Sample Type	REG		REG		FD		REG		REG		REG	
		Sample Purpose	MNA Evaluation; Intermediate Zone		MNA Evaluation; Shallow Zone				MNA Evaluation; Downgradient of Landfill Biobarrier #3; Intermediate Zone		MNA Evaluation; Intermediate Zone		MNA evaluation; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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		59.2		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.44		0.61		0.61		0.45		0.63		0.58	
Oxidation Reduction Potential	mV	NV	117		132		132		125		180		158	
pH	SU	NV	6.63		6.4		6.4		7.14		5.24		5.07	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	NA		NA		NA		< 0.5	U	NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		3.47	J	NA		NA	
Methane	µg/L	NV	NA		NA		NA		76.6	J	NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	NA		NA		NA		1000		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		< 0.5	U	NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		0.262	J	NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		8090		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		53.1		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	0.12	J	0.14	J	0.13	J	**342**		**55.3**		0.17	J
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 10	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	**77**		< 0.5	U	5.1	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	**4400**		13		**380**	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 2	U	< 20	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	0.51	J	< 0.5	U	**11000**		**180**		**1200**	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	**58**		**4.9**		**30**	

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		Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9											
		Location Code	16WW41		16WW43		16WW44		16WW46		16WW55		16WW56	
		Sample ID	16WW41-220113		16WW43-220125		16WW44-220110		16WW46-220111		16WW55-220112		16WW56-220111	
		Sample Date	1/13/2022		1/25/2022		1/10/2022		1/11/2022		1/12/2022		1/11/2022	
		Sample Type	REG		REG		REG		REG		REG		REG	
		Sample Purpose	MNA Evaluation; Upgradient of the Bayou Biobarrier; Intermediate Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Downgradient of the Bayou Biobarrier; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)														
Dehalococcoides	cells/mL	NV	0.5	J	NA		NA		NA		< 0.5	U	1.6	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.56		0.76		0.8		0.52		0.89		0.69	
Oxidation Reduction Potential	mV	NV	44		127		267		128		64		131	
pH	SU	NV	6.57		5.46		3.98		6.38		6.07		6.07	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	< 0.5	U	NA		NA		NA		< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	8.32		NA		NA		NA		2.22	J	1.19	J
Methane	µg/L	NV	7.22		NA		NA		NA		26.8		2.29	J
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	908		NA		NA		NA		305		165	
Bromide	mg/L	NV	< 1	U	NA		NA		NA		3.67		3.42	
Nitrate	mg/L	NV	0.188	J	NA		NA		NA		0.364		0.0514	J
Sulfate	mg/L	NV	6990		NA		NA		NA		581		106	
Total organic carbon	mg/L	NV	43		NA		NA		NA		5.05		1.14	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	NV	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	7.8	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	**59.1**		< 0.2	U	3.2		0.098	J	**297**		0.13	J
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 1	U	< 1	U	< 1	U	< 10	U	< 1	U
1,1-Dichloroethene	µg/L	7	**12**		< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 5.0	U	< 0.5	U	< 0.5	U	< 0.5	U	**24**		< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	**1600**		< 0.5	U	< 0.5	U	< 0.5	U	**470**		0.67	J
Methylene chloride	µg/L	5	< 20	U	< 2	U	< 2	U	< 2	U	< 20	U	< 2	U
Trichloroethene	µg/L	5	**3800**		< 0.5	U	0.5	J	0.82	J	**2500**		**7**	
Vinyl chloride	µg/L	2	**210**		< 0.5	U	< 0.5	U	< 0.5	U	**8.2**	J	< 0.5	U

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		Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9				Surface Water - Harrison Bayou							
		Location Code	16WW57		16WW58		16SW01				16SW02		16SW03	
		Sample ID	16WW57-220113		16WW58-220113		16SW01-220126		16SW01-220126-FD		16SW02-220126		16SW03-220126	
		Sample Date	1/13/2022		1/13/2022		1/26/2022		1/26/2022		1/26/2022		1/26/2022	
		Sample Type	REG		REG		REG		FD		REG		REG	
		Sample Purpose	MNA Evaluation; Intermediate Zone		MNA Evaluation; Intermediate Zone		Downstream from LHAAP-16				Adjacent to LHAAP-16		Upstream from LHAAP-16	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**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	9.9		21.6		NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.58		0.77		0.77		0.77		0.65		0.81	
Oxidation Reduction Potential	mV	NV	106		118		133		133		150		159	
pH	SU	NV	5.74		5.91		6.54		6.54		6.71		6.62	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	NA		NA		NA		NA	
Ethylene	µg/L	NV	1.45	J	3.72	J	NA		NA		NA		NA	
Methane	µg/L	NV	2.6	J	4.57		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	191		144		NA		NA		NA		NA	
Bromide	mg/L	NV	< 0.5	UJ	2.24		NA		NA		NA		NA	
Nitrate	mg/L	NV	0.215	J	0.0416	J	NA		NA		NA		NA	
Sulfate	mg/L	NV	2650	J	594		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	19.8		9.26		NA		NA		NA		NA	
Metals (SW6020)														
Arsenic	mg/L	NV	NA		NA		0.000423	J	0.000488	J	0.000497	J	0.000567	J
Chromium	mg/L	NV	NA		NA		< 0.001	U	0.0005	J	< 0.001	U	< 0.001	U
Manganese	mg/L	7.8	NA		NA		0.0468	J	0.0322	J	0.0316		0.0296	
Nickel	mg/L	NV	NA		NA		0.000987	J	0.00139	J	0.00113	J	0.000992	J
Thallium	mg/L	NV	NA		NA		< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	0.099	J	< 0.2	U	0.18	J	0.18	J	0.17	J	0.18	J
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 10	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	1.1		< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.66	J	**170**		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 20	U	< 2	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	**85**		**5500**		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

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January 2022

Notes:

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

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

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

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

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

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

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

MCL - Maximum Contaminant Limit

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

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

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

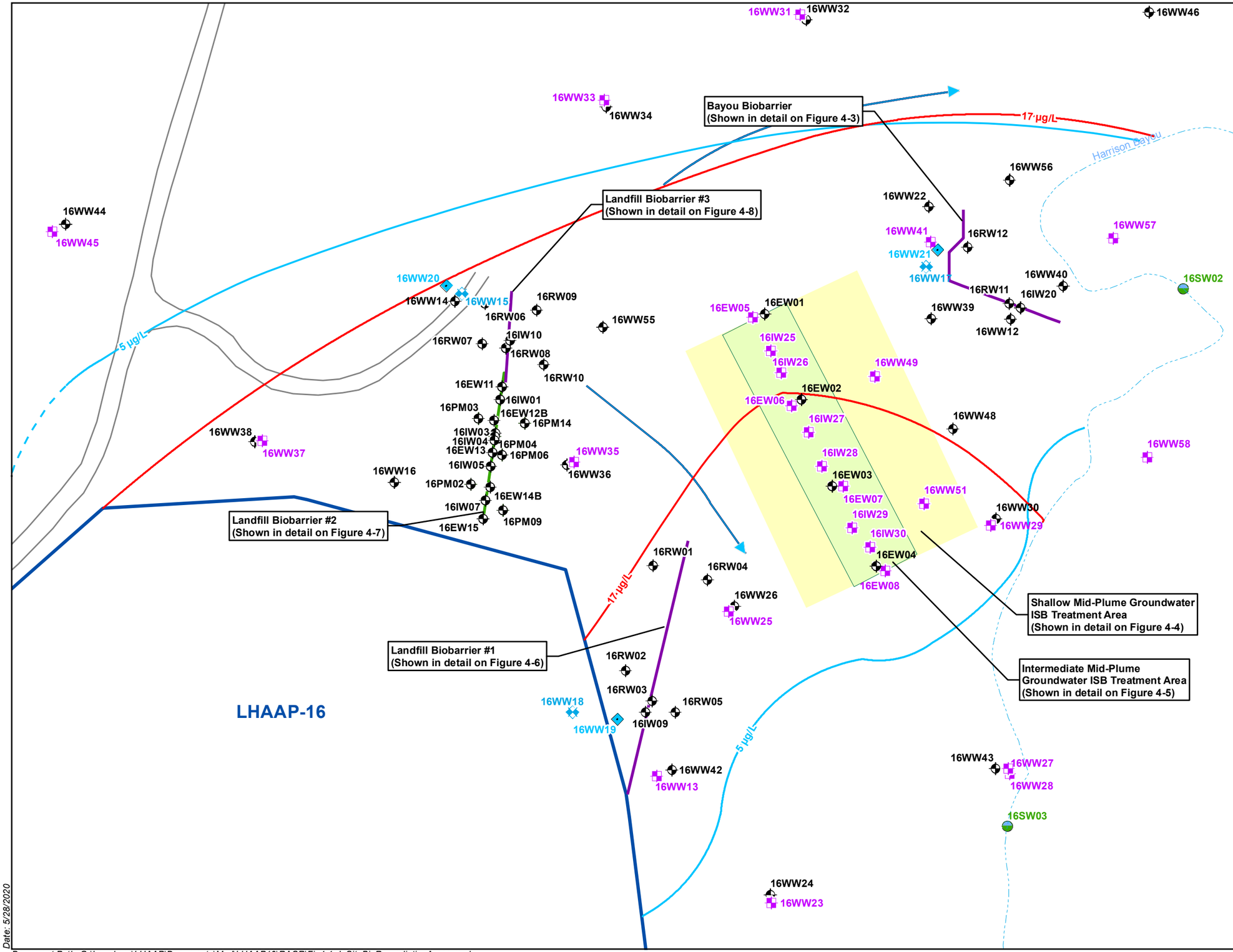
NA - not analyzed

SU - standard pH Units

mV - millivolts

cells/mL - cells per milliliter

UTL - upper tolerance limit



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TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 4-1

In-Situ Bioremediation
Areas at LHAAP-16
LHAAP-16 RACR

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2020

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RACR\Fig4-1_InSituBioRemediationAreas.mxd

LHAAP-50 Year 2 Quarter 3 Remedial Performance Monitoring
January 2022

		Location Code	50WW05		50WW06		50WW08		50WW11		50WW12	
		Sample ID	50WW05-220105		50WW06-220106		50WW08-220105		50WW11-220106		50WW12-220106	
		Sample Date	1/5/2022		1/6/2022		1/5/2022		1/6/2022		1/6/2022	
		Sample Purpose	REG		REG		REG		REG		REG	
		Location Description:	Site 50 - NE, lower shallow, outside site boundary		Site 50 - ENE, outside site boundary		Site 50 - E, upper shallow, inside site boundary		Site 50 - ENE, upper shallow, outside site boundary		Site 50 - ENE, upper shallow, outside site boundary	
Analyte	**Units**	**MCL/PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)												
Dehalococcoides	cells/mL	NV	NA		0.7		NA		2		0.4	J
Field Measurements												
Dissolved oxygen	mg/L	NV	0.95		0.44		0.59		0.43		0.58	
Ferrous Iron	NA	NV	NM		3.77		NM		1		1.08	
Oxidation Reduction Potential	mV	NV	195		228		184		169		106	
pH	Std units	NV	5.79		3.72		6.09		5.57		5.91	
Dissolved Gases (RSK-175)												
Carbon dioxide	µg/L	NV	NA		44500		NA		150000		326000	
Ethane	µg/L	NV	NA		< 0.5	U	NA		< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	NA		0.992	J	NA		1.21	J	1.19	J
Methane	µg/L	NV	NA		27.6	J	NA		4.67	J	23.4	J
General Chemistry (2320B/SM5310B/SW9056A)												
Chloride	mg/L	NV	NA		69.2		NA		274		1020	
Nitrate	mg/L	NV	NA		0.0881	J	NA		0.0439	J	0.108	J
Sulfate	mg/L	NV	NA		30.4		NA		354		634	
Total organic carbon	mg/L	NV	NA		7.96		NA		2.82		5.59	
Perchlorate (EPA 6850)												
Perchlorate	µg/L	17	< 0.2	U	0.39		**178**		**4200**		**68100**	
Volatile Organic Compounds (8260C)												
1,1-Dichloroethene	µg/L	7	2.3		< 0.5		0.98		**9.5**		**12**	
1,2-Dichloroethane	µg/L	5	2.1		< 0.5		1.5		**12**		**9.3**	
cis-1,2-Dichloroethene	µg/L	70	**150**		0.74		63		29		2	
Tetrachloroethene	µg/L	5	< 1		< 1		1.2		2.4		< 1	
Trichloroethene	µg/L	5	**200**		4.3		**590**		**1300**		**1100**	
Vinyl chloride	µg/L	2	< 0.5		< 0.5		< 0.5		0.98		< 0.5	

LHAAP-50 Year 2 Quarter 3 Remedial Performance Monitoring
January 2022

		Location Code	50WW13				50WW14		50WW29	
		Sample ID	50WW13-220106		50WW13-220106-FD		50WW14-220106		50WW29-220105	
		Sample Date	1/6/2022		1/6/2022		1/6/2022		REG	
		Sample Purpose	REG		FD		REG		REG	
		Location Description:	Site 50 - E, upper shallow, outside site boundary				Site 50 - E, lower shallow, outside site boundary, along S. Crockett Ave.		Site 50 - ENE, upper shallow, outside site boundary	
Analyte	**Units**	**MCL/PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)										
Dehalococcoides	cells/mL	NV	2.6		NA		20.4		NA	
Field Measurements										
Dissolved oxygen	mg/L	NV	0.45		0.45		0.56		0.54	
Ferrous Iron	NA	NV	0.81		0.81		3.53		NM	
Oxidation Reduction Potential	mV	NV	136		136		165		206	
pH	Std units	NV	5.66		5.66		5.21		5.6	
Dissolved Gases (RSK-175)										
Carbon dioxide	µg/L	NV	288000		220000		634000		NA	
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	NA	
Ethylene	µg/L	NV	0.901	J	2.25	J	2.32	J	NA	
Methane	µg/L	NV	7.59	J	8.38	J	4.48	J	NA	
General Chemistry (2320B/SM5310B/SW9056A)										
Chloride	mg/L	NV	312		300		444		NA	
Nitrate	mg/L	NV	0.038	J	0.0382	J	< 0.1	U	NA	
Sulfate	mg/L	NV	324		309		398		NA	
Total organic carbon	mg/L	NV	3.39	J	2.12	J	1.47		NA	
Perchlorate (EPA 6850)										
Perchlorate	µg/L	17	**2500**		**3220**		< 0.2	U	0.075	J
Volatile Organic Compounds (8260C)										
1,1-Dichloroethene	µg/L	7	**11**		**9.6**		< 0.5		< 0.5	
1,2-Dichloroethane	µg/L	5	**37**		**33**		< 0.5		< 0.5	
cis-1,2-Dichloroethene	µg/L	70	**210**		**200**		9.6		< 0.5	
Tetrachloroethene	µg/L	5	**5.8**		**6.9**		< 1		< 1	
Trichloroethene	µg/L	5	**5800**		**5700**		**14**		< 0.5	
Vinyl chloride	µg/L	2	**< 2.5**		**< 2.5**		< 0.5		< 0.5	

LHAAP-50 Year 2 Quarter 3 Remedial Performance Monitoring
January 2022

Notes:

Blue Highlighting Indicates the concentration exceeds the MCL/PCL

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

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

MCL - Maximum Contaminant Limit

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

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

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

NA - not analyzed

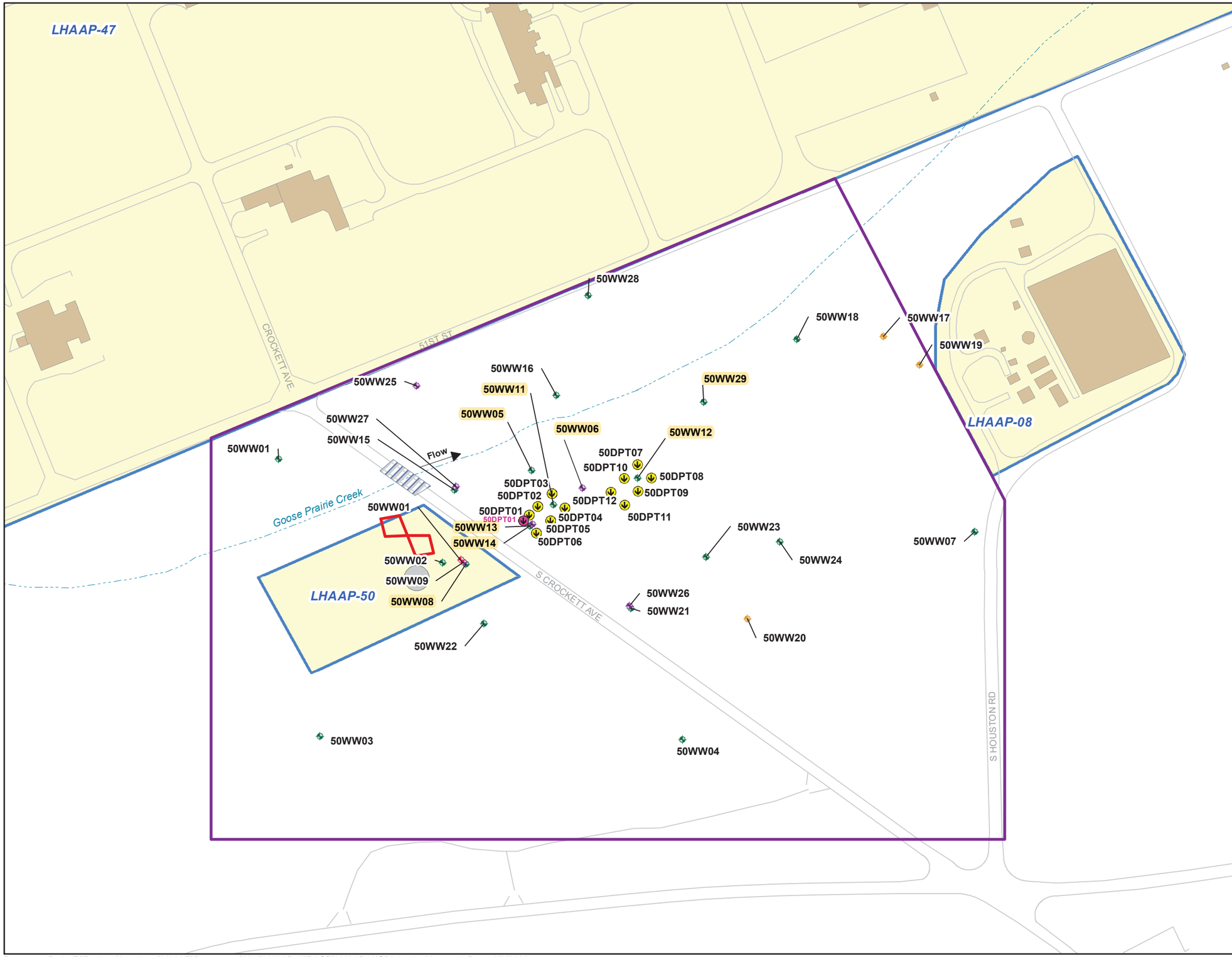
NM - not measured

Std Units - Standard pH Units

mV - millivolts

cells/mL - cells per milliliter

Val Qual - validation qualifier



- Lower Shallow Monitoring Well
- Upper Shallow Monitoring Well
- Fully Penetrating Shallow Monitoring Well
- Intermediate Monitoring Well
- Completed ISB DPT Point
- Planned ISB Location (Relocated)
- Goose Prairie Creek
- Roads
- LHAAP-50 Excavation Area
- Land Use Control Boundary
- Bridges
- Former Storage Tank Location
- Buildings
- Site Boundaries

ISB = in situ bioremediation
DPT = direct push technology

0 75 150 Feet

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

bhate APTIM

LHAAP-50 Injection and Remedial Performance Monitoring Location Map

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RACR\LHAAP50ISBInjectionMap.mxd Date: 9/8/2020

LHAAP-58 Remedial Action Operation Validated Data -December 2020

Location ID: Sample Date:	Units	MCL/MSC	35AWW05_120221 12/2/21	35AWW06_120121 12/1/21	35AWW11_120121 12/01/21	35AWW15_120221 12/2/21	35AWW19_120121 12/1/21	35AWW20_120121 12/1/21
		Location Description	Site 58 - E, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.
		Location Depth	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow
		Lab Package	HS21120243-02	HS21120103-06	HS21120103-01	HS21120243-03	HS21120103-03	HS21120103-05
Total Organic Carbon (415.1)								
Total Organic Carbon	mg/L	NV	NA	**12.1**	**9.02**	NA	**7.05**	**19.3 J**
Volatile Organic Compounds (8260C)								
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**75**
1,1-Dichloroethane	µg/L	10000	< 0.50 U	**0.42 J**	< 0.50 U	< 0.50 U	**0.70 J**	**440**
1,1-Dichloroethene	µg/L	7	< 0.50 U	**1.4**	**1.5**	< 0.50 U	**2.4**	**1,100**
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromoethane	µg/L	0.05	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**28**
1,2-Dichloroethane	µg/L	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**0.93 J**	**14**
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**1.1**
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**4.5**
2,2-Dichloropropane	µg/L	42	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.50 U
2-Butanone	µg/L	61000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6100	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8200	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92000	< 2.0 UJ	< 2.0 U	< 2.0 U	< 2.0 UJ	< 2.0 U	< 2.0 U
Benzene	µg/L	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**5.8**
Bromobenzene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4100	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromodichloromethane	µg/L	4.6	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromoform	µg/L	36	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

LHAAP-58 Remedial Action Operation Validated Data -December 2020

Location ID: Sample Date:	Units	MCL/MSC	35AWW05_120221 12/2/21	35AWW06_120121 12/1/21	35AWW11_120121 12/01/21	35AWW15_120221 12/2/21	35AWW19_120121 12/1/21	35AWW20_120121 12/1/21
		Location Description	Site 58 - E, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.
		Location Depth	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow
Volatile Organic Compounds (8260C)								
Bromomethane	µg/L	140	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 UJ
Carbon disulfide	µg/L	10000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroethane	µg/L	41000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroform	µg/L	1000	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Chloromethane	µg/L	220	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 UJ	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene	µg/L	70	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**86**
cis-1,3-Dichloropropene	µg/L	5.3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dibromomethane	µg/L	380	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Dichlorodifluoromethane	µg/L	20000	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 UJ
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Isopropylbenzene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
n-Butylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
o-Xylene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Styrene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**0.66 J**
Toluene	µg/L	1000	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
trans-1,2-Dichloroethene	µg/L	100	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**4.9**
trans-1,3-Dichloropropene	µg/L	29	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Trichloroethene	µg/L	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**100**
Trichlorofluoromethane	µg/L	31000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride		2	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**650**

LHAAP-58 Remedial Action Operation Validated Data -December 2020

Location ID: Sample Date:	Units	MCL/MSC	35AWW05_120221 12/2/21	35AWW06_120121 12/1/21	35AWW11_120121 12/01/21	35AWW15_120221 12/2/21	35AWW19_120121 12/1/21	35AWW20_120121 12/1/21
		Location Description	Site 58 - E, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.
		Location Depth	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow
Volatile Fatty Acids (HPLC-Organic Acids)								
Acetic Acid	mg/L	NV	NA	ND	ND	NA	ND	ND
Butyric Acid	mg/L	NV	NA	ND	ND	NA	ND	ND
Lactic Acid	mg/L	NV	NA	ND	ND	NA	ND	ND
Propionic Acid	mg/L	51	NA	ND	ND	NA	ND	ND
Pyruvic Acid	mg/L	NV	NA	ND	ND	NA	ND	ND
ICP-MS Metals (6020A)								
Arsenic	mg/L	0.01	NA	NA	NA	NA	NA	**0.00246 J**
Anions (9056A)								
Chloride	mg/L	NV	NA	**934**	**1,970**	NA	**625**	**606**
Nitrate	mg/L	10	NA	**0.402 J**	**0.814 J**	NA	**0.162 J**	**0.164 J**
Sulfate	mg/L	NV	NA	**343**	**536**	NA	**769**	**963**
Dissolved Gases (RSK-175)								
Carbon Dioxide	µg/L	NV	NA	**423,000**	**778,000**	NA	**744,000**	**661,000**
Ethane	µg/L	NV	NA	< 0.250 U	< 0.250 U	NA	< 0.250 U	< 0.250 U
Ethene	µg/L	NV	NA	< 0.500 U	**6.59**	NA	**0.929 J**	**7.54**
Methane	µg/L	NV	NA	**3,070**	**986**	NA	**2.40**	**531**
Dechlorinating Bacteria								
BAV1 Vinyl Chloride Reductase	cells/mL	NV	NA	**2.00**	< 1.10 U	NA	< 0.50 U	**41700**
Dehalobacter spp.	cells/mL	NV	NA	**2840**	**3140**	NA	**13,400**	**21400**
Dehalococoides	cells/mL	NV	NA	**34.0**	**2.30**	NA	**276**	**177,000**
tceA Reductase	cells/mL	NV	NA	< 1.30 U	**2.20**	NA	**0.50 J**	< 0.50 U
Vinyl Chloride Reductase	cells/mL	NV	NA	**0.30 J**	**43.5**	NA	**42.6**	**20.0**

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

NV - No Value

LHAAP-58 Remedial Action Operation Validated Data -December 2020

Location ID: Sample Date:	Units	MCL/MSC	35AWW23_120121 12/2/21	35AWW24_120221 12/2/21	LHSMW06_120221 12/2/21	LHSMW06_120221_a 12/2/21	LHSMW07_120121 12/1/21
		Location Description	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.
		Location Depth	Shallow	Shallow	Shallow	Shallow	Shallow
		Lab Package	HS21120103-02	HS21120243-01	HS21120243-04	HS21120243-05	HS21120103-04
Total Organic Carbon (415.1)							
Total Organic Carbon	mg/L	NV	**21.2**	NA	NA	NA	**10.8**
Volatile Organic Compounds (8260C)							
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	µg/L	10000	< 0.50 U	< 0.50 U	**8.5**	**8.4**	**5.1**
1,1-Dichloroethene	µg/L	7	< 0.50 U	< 0.50 U	**12**	**12**	**22**
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromoethane	µg/L	0.05	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.50 U	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
2-Butanone	µg/L	61000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6100	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8200	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92000	< 2.0 U	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0 U
Benzene	µg/L	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromobenzene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4100	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromodichloromethane	µg/L	4.6	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Bromoform	µg/L	36	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

LHAAP-58 Remedial Action Operation Validated Data -December 2020

Location ID: Sample Date:	Units	MCL/MSC	35AWW23_120121 12/2/21	35AWW24_120221 12/2/21	LHSMW06_120221 12/2/21	LHSMW06_120221_a 12/2/21	LHSMW07_120121 12/1/21
		Location Description	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.
		Location Depth	Shallow	Shallow	Shallow	Shallow	Shallow
Volatile Organic Compounds (8260C)							
Bromomethane	µg/L	140	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
Carbon disulfide	µg/L	10000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroethane	µg/L	41000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroform	µg/L	1000	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Chloromethane	µg/L	220	< 0.50 U	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
cis-1,2-Dichloroethene	µg/L	70	**0.63 J**	< 0.50 U	**140**	**130**	< 0.50 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dibromomethane	µg/L	380	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Dichlorodifluoromethane	µg/L	20000	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Isopropylbenzene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
n-Butylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
o-Xylene	µg/L	10000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Styrene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 1.0 U	**3.0**	**3.2**	< 1.0 U
Toluene	µg/L	1000	**18**	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
trans-1,2-Dichloroethene	µg/L	100	< 0.50 U	< 0.50 U	**1.9**	**1.9**	< 0.50 U
trans-1,3-Dichloropropene	µg/L	29	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
Trichloroethene	µg/L	5	< 0.50 U	< 0.50 U	**21**	**20**	**0.97 J**
Trichlorofluoromethane	µg/L	31000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride		2	< 0.50 U	< 0.50 U	**4.2**	**4.3**	**35**

LHAAP-58 Remedial Action Operation Validated Data -December 2020

Location ID: Sample Date:	Units	MCL/MSC	35AWW23_120121 12/2/21	35AWW24_120221 12/2/21	LHSMW06_120221 12/2/21	LHSMW06_120221_a 12/2/21	LHSMW07_120121 12/1/21
		Location Description	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.
		Location Depth	Shallow	Shallow	Shallow	Shallow	Shallow
Volatile Fatty Acids (HPLC-Organic Acids)							
Acetic Acid	mg/L	NV	**3.9**	NA	NA	NA	ND
Butyric Acid	mg/L	NV	ND	NA	NA	NA	ND
Lactic Acid	mg/L	NV	ND	NA	NA	NA	ND
Propionic Acid	mg/L	51	ND	NA	NA	NA	ND
Pyruvic Acid	mg/L	NV	ND	NA	NA	NA	ND
ICP-MS Metals (6020A)							
Arsenic	mg/L	0.01	NA	NA	**0.000406 J**	**0.000530 J**	NA
Anions (9056A)							
Chloride	mg/L	NV	**849**	NA	NA	NA	**1,560**
Nitrate	mg/L	10	**0.0811 J**	NA	NA	NA	**0.407 J**
Sulfate	mg/L	NV	**1.68**	NA	NA	NA	**2,720**
Dissolved Gases (RSK-175)							
Carbon Dioxide	µg/L	NV	**779,000**	NA	NA	NA	**820,000**
Ethane	µg/L	NV	< 0.500 U	NA	NA	NA	< 0.250 U
Ethene	µg/L	NV	< 0.250 U	NA	NA	NA	**6.33**
Methane	µg/L	NV	**2,270**	NA	NA	NA	**638**
Dechlorinating Bacteria							
BAV1 Vinyl Chloride Reductase	cells/mL	NV	< 0.60 U	NA	NA	NA	**0.30 J**
Dehalobacter spp.	cells/mL	NV	**208**	NA	NA	NA	**35400**
Dehalococoides	cells/mL	NV	**1030**	NA	NA	NA	**5720**
tceA Reductase	cells/mL	NV	**27**	NA	NA	NA	**0.30 J**
Vinyl Chloride Reductase	cells/mL	NV	**134**	NA	NA	NA	**7730.0**

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

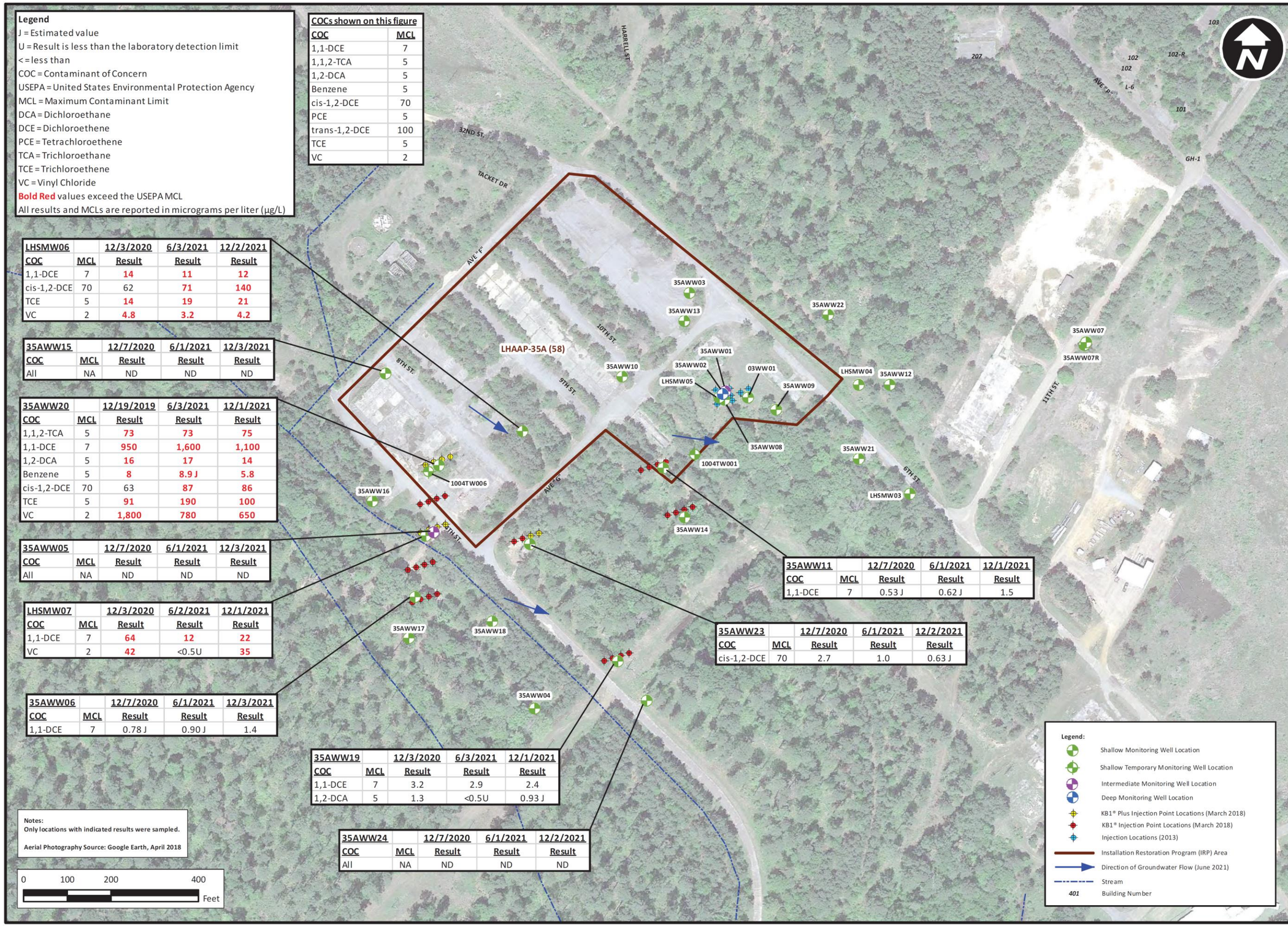
mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to disc

UJ - The analyte was not detected; however, the result is estimated due to discrepancies

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

NV - No Value



Legend
J = Estimated value
U = Result is less than the laboratory detection limit
< = less than
COC = Contaminant of Concern
USEPA = United States Environmental Protection Agency
MCL = Maximum Contaminant Limit
DCA = Dichloroethane
DCE = Dichloroethene
PCE = Tetrachloroethene
TCA = Trichloroethane
TCE = Trichloroethene
VC = Vinyl Chloride
Bold Red values exceed the USEPA MCL
All results and MCLs are reported in micrograms per liter (µg/L)

COCs shown on this figure

COC	MCL
1,1-DCE	7
1,1,2-TCA	5
1,2-DCA	5
Benzene	5
cis-1,2-DCE	70
PCE	5
trans-1,2-DCE	100
TCE	5
VC	2

LHSMW06		12/3/2020	6/3/2021	12/2/2021
COC	MCL	Result	Result	Result
1,1-DCE	7	**14**	**11**	**12**
cis-1,2-DCE	70	62	**71**	**140**
TCE	5	**14**	**19**	**21**
VC	2	**4.8**	**3.2**	**4.2**

35AWW15		12/7/2020	6/1/2021	12/3/2021
COC	MCL	Result	Result	Result
All	NA	ND	ND	ND

35AWW20		12/19/2019	6/3/2021	12/1/2021
COC	MCL	Result	Result	Result
1,1,2-TCA	5	**73**	**73**	**75**
1,1-DCE	7	**950**	**1,600**	**1,100**
1,2-DCA	5	**16**	**17**	**14**
Benzene	5	**8**	**8.9 J**	**5.8**
cis-1,2-DCE	70	63	**87**	**86**
TCE	5	**91**	**190**	**100**
VC	2	**1,800**	**780**	**650**

35AWW05		12/7/2020	6/1/2021	12/3/2021
COC	MCL	Result	Result	Result
All	NA	ND	ND	ND

LHSMW07		12/3/2020	6/2/2021	12/1/2021
COC	MCL	Result	Result	Result
1,1-DCE	7	**64**	**12**	**22**
VC	2	**42**	<0.5U	**35**

35AWW06		12/7/2020	6/1/2021	12/3/2021
COC	MCL	Result	Result	Result
1,1-DCE	7	0.78 J	0.90 J	1.4

35AWW19		12/3/2020	6/3/2021	12/1/2021
COC	MCL	Result	Result	Result
1,1-DCE	7	3.2	2.9	2.4
1,2-DCA	5	1.3	<0.5U	0.93 J

35AWW24		12/7/2020	6/1/2021	12/2/2021
COC	MCL	Result	Result	Result
All	NA	ND	ND	ND

35AWW11		12/7/2020	6/1/2021	12/1/2021
COC	MCL	Result	Result	Result
1,1-DCE	7	0.53 J	0.62 J	1.5

35AWW23		12/7/2020	6/1/2021	12/2/2021
COC	MCL	Result	Result	Result
cis-1,2-DCE	70	2.7	1.0	0.63 J

Notes:
Only locations with indicated results were sampled.

Aerial Photography Source: Google Earth, April 2018

Legend:
- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- Intermediate Monitoring Well Location
- Deep Monitoring Well Location
- KB1® Plus Injection Point Locations (March 2018)
- KB1® Injection Point Locations (March 2018)
- Injection Locations (2013)
- Installation Restoration Program (IRP) Area
- Direction of Groundwater Flow (June 2021)
- Stream
- *401* Building Number

COC Results for Groundwater Monintoring Wells (December 2021)

Figure 1

LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM
DATE: 3/10/2022
SCALE: As Shown
PROJECT NO.: NWO1312.0150.012.0001

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QUARTERLY EVALUATION REPORT
4TH QUARTER (OCTOBER-DECEMBER) 2021
GROUNDWATER TREATMENT PLANT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

May 2022

Prepared For:

U.S. Army Corps of Engineers
Tulsa District

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Appendix H Air Monitoring Analytical Laboratory Report
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Appendix J Air Data Tables, PID Readings, and Calibration Logs

ACRONYMS AND ABBREVIATIONS

AECOM	AECOM Technical Services, Inc.
AIX	Sample collected after the first IX vessel
AMCV(s)	Air Monitoring Comparison Value(s)
amsl	Above mean sea level
bgs	Below ground surface
Bhate	Bhate Environmental Associates, Inc.
BIX	Sample collected before the first IX vessel
BLOC	Bloc Design Build, LLC
COC(s)	Chemical(s) of concern
COD	Chemical oxygen demand
DCA	Dichloroethane
DCE	Dichloroethene
Envirogen	Envirogen Technologies
ESD	Explanation of Significant Difference
ESL(s)	Effects Screening Level(s)
FBR	Fluidized bed reactor
ft	Feet or foot
GAC	Granular activated carbon
gpd	Gallons per day
gph	Gallons per hour
gpm	Gallons per minute
GWTP	Groundwater Treatment Plant
HCl	Hydrochloric acid
HDPE	High density polyethylene
ICT(s)	Interception-collection trench(es)
IRA	Interim Remedial Action
IX	Ion exchange
J	Estimated concentration
lbs/hr	Pounds per hour
LHAAP	Longhorn Army Ammunition Plant
MCL(s)	Maximum Contaminant Level(s)

µg/L	Micrograms per liter
MC	Methylene chloride
$Mg(OH)_2$	Magnesium hydroxide
MSC(s)	Medium Specific Concentration(s)
mV	Millivolts
NA	Not applicable
NaOH	Sodium hydroxide
No.	Number
ORP	Oxidation-reduction potential
Palmetto	Palmetto Services
PCE	Tetrachloroethene
PCL(s)	Protective Concentration Level(s)
pH	Potential of Hydrogen
PID	Photoionization detector
PLC	Programmable Logic Controller
ppmv	Parts per million by volume
psi	Pounds per square inch
PVC	Polyvinyl chloride
ROD	Record of Decision
SWEPCO	Southwestern Electric Power Company
TAC	Texas Administrative Code
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
tpy	Tons per year
UEP	Unlined Evaporation Pond
USEPA	United States Environmental Protection Agency
VC	Vinyl chloride
VOC(s)	Volatile Organic Compound(s)

EXECUTIVE SUMMARY

The operation of the Groundwater Treatment Plant (GWTP) is part of the Interim Remedial Action (IRA) at Burning Ground Number (No.) 3, also referred to as Longhorn Army Ammunition Plant (LHAAP)-18/24. A historical pilot test for nearby landfill LHAAP-16 resulted in the installation of eight extraction wells which also contributed groundwater to the GWTP, but ceased after implementation of the final remedy in September 2019.

The groundwater remediation processing for Burning Ground No. 3 at LHAAP includes the following operable systems:

- Equalization tank (water storage) pretreatment system (metals removal);
- Air stripper system;
- Sludge treatment system (thickening, devolatilization, and belt filter press);
- Perchlorate treatment system (fluidized bed reactor [FBR] and ion exchange [IX] vessels);
- Various pumps, meters, piping, and valves tying the treatment systems together; and
- Programmable Logic Controller (PLC) that communicates the status of the operable systems, including the extraction wells, to a central computer that can then notify the operators of shut-downs and similar issues remotely.

Contaminated water from the extraction wells and interception-collection trenches (ICTs) is pumped into the GWTP and stored in the equalization storage tank. The contaminated water is then pumped to the pretreatment system for precipitation of metals. The sludge from the pretreatment system is delivered to the sludge treatment system to be thickened, air stripped of volatile organic compounds (VOCs), and filter pressed for burial in a landfill. The water from the pretreatment system is delivered to the air stripper system for air stripping of VOCs. Water from the air stripper is stored in the effluent storage tank for further treatment by the perchlorate system, which consists of a FBR and IX vessels.

To provide the integration necessary for proper process management, a stand-alone central PLC and operator console is used to control all of the operating systems of the GWTP. The belt filter press operates independently with a polymer pump and sludge feed pump interfaced with the central PLC.

The pretreatment system and air stripper system are equipped with instrument junction boxes and motor starter control panels. The control panels contain a transformer, run indication lights, motor starters, Hand or Automatic switches, and relays to interface with the central PLC. The control panels have monitors and/or logic to monitor the operating parameters and determine when abnormal conditions occur.

Interface relays will indicate to the central PLC that there is a problem within the systems. The central PLC will provide the logic for the proper action required for that specific set of circumstances.

Groundwater extraction, treatment, discharge, and monitoring activities consist of:

- Continuous extraction of groundwater from multiple ICTs and extraction wells at LHAAP-18/24;
- Treatment of extracted groundwater for heavy metals, chlorinated compounds, and perchlorate using precipitation, air stripping, and biological methods, respectively;
- Evaluation of the hydraulic effectiveness of the extraction system by groundwater monitoring;
- Monitoring and analysis of treated groundwater to ensure compliance with the discharge limits; and
- Discharge of treated water to Harrison Bayou or to a holding pond (INF Pond), or the treated water may be released as irrigation water on LHAAP-18/24.

The location of the extraction wells and ICTs are shown on **Figure A-1** in **Appendix A**. The process flow diagram of the GWTP is shown on **Figure A-2** in **Appendix A**.

Figure ES-1 shows the monthly total volume of groundwater that was extracted from the ICT and extraction wells at LHAAP-18/24 between January 2014 and December 2021 and at LHAAP-16 between January 2014 and September 2019.

The GWTP was not operational from 24 May 2012 until 6 September 2012. This was related to meltdown of the scrubber system, associated with the catalytic oxidizer, due to system overheating. Overheating occurred when the blower became inoperable after the bearing on the scrubber blower unit was shattered and damaged the blower. This occurred around 1:00 PM on 21 May 2012.

After developing an interim air monitoring plan and obtaining concurrence from the Texas Commission on Environmental Quality (TCEQ) and the United States Environmental Protection Agency (USEPA) to operate the GWTP without use of air abatement equipment, a pilot run of the GWTP was conducted on 6 September 2012. In that first pilot run, 85,170 gallons of water that had been stored in the influent equalization tank (TK-140) were treated. The treated water was re-circulated through the FBR to revive the FBR after 3 months of dormancy. Treated groundwater samples were collected and analyzed, respectively, for perchlorate, metals, and VOCs. Air samples were collected and analyzed for VOCs only.

On 19 September 2012, a second pilot run was performed at the GWTP and 107,264 gallons of water were treated. Based on the successful re-start of the GWTP, continuous groundwater extraction began again on 24 September 2012. While groundwater extraction occurs on a continuous basis, operation of the GWTP occurs intermittently due to the low volume of water available for treatment with respect to the design capacity of the GWTP. During the 3rd Quarter of 2012, groundwater extraction occurred only from LHAAP-18/24. Groundwater extraction from LHAAP-16 was not performed due to equipment failure. However, extraction from LHAAP-16 began in October 2012 and the extraction volumes increased steadily throughout the 4th Quarter of 2012, as pumping equipment was gradually repaired/replaced. The GWTP operated under normal conditions until September 2015.

On 14 September 2015, at 11:15 AM, the blower on the air stripper (BL-340) malfunctioned during routine operation. The wiring on the blower was repaired and the blower operated for less than 2 hours on 17 September 2015, when the blower malfunctioned again. It was determined that the blower needed to be replaced, and groundwater extraction and operation of the GWTP ceased beginning 18 September 2015, as the influent equalization tank (TK-140) became full. Beginning on 2 October 2015, it was determined that the GWTP could operate without the blower at a reduced extraction rate. The operation of the GWTP allowed extraction of groundwater from ICTs 12E, 13A, 13B, and 13C (13C was changed to ICT 13E on 12 October 2015), which were considered critical ICTs to prevent migration of contaminants to Harrison Bayou. Groundwater extraction was switched frequently between ICTs 12E, 13A, 13B, and 13E to ICTs 14B, 14C, and 14D beginning on 14 December 2015.

On 12 December 2016, flange bolts at TK-380 failed and allowed hydrochloric acid (HCl) to drain into the sump. The secondary containment area was washed down and the sump contents were transferred into the influent equalization tank (TK-140). Because of the acid release, extraction of groundwater from the ICTs was halted, and the GWTP was put into recycle mode (effluent sent back as influent) until the acid was neutralized and perchlorate, metals, and VOCs were below discharge criteria on 17 March 2017.

On 12 August 2017, severe storms caused a power outage at LHAAP-18/24. When electrical service was restored, the main transformer failed due to a manufacturing defect. A portable emergency generator was brought on-site on 21 August 2017, to allow the FBR to operate in full recycle mode. After a replacement transformer was installed on 12 September 2017, extraction began from ICT-13B, -13C, -13D, -13E, -13F, -7, and extraction well EW-01 and the FBR was put into normal operation. Beginning on 21 September 2017, groundwater was extracted from all of the ICTs.

On 27 December 2018, severe storms caused a power outage in Karnack, Texas including LHAAP. When electrical service was restored, the main transformer failed due to a manufacturing defect. A portable emergency generator was brought on-site on 28 December 2018, to allow the FBR to operate in full recycle mode. After a temporary generator was connected to the well field on 11 February 2019, extraction began from LHAAP-18/24, and the GWTP was put into normal operation.

From 11 to 17 June 2019, a double-walled pipe in the burning grounds (ICT-14C and ICT-14D) was found to be leaking at a joint and repaired. In addition, the line to well 18WW17 was cut off due to leaks identified following repair of the other section of pipe. The ground was too wet to dig and replace the other double-walled pipe at that time. From 28 October to 31 October 2019, a new double-walled pipe to well 18WW17 was installed.

Groundwater is no longer extracted from LHAAP-16 because injections were completed in September 2019 as part of the final remedial action. The only groundwater treated and discussed within this report is from LHAAP-18/24.

On 11 January 2020, a possible tornado and straight line winds came through the area and broke the power lines. The breaker was shut off at the transformer until power lines could be repaired on 14 and 15 January 2020, by Ark-La-Tex. On 18 January 2020, power was lost to the GWTP and

it was discovered that there was a blown fuse on the power lines. Ark-La-Tex Electric was called to the site to replace the fuse and power was restored to the GWTP the same day.

On 29 March 2020, there was a power glitch that caused the air compressors to shut down. The air compressors and FBR were restarted on the same day. On 13 April 2020, two trees fell across a power line and caused a loss of power to the plant. Ark-La-Tex was on-site to remove the trees and power was restored on 14 April 2020 at 9:45 AM. On 2 May 2020, a tree fell across Southwestern Electric Power Company's (SWEPCO's) line inside the plant that feeds the GWTP. SWEPCO came out and removed the tree from the line. Power was restored the same day. On 29 December 2020, a housing was built for the acetic acid pump associated with the FBR to prevent rainwater from causing it to shut down.

On 13 February 2021, inclement weather began and it stayed below freezing until 20 February 2021. The level transmitter on TK-650 froze, making the discharge pump inoperable. The level transmitter was thawed out and pumping was restarted. On 20 February, the air compressors were able to be started again and the FBR began recirculating but the oxidation-reduction potential (ORP) was greater than the normal operating requirements. From 21 February through 9 March 2021, repairs from the freeze were made on broken polyvinyl chloride (PVC) pipe, valves, fittings, and level transmitters. The ORP on the FBR remained elevated, and the FBR was in recycle until 25 March 2021 when the ORP returned to normal range and discharge to the Harrison Bayou was able to resume.

A power outage occurred on 12 - 13 May 2021, due to downed power lines. On 14 May 2021, Ark-La-Tex Electric was onsite to replace the broken power pole and repair broken power lines. On 28 May 2021, a power outage occurred at 0430, due to a downed tree. SWEPCO restored power the following day on 29 May 2021. On 2 June 2021 elevated perchlorate effluent results, precipitated replacement on the acetic acid nutrient feed pump. Perchlorate effluent results dropped below discharge limits but not to expected concentrations. As a result the FBR was placed in recycle from 18 June 2021 through the end of 2nd Quarter 2021.

In May 2021, an estimated 900,000 gallons of water was released from the INF Pond to the Harrison Bayou as a result of vandalism to the INF Pond. The exact timing of when the water was drained from the INF Pond is unknown, however, on 19 May 2021, the INF Pond valve was found opened which allowed a portion of the INF Pond to drain. The Harrison Bayou was at flood stage from 14 May through 19 May 2021, and had sufficient flow at the time to accept this volume of water. Furthermore, groundwater released to the INF Pond had been treated at the GWTP and was below the Protective Concentration Level (PCL) of 17 micrograms per liter (µg/L) for perchlorate and the discharge criteria required for release to Harrison Bayou. Therefore, there are no known adverse impacts to Harrison Bayou due to the unintentional release of water from the INF Pond. Additionally, surface water samples are collected from Harrison Bayou quarterly for perchlorate analysis to confirm there are no impacts to Harrison Bayou. Surface water samples analyzed for perchlorate in July 2021, were all well below the PCL with a maximum perchlorate detection of 0.369 µg/L.

On 15 July 2021, Bloc Design Build, LLC (BLOC) was onsite to wire in the new acid pump (P 390). On 29 July 2021, Envirogen Technologies (Envirogen) mobilized to the site to troubleshoot the

FBR. The plant was brought offline to diagnose why perchlorate effluent results remained elevated. Envirogen found the fluidization flow at 230 gallons per minute, and the inlet pressure to the FBR at 14 pounds per square inch (psi) as satisfactory. Envirogen determined that the inline potential of hydrogen (pH) probe was not calibrating properly and was providing an incorrect reading of 7.4. On 29 July 2021 the pH reading was 8.24 which is above the enhanced FBR operating parameters. Ideally, the pH should be between 7.1 and 7.4 in the reactor. A high pH can inhibit biological activity. Envirogen recommended the installation and calibration of a new pH probe. A new inline pH probe was ordered and replacement and calibration are planned for the 2nd Quarter of 2022. In the interim, a handheld pH meter is being used to verify pH conditions in the FBR, and the acid feed is manually being adjusted as necessary.

Additionally, Envirogen noted that the granular activated carbon (GAC) settled bed height was 6.33 feet and the expanded bed height was 9 feet. The design settled bed height for the GAC is 9 feet and the design expanded bed height is 15 feet, with the expanded bed height being a key performance indicator for the FBR. Therefore, Envirogen recommend the addition of two supersacks of GAC media. One supersack of GAC was delivered, pre-wetted, and loaded in the FBR on 29 July 2021. After the addition of one supersack of GAC, the settled bed height was measured at 9.1 feet and the expanded bed height was measured at 11.3 feet. Additional GAC has been ordered and will be added to the FBR when available. The GWTP was brought back online on 3 August 2021.

Palmetto Services (Palmetto) was onsite from 20 September through 24 September 2021 to replace the sand in the sand filter. The sand in the sand filter collects debris that is filtered out of the water as designed. However, over time the debris restricts the flow of water through the filter. Therefore, the GWTP was taken offline on 20 September 2021 to replace the sand. Palmetto removed the sand and screens, acid washed the screens, put the screens back in place, and then added new sand using a crane. Approximately 4.5 tons of 10 x 20 silica sand and 12 tons of 8 x 12 silica sand was placed into the sand filter. While the plant was down for the sand filter activities, the 10-inch PVC line between the clarifier effluent and the sludge tanks was replaced, and the polymer feed line was unclogged. However, before the GWTP could be operated again the HCl feed pump malfunctioned.

On 4 October 2021 the GWTP was unable to be operated due to a malfunctioning pump motor on the HCl feed pump (P-390). On 5 October 2021 BLOC was onsite to diagnose the HCl pump motor (P-390) which was seized and inoperable. A new pump motor was ordered and on 14 October 2021, BLOC returned to wire in the new motor on the HCl pump (P-390).

Upon arrival at the GWTP on 5 October 2021, there was no power at the GWTP. A blown fuse was found on SWEPCO's transformer. SWEPCO replaced the fuse, however, only partial power was restored to GWTP on 5 October 2021. On 7 October 2021, Ark-La-Tex Electric was onsite to troubleshoot an electrical power issue and determined that the load break switch (commonly referred to as an arc strangler) was blown at the transformer at the GWTP and needed to be replaced. The load break switch malfunction had caused the fuse to fail, cutting power to the GWTP. The load break switch was replaced on 11 October 2021, and power was restored to the

GWTP. Once power was restored and the HCl pump was replaced as described above, the GWTP was brought back online on 18 October 2021.

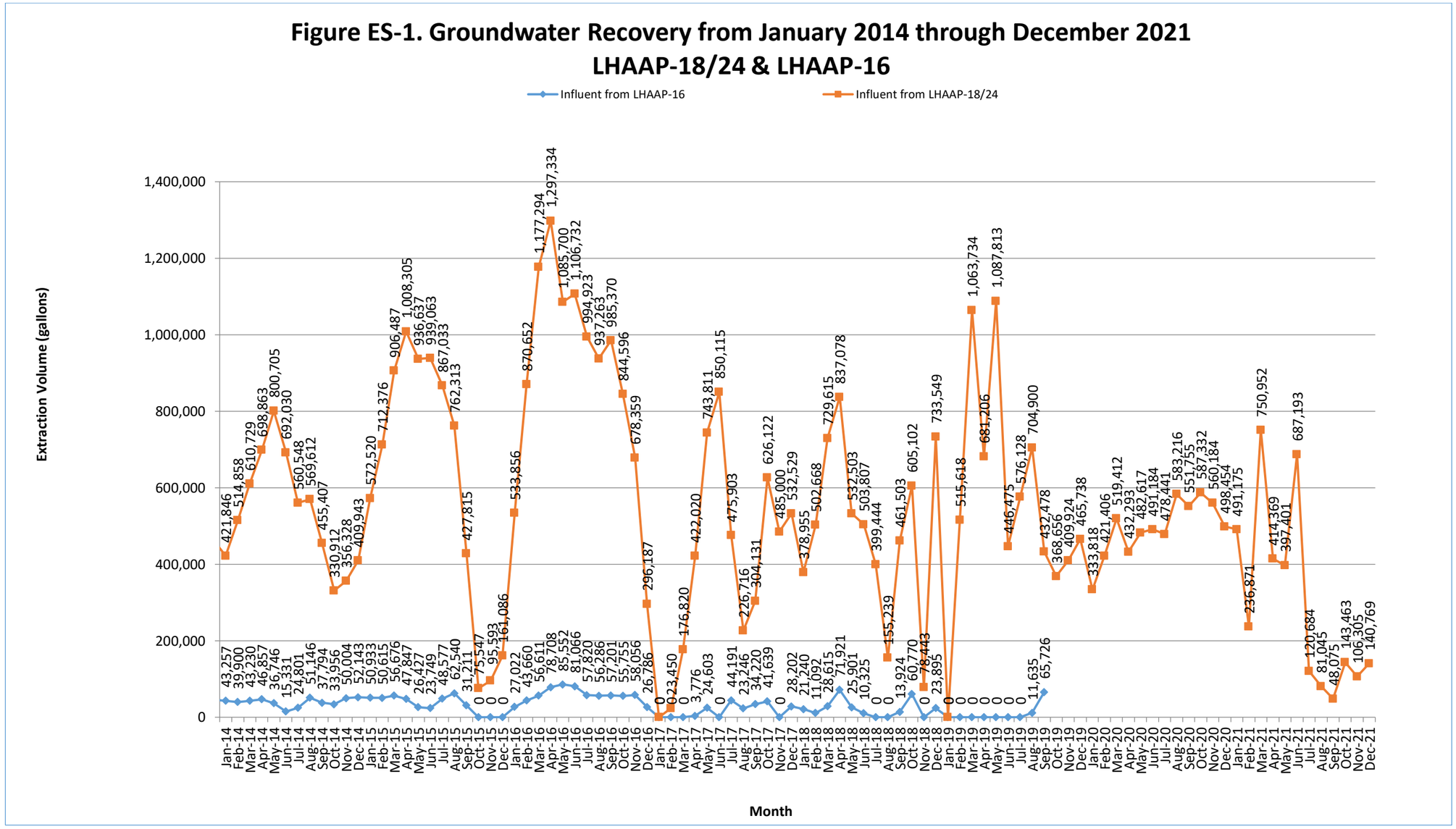
On 29 December 2021, during routine INF Pond staff gauging, it was observed that there was vandalism to the locked access gate and an estimated 271,500 gallons of treated groundwater was released via the drain valve to the Harrison Bayou. It should be noted that on 27 December 2021, during routine staff gauging at the INF Pond the drain valve was closed, indicating that un-granted access and release of groundwater occurred sometime between the evening of 24 December 2021 and the morning of 27 December 2021. In response to the vandalism, the access gate will be repaired during the next reporting period. Additional, security measures such as the use of video monitoring are being evaluated to prevent further vandalism.

As shown on **Figure ES-1**, the total extracted groundwater volume from LHAAP-18/24 during the 4th Quarter of 2021 was 390,537 gallons. The extracted groundwater volume was measured on a monthly basis as the sum of the difference between the flow meter totalizer reading at each ICT between the beginning and end of each month. Extraction quantities in LHAAP-18/24 were 143,463 gallons in October 2021; 106,305 gallons in November 2021; and 140,769 gallons in December 2021.

The typical discharge flowrate from the GWTP was estimated as 136 gallons per minute (gpm) during the 4th Quarter of 2021. As shown in **Table ES-1**, approximately 263,411 gallons of groundwater was treated and discharged from the GWTP to the INF pond; 0 gallons in October 2021 due to the plant being nonoperational for most of the month, due to the aforementioned power outage and HCl pump repairs, and waiting on effluent treatment results; 95,326 gallons in November 2021; and 168,085 gallons in December 2021. No treated groundwater from the GWTP was returned to LHAAP-18/24 via the sprinkler system. **Table ES-1** also presents the INF Pond staff gauge readings by date, which is used to determine the freeboard available in the pond.

A quarterly GWTP influent sample was collected for perchlorate analysis on 14 December 2021 and had a concentration of 9,910 µg/L. A monthly GWTP influent sample was collected for perchlorate analysis on 9 November 2021 and had a concentration of 8,400 µg/L. Considering the two perchlorate results, the average perchlorate concentration in the GWTP influent during the quarter was 9,155 µg/L. Grab perchlorate samples from the GWTP effluent were collected weekly after the first IX vessel to confirm perchlorate treatment prior to discharge to the INF Pond. None of the perchlorate concentrations in any effluent samples discharged to the INF Pond exceeded the PCL (17 µg/L) during the 4th Quarter 2021.

The water quantities treated each month since June 2012 and discharged into the Harrison Bayou are shown on **Figure ES-2**.



Note: Starting in September 2019, no groundwater was extracted subsequent to the final remedy of injections being implemented at LHAAP-16.

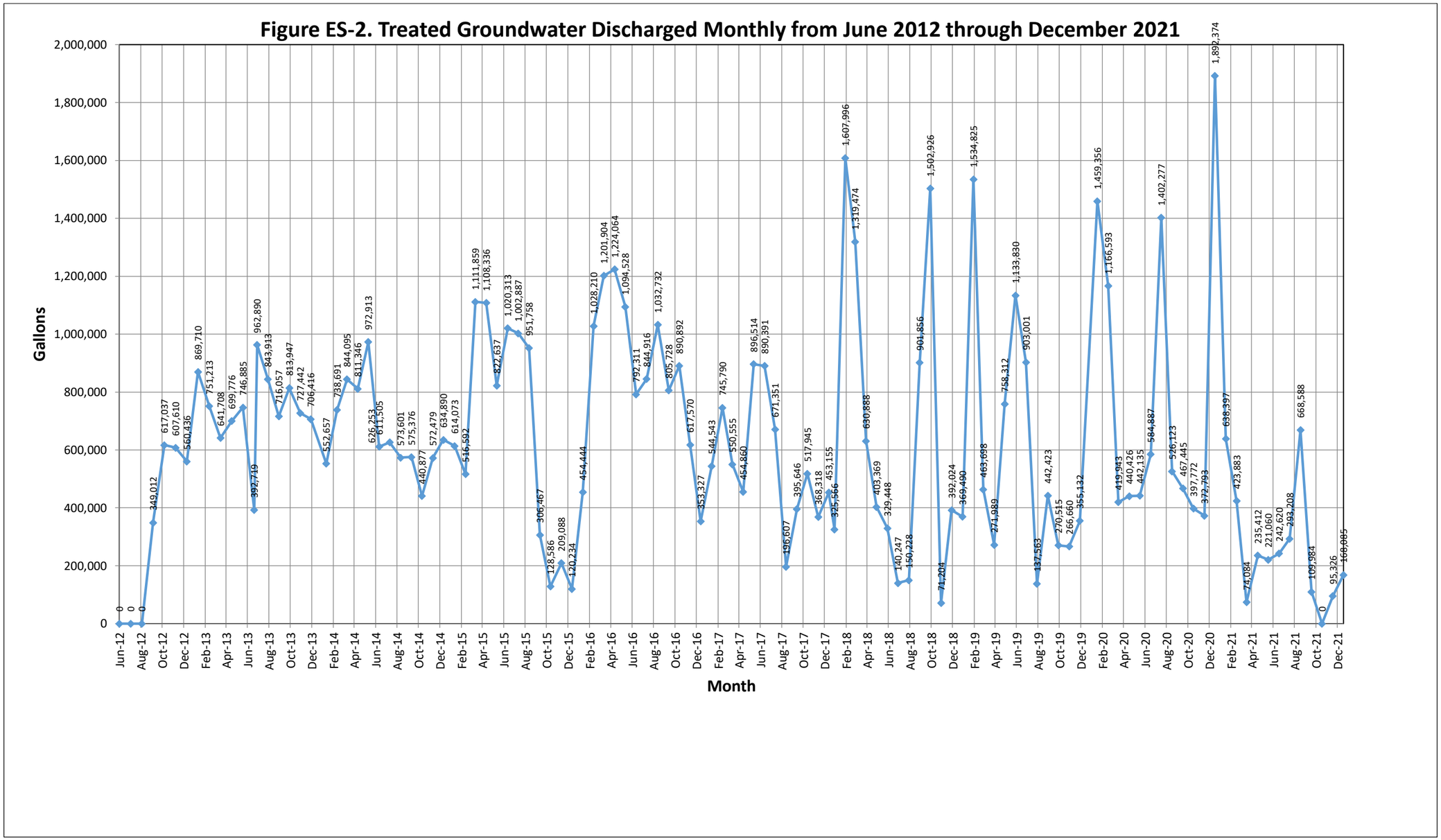


Figure ES-2. Treated Groundwater Discharged Monthly from June 2012 through December 2021
Gallons
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Month
Jun-12
Aug-12
Oct-12
Dec-12
Feb-13
Apr-13
Jun-13
Aug-13
Oct-13
Dec-13
Feb-14
Apr-14
Jun-14
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Feb-20
Apr-20
Jun-20
Aug-20
Oct-20
Dec-20
Feb-21
Apr-21
Jun-21
Aug-21
Oct-21
Dec-21

Table ES-1. Discharge Information to Harrison Bayou during 4th Quarter 2021

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
10/01/2021	NA	NA	0	0	0	0	2.80
10/02/2021	NA	NA	0	0	0	0	2.79
10/03/2021	NA	NA	0	0	0	0	2.78
10/04/2021	NA	NA	0	0	0	0	2.76
10/05/2021	NA	NA	0	0	0	0	2.75
10/06/2021	NA	NA	0	0	0	0	2.75
10/07/2021	NA	NA	0	0	0	0	2.74
10/08/2021	NA	NA	0	0	0	0	2.73
10/09/2021	NA	NA	0	0	0	0	2.73
10/10/2021	NA	NA	0	0	0	0	2.72
10/11/2021	NA	NA	0	0	0	0	2.71
10/12/2021	NA	NA	0	0	0	0	2.70
10/13/2021	NA	NA	0	0	0	0	2.70
10/14/2021	NA	NA	0	0	0	0	2.69
10/15/2021	NA	NA	0	0	0	0	2.69
10/16/2021	NA	NA	0	0	0	0	2.68
10/17/2021	NA	NA	0	0	0	0	2.67
10/18/2021	NA	NA	0	0	0	0	2.66
10/19/2021	NA	NA	0	0	0	0	2.65
10/20/2021	NA	NA	0	0	0	0	2.64
10/21/2021	NA	NA	0	0	0	0	2.63
10/22/2021	NA	NA	0	0	0	0	2.63
10/23/2021	NA	NA	0	0	0	0	2.62
10/24/2021	NA	NA	0	0	0	0	2.62
10/25/2021	NA	NA	0	0	0	0	2.61
10/26/2021	NA	NA	0	0	0	0	2.61
10/27/2021	NA	NA	0	0	0	0	2.60

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
10/28/2021	NA	NA	0	0	0	0	2.60
10/29/2021	NA	NA	0	0	0	0	2.69
10/30/2021	NA	NA	0	0	0	0	2.69
10/31/2021	NA	NA	0	0	0	0	2.68
11/01/2021	NA	NA	0	0	32,073	0	2.72
11/02/2021	NA	NA	0	0	0	0	2.72
11/03/2021	NA	NA	0	0	0	0	2.71
11/04/2021	NA	NA	0	0	0	0	2.71
11/05/2021	NA	NA	0	0	0	0	2.82
11/06/2021	NA	NA	0	0	0	0	2.82
11/07/2021	NA	NA	0	0	0	0	2.81
11/08/2021	NA	NA	0	0	28,704	0	2.81
11/09/2021	NA	NA	0	0	0	0	2.80
11/10/2021	NA	NA	0	0	0	0	2.80
11/11/2021	NA	NA	0	0	0	0	2.79
11/12/2021	NA	NA	0	0	0	0	2.85
11/13/2021	NA	NA	0	0	0	0	2.85
11/14/2021	NA	NA	0	0	0	0	2.84
11/15/2021	NA	NA	0	0	34,549	0	2.99
11/16/2021	NA	NA	0	0	0	0	2.99
11/17/2021	NA	NA	0	0	0	0	2.98
11/18/2021	NA	NA	0	0	0	0	2.97
11/19/2021	NA	NA	0	0	0	0	2.96
11/20/2021	NA	NA	0	0	0	0	2.96
11/21/2021	NA	NA	0	0	0	0	2.95
11/22/2021	NA	NA	0	0	0	0	2.95
11/23/2021	NA	NA	0	0	0	0	2.94
11/24/2021	NA	NA	0	0	0	0	2.94

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
11/25/2021	NA	NA	0	0	0	0	3.05
11/26/2021	NA	NA	0	0	0	0	3.05
11/27/2021	NA	NA	0	0	0	0	3.04
11/28/2021	NA	NA	0	0	0	0	3.04
11/29/2021	NA	NA	0	0	0	0	3.03
11/30/2021	NA	NA	0	0	0	0	3.03
12/01/2021	NA	NA	0	0	0	0	2.98
12/02/2021	NA	NA	0	0	0	0	2.98
12/03/2021	NA	NA	0	0	35,616	0	3.04
12/04/2021	NA	NA	0	0	0	0	3.03
12/05/2021	NA	NA	0	0	0	0	3.01
12/06/2021	NA	NA	0	0	0	0	3.00
12/07/2021	NA	NA	0	0	0	0	3.00
12/08/2021	NA	NA	0	0	0	0	2.99
12/09/2021	NA	NA	0	0	0	0	2.99
12/10/2021	NA	NA	0	0	0	0	2.98
12/11/2021	NA	NA	0	0	0	0	2.97
12/12/2021	NA	NA	0	0	0	0	2.97
12/13/2021	NA	NA	0	0	35,811	0	3.11
12/14/2021	NA	NA	0	0	3,076	0	3.13
12/15/2021	NA	NA	0	0	9,234	0	3.15
12/16/2021	NA	NA	0	0	5,691	0	3.19
12/17/2021	NA	NA	0	0	0	0	3.19
12/18/2021	NA	NA	0	0	0	0	3.18
12/19/2021	NA	NA	0	0	0	0	3.18
12/20/2021	NA	NA	0	0	26,644	0	3.28
12/21/2021	NA	NA	0	0	0	0	3.28
12/22/2021	NA	NA	0	0	0	0	3.27

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
12/23/2021	NA	NA	0	0	0	0	3.27
12/24/2021	NA	NA	0	0	0	0	3.26
12/25/2021	NA	NA	0	0	0	0	3.26
12/26/2021	NA	NA	0	0	0	0	3.25
12/27/2021	NA	NA	0	0	31,106	0	3.37
12/28/2021	NA	NA	0	0	11,949	0	3.40
12/29/2021	NA	NA	0	0	8,958	0	1.40
12/30/2021	NA	NA	0	0	0	0	0.00
12/31/2021	NA	NA	0	0	0	0	0.00
TOTALS			0	271,500 [1]	263,411	0	

Notes: The maximum discharge rate from the INF Pond is 170 gallons per minute (gpm) and the maximum discharge rate from the GWTP is 30 gpm.
NA = Not applicable
Treated groundwater volume released over the weekend is included in the total for the next working day. These volumes are marked with an asterisk (*).
[1] Unintentional release of water from INF pond to Harrison Bayou due to unauthorized access and vandalism. The exact date of the release is undetermined. It was discovered on 29 December 2021.

1 EVALUATION OF GROUNDWATER TREATMENT PLANT

The Groundwater Treatment Plant (GWTP) was constructed as part of the Interim Remedial Action (IRA) at Burning Ground Number (No.) 3, also referred to as Longhorn Army Ammunition Plant (LHAAP)-18/24, to treat groundwater extracted from interception-collection trenches (ICTs) and extraction wells. **Figure A-1** located in **Appendix A** presents the layout of the ICTs and extraction wells at LHAAP-18/24. The groundwater contamination at LHAAP-18/24 likely resulted from infiltration from an Unlined Evaporation Pond (UEP) that was used to store manufacturing wastewater, and from burning trenches and other industrial processes used to flash pyrotechnic, propellant, and explosive waste streams. The groundwater at LHAAP-18/24 is contaminated mainly with chlorinated ethenes and perchlorate, and with lesser concentrations of 1,4-dioxane.

The GWTP no longer receives flow from LHAAP-16 due to injections completed as a part of the final remedy implementation, which commenced in September 2019. The GWTP had previously received flow from eight extraction wells installed at LHAAP-16 as part of a historic treatability study. The extraction wells were installed in 1996 and 1997.

1.1 Treatment Configuration

The process flow diagram for the GWTP is presented in Appendix A, Figure A-2. Groundwater extraction, treatment, discharge, and monitoring activities consist of the following:

- Continuous extraction of groundwater from multiple ICTs and extraction wells located at LHAAP-18/24;
- Treatment of extracted groundwater for heavy metals, chlorinated compounds, and perchlorate using precipitation, air stripping, and biological methods, respectively;
- Evaluation of the hydraulic effectiveness of the extraction system by groundwater monitoring;
- Monitoring and analysis of treated groundwater to ensure compliance with the discharge limits; and Discharge of treated water to Harrison Bayou or to a holding pond (INF Pond) or the treated water may be released as irrigation water on LHAAP-18/24E.

Contaminated water from the extraction wells and ICTs is pumped into the GWTP and stored in the equalization storage tank. The contaminated water is then pumped to the pretreatment system for precipitation of metals. The sludge from the pretreatment system is delivered to the sludge treatment system to be thickened, air stripped of Volatile Organic Compounds (VOCs), and filter pressed for burial in a landfill. The water from the pretreatment system is delivered to the air stripper system for air stripping of VOCs. Water from the air stripper is stored in the effluent storage tank for further treatment by the perchlorate system, which consists of a Fluidized Bed Reason (FBR) and ion exchange (IX) vessels. The process flow diagram for the GWTP is presented in **Appendix A, Figure A-2**.

To provide the integration necessary for proper process management, a stand-alone central Programmable Logic Controller (PLC) and operator console is used to control all of the operating

systems of the GWTP. The belt filter press operates independently with a polymer pump and sludge feed pump interfaced with the central PLC.

The pretreatment system and air stripper system are equipped with instrument junction boxes and motor starter control panels. The control panels contain a transformer, run indication lights, motor starters, Hand or Automatic switches, and relays to interface with the central PLC. The control panels have monitors and/or logic to monitor the operating parameters and determine when abnormal conditions occur.

Interface relays will indicate to the central PLC that there is a problem within the systems. The central PLC will provide the logic for the proper action required for that specific set of circumstances.

The GWTP was not operational between 24 May 2012, and 6 September 2012, due to malfunction of the scrubber unit associated with the catalytic oxidizer. Since 6 September 2012, the GWTP has operated without air abatement equipment. Although major repairs were conducted on the GWTP (e.g., replacement of level alarms, repair of the hydrochloric acid [HCl] tank, replacement of TK-650, replacement of malfunctioning valves and flow meters, replacement of metering pumps, repair or replacement of various system pumps, rust removal and repainting of various tanks, and replacement and repair of various extraction pumps, motors, and level switches), the GWTP treatment configuration has remained relatively unchanged. The only exception to this is that IX vessels were installed in November 2018 following the FBR to further remove perchlorate prior to discharging to the INF pond.

1.1.1 Historical GWTP Operation

Malfunction of the blower on the air stripper (BL-340) on 14 September 2015, and on 17 September 2015, disrupted continuous extraction and routine operations of the GWTP, which lasted through 7 January 2016. Prior to this occurrence, the GWTP performed as designed and the GWTP was operated on an as needed basis (i.e., semi-continuous operational basis). During the 4th Quarter of 2015, groundwater was extracted from a limited number of ICTs (ICTs 12E, 13A, 13B, 13C, and/or 13E, or ICTs 14B, 14C, and 14D). Operation of the GWTP occurred on a batch basis through the FBR. After replacement of the blower, attempts were made to restore continuous operations to the FBR but they remained predominantly on a batch basis throughout January 2016.

In December 2016, an HCl spill caused plant operations to shut down until the issue could be properly addressed. The FBR performance was challenged by the increased chlorides in the neutralized wastewater, but performance gradually returned to normal in the 1st Quarter of 2017. Groundwater extraction was gradually increased to full rates during the 2nd Quarter of 2017.

On 12 August 2017, severe storms caused a power outage at LHAAP-18/24. When electrical service was restored, the main transformer failed due to a manufacturing defect. A portable emergency generator was brought on-site on 21 August 2017, to allow the FBR to operate in full recycle mode. After a replacement transformer was installed on 12 September 2017, extraction

began from ICT-13B, 13C, 13D, 13E, 13F, 7, and EW01 and the FBR was put into normal operation. Beginning on 21 September 2017, groundwater was extracted from all of the ICTs.

On 27 December 2018, severe storms caused a power outage in Karnack, Texas. When electrical service was restored, the main transformer was determined to have failed. A portable emergency generator was brought on-site on 28 December 2018, to allow the FBR to operate in full recycle mode. On 5 February 2019, the smaller generator mobilized in December 2018 was replaced with a larger generator capable of powering the LHAAP-18/24 well field and the entire GWTP.

On 8 February 2019, the transformer at the GWTP was tested to ensure that it could handle back feeding necessary to power the LHAAP-18/24 well field due to the necessary step-down in power from the generator. Following additional system modifications based upon the testing, the well field at LHAAP-18/24 had power restored on 11 February 2019, using the generator and transformer at the GWTP. From 28 October through 31 October 2019, Palmetto Services (Palmetto) was onsite to install new double walled pipe to 18WW17. The previous pipe had a leak and so the line had been stubbed off on 17 June 2019.

On 11 January 2020, a possible tornado and straight line winds came through the area and broke the power lines. The breaker was shut off at the transformer until power lines could be repaired on 14 and 15 January 2020, by Ark-La-Tex. On 18 January 2020, power was lost to the GWTP and it was discovered that there was a blown fuse on the power lines. Ark-La-Tex Electric was called to the site to replace the fuse and power was restored to the GWTP the same day. On 29 March 2020, there was a power glitch that caused the air compressors to shut down. The air compressors and FBR were restarted on the same day. On 13 April 2020, two trees fell across a power line and caused a loss of power to the plant. Ark-La-Tex removed the trees and restored power at 9:45 AM on 14 April 2020. On 2 May 2020, a tree fell across Southwestern Electric Power Company's (SWEPCO's) line inside the plant that feeds the GWTP. SWEPCO came out and removed the tree from the line. Power was restored the same day. On 29 December 2020, a housing was built for the acetic acid pump associated with the FBR to prevent rainwater from causing it to shut down.

On 13 February 2021, inclement weather began and it stayed below freezing until 20 February 2021. The level transmitter on TK-650 froze, making the discharge pump inoperable. The level transmitter was thawed out and pumping was restarted. On 20 February, the air compressors were able to be started again and the FBR began recirculating but the oxidation-reduction potential (ORP) was greater than the normal operating requirements. From 21 February through 9 March 2021, repairs from the freeze were made on broken polyvinyl chloride (PVC) pipe, valves, fittings, and level transmitters. The ORP on the FBR remained elevated and the FBR was in recycle mode until 25 March 2021 when the ORP returned to normal range and discharge to the Harrison Bayou was able to resume.

A power outage occurred on 12 - 13 May 2021, due to downed power lines. On 14 May 2021, Ark-La-Tex Electric was onsite to replace the broken power pole and repair broken power lines. On 28 May 2021, a power outage occurred at 0430, due to a downed tree. SWEPCO restored

power the following day on 29 May 2021. On 2 June 2021 elevated perchlorate effluent results, precipitated replacement on the acetic acid nutrient feed pump. Perchlorate effluent results dropped below discharge limits but not to expected concentrations. As a result, the FBR was placed in recycle mode from 18 June 2021 through the end of the 2nd Quarter 2021.

On 29 July 2021, Envirogen Technologies (Envirogen) mobilized to the site to troubleshoot the FBR. The plant was brought offline to diagnose why perchlorate effluent results remained elevated. Envirogen found the fluidization flow at 230 gallons per minute (gpm), and the inlet pressure to the FBR at 14 pounds per square inch (psi) as satisfactory. Envirogen determined that the inline potential of hydrogen (pH) probe was not calibrating properly and it was giving an incorrect reading of 7.4. At this time the pH reading was 8.24 which is above the enhanced FBR operating parameters. Ideally, the pH should be between 7.1 and 7.4 in the FBR. A high pH can inhibit biological activity. Envirogen recommended the installation and calibration of a new pH probe. A new inline pH probe was ordered and replacement and calibration are planned for the 2nd Quarter of 2022. In the interim, a handheld pH meter is being used to verify pH conditions in the FBR, and the acid feed is manually being adjusted as necessary.

Additionally, Envirogen noted that the granulated activated carbon (GAC) settled bed height was 6.33 feet and the expanded bed height was 9 feet. The design settled bed height for the GAC is 9 feet and the design expanded bed height is 15 feet, with the expanded bed height being a key performance indicator for the FBR. Therefore, Envirogen recommended the addition of two supersacks of GAC media. One supersack of GAC was delivered, pre-wetted, and loaded in the FBR on 29 July 2021. After the addition of one supersack of GAC the settled bed height was measured at 9.1 feet and the expanded bed height was measured at 11.3 feet. Additional GAC has been ordered and will be added to the FBR when available. The GWTP was brought back online on 3 August 2021.

Palmetto was onsite from 20 September through 24 September 2021 to replace sand in the sand filter. The sand in the sand filter collects debris that is filtered out of the water as designed. However, over time the debris restricts the flow of water through the filter. Therefore, the GWTP was taken offline on 20 September 2021 to replace the sand. Palmetto removed the sand and screens, acid washed the screens, put the screens back in place, and then added new sand using a crane. Approximately 4.5 tons of 10 x 20 silica sand and 12 tons of 8 x 12 silica sand was placed into the sand filter. While the plant was down for the sand filter activities, the 10-inch PVC line between the clarifier effluent and the sludge tanks was replaced, and the polymer feed line was unclogged. However, before the GWTP could be operated again, the HCl feed pump malfunctioned as discussed below in Section 1.1.2.

1.1.2 4th Quarter 2021 GWTP Operation

On 4 October 2021 the GWTP was unable to be operated due to a malfunctioning pump motor on the HCl feed pump (P-390). On 5 October 2021 Bloc Design Build, LLC (BLOC) was onsite to diagnose the problem with the HCl pump motor (P-390) which was seized and inoperable. A new pump motor was ordered and on 14 October 2021 BLOC returned and wired in the new motor on the HCl pump (P-390).

Upon arrival at the GWTP on 5 October 2021 there was no power at the GWTP. A blown fuse was found on SWEPCO's transformer. SWEPCO replaced the fuse, however, only partial power was restored to the GWTP on 5 October 2021. On 7 October 2021, Ark-La-Tex Electric was onsite to troubleshoot the electrical power issue and determined that the load break switch (commonly referred to as an arc strangler) was blown at the transformer at the GWTP and needed to be replaced. The load break switch malfunction had caused the fuse to fail, cutting power to the GWTP. On 11 October 2021 Ark-La-Tex Electric was onsite to repair the load break switch and restored power to the GWTP.

Following the restoration of power, and replacement of the HCl pump, the GWTP operation resumed on 18 October 2021. Additional details regarding maintenance performed on the GWTP is presented below in Section 1.2. Approximately, 206,329 gallons of water was processed in October 2021, 317,331 gallons were processed in November 2021, and 396,615 gallons were processed in December 2021. In total the GWTP processed 920,275 gallons of groundwater during the 4th Quarter 2021.

In the 4th Quarter 2021, flow rates for the treatment processes for metals and Volatile Organic Compounds (VOCs) ranged between 130 and 160 gpm with an average of approximately 136 gpm for the operating hours (i.e., this flow rate does not represent continuous flows). The GWTP operated for 112.25 hours during the quarter. The treatment configuration of the plant at these rates (with minor variations) is shown in the following tables.

GWTP Metals Precipitation Operating Parameters

Pretreatment Settings	Tank 200-A $Mg(OH)_2$ Mixing	Tank 200-B NaOH Mixing	Tank 200-C Polymer Mixing	Tank 300 feed line to Air Stripper
pH Adjustment	9.0	10.5	NA	5.0 to meet ≤ 8.0 release from stripper
Feed Pump Settings	Speed 100% Stroke 100% 10 gph $Mg(OH)_2$	Speed 100% Stroke 100% 9.0 gph NaOH	Speed 90% Stroke 100% 40 gph water	Speed 80% Stroke 80% 10 gph HCl
Notes: gph - gallons per hour, NaOH - sodium hydroxide, $Mg(OH)_2$ - magnesium hydroxide, NA - not applicable, % - percent, ≤ - less than or equal to.				

GWTP Air Compressors Operating Parameters

Air Compressors	K-700A	K-700B	K-701
Air Pressure Settings	88 psi	88 psi	105 psi

GWTP Stripper Operating Parameters

pH Setting	7.4
Inlet Pressure Gauge	Not operational
Stripper Pressure Gauge	Not operational
Air Flow Rate	Not operational

GWTP Fluidized Bed Reactor Operating Parameters

Carbon Bed Height	12 feet and 8 to 11 inches
Recycle Flow Rate	200 gpm
pH	7.1 to 7.4
Recycle ORP	<-430 mV
Note: mV – millivolts	

1.2 Work Performed at the GWTP

Groundwater extraction, treatment, discharge, and monitoring activities consist of:

- Continuous extraction of groundwater from multiple ICTs and extraction wells at LHAAP-18/24;
- Treatment of extracted groundwater for heavy metals, chlorinated compounds, and perchlorate using precipitation, air stripping, and biological methods, respectively;
- Evaluation of the hydraulic effectiveness of the extraction system by groundwater monitoring;
- Monitoring and analysis of treated groundwater to ensure compliance with the discharge limits; and
- Discharge of treated water to Harrison Bayou or to a holding pond (INF Pond).

Work performed at the GWTP during the 4th Quarter of 2021 is described in the following subsections.

1.2.1 Major Maintenance

The major maintenance items that were completed at the GWTP during this quarterly reporting period are:

- On 4 October 2021 the GWTP pump motor on the HCl feed pump (P-390) seized up. A new pump motor was ordered and on 14 October 2021 BLOC wired in the new motor on the HCl feed pump (P-390).
- On 5 October 2021 the load break switch blew at the transformer at the GWTP cutting power. On 11 October 2021 Ark-La-Tex Electric was onsite to repair the load break switch and restored power to the GWTP.
- On 5 November 21, the level transmitter on the FBR effluent storage tank (TK-650) froze up not allowing FBR effluent discharge pump (P-642) to come on causing FBR influent feed pump (P-175) to shut down. Level transmitter was thawed out and FBR was restarted.
- On 6 November 21, there was a power glitch at the GWTP causing the air compressors to shut down. Air compressors were restarted and FBR was restarted.
- On 27 November 21, there was a power glitch at the GWTP causing the air compressors to shut down. Air compressors were restarted and FBR was restarted.

- On 19 December 2021, the acetic acid feed pump (P-104) shut off due to rain, the pump was restarted and primed and FBR brought back to normal operating conditions.
- On 25 December 2021, the acetic acid feed pump (P-104) pulled air into the suction line causing the pump to lose prime, the air was removed from the suction line and pump was primed and FBR brought back to normal operating conditions.

1.2.2 Routine Maintenance

The following routine maintenance items were completed at the GWTP during 4th Quarter 2021:

- Performed housekeeping in GWTP office, Army trailer, around GWTP and containment area, and in GWTP Shop
- Removed and cleaned basket from 4-inch (”) strainer on discharge of FBR
- Replaced motor on P-390
- Mowed grass around GWTP, GWTP office, and Army trailer
- Cleaned level probes in ICT12A and 18WW17
- Replaced low level probe in ICT 8
- Replaced several light bulbs in GWTP office
- Rebuilt Grundfos pumps
- Repaired broken 3” and 4” PVC pipe and fittings on discharge of P-322
- Installed new chain on auger of clarifier
- Completed sampling of wells at Site 18/24
- Used shovel to remove large ant mounds around well pads at Site 18/24
- Worked on Kubota tractor
- Removed fallen tree from access road leading to well 18CPTMW16
- Replaced filter socks in filters before IX vessels
- Collected quarterly surface water samples
- Installed new insulated foam board on top of enclosure around chemical feed pumps on FBR

1.2.2.1 Lubrication

No lubrication maintenance was conducted during 4th Quarter 2021.

1.2.2.2 Air Compressors

The following air compressor maintenance was conducted during the reporting period:

- Replaced air regulator on FV-322
- On 20 October 2021 and 29 December 2021, oil was added to air compressor K-700B.

1.2.2.3 Belt Press and Waste Disposal

No belt press or waste disposal was conducted during 4th Quarter 2021.

1.2.2.4 Sand Filter

No maintenance or repairs were conducted on the sand filter (FL-290) during 4th Quarter 2021.

1.2.2.5 Well Field at LHAAP-18/24

The following activities were conducted at the well field at LHAAP-18/24 during the reporting period:

- Measured monthly water levels
- Used bush-hog and weed eater around wells at Sites 58, 18/24 & 12

1.2.2.6 Miscellaneous Activities

No miscellaneous activities were performed during the reporting period.

1.2.3 Routine Maintenance (Potable Water Wells)

The following activity was conducted during the reporting period:

- Flushed potable water lines

1.3 Filter Cake Operations and Management

No filter cake operations took place during 4th Quarter 2021.

1.4 Fluidized Bed Reactor Operations

The operating parameters for the GWTP FBR are presented in **Table 1**. Measurements indicating pH or ORP values that fell outside of the optimal range are highlighted gray. No measurements were taken on 5 October – 11 October 2021, due to the aforementioned power outages.

Table 1. Enhanced Fluidized Bed Reactor Operating Parameters – 4th Quarter 2021

Date	pH (7.1-7.4)	ORP (< -430 mV)	Temperature (Degrees Fahrenheit)
10/1/2021	7.9	-521	84
10/2/2021	7.9	-519	83
10/3/2021	7.9	-513	83
10/4/2021	7.9	-523	82
10/5/2021	No power	No power	No power
10/6/2021	No power	No power	No power
10/7/2021	No power	No power	No power
10/8/2021	No power	No power	No power
10/9/2021	No power	No power	No power
10/10/2021	No power	No power	No power
10/11/2021	No power	No power	No power
10/12/2021	7.9	-519	80
10/13/2021	7.9	-525	81
10/14/2021	7.9	-520	82
10/15/2021	7.9	-517	81
10/16/2021	7.9	-520	79

Date	pH (7.1-7.4)	ORP (< -430 mV)	Temperature (Degrees Fahrenheit)
10/17/2021	7.9	-521	77
10/18/2021	7.9	-470	72
10/19/2021	7.9	-494	70
10/20/2021	7.9	-517	72
10/21/2021	7.9	-527	74
10/22/2021	7.9	-519	74
10/23/2021	7.9	-521	75
10/24/2021	7.9	-523	76
10/25/2021	7.9	-522	77
10/26/2021	7.9	-526	77
10/27/2021	7.9	-525	77
10/28/2021	7.9	-530	75
10/29/2021	7.9	-525	74
10/30/2021	7.9	-523	72
10/31/2021	7.9	-519	71
11/1/2021	7.9	-450	68
11/2/2021	7.9	-522	67
11/3/2021	7.9	-525	64
11/4/2021	7.9	-526	65
11/5/2021	7.9	-512	63
11/6/2021	7.9	-516	63
11/7/2021	7.9	-520	62
11/8/2021	7.9	-470	63
11/9/2021	7.9	-524	63
11/10/2021	7.8	-526	63
11/11/2021	7.8	-523	64
11/12/2021	7.8	-524	63
11/13/2021	7.8	-526	63
11/14/2021	7.8	-520	62
11/15/2021	7.8	-529	63
11/16/2021	7.8	-531	65
11/17/2021	7.8	-526	66
11/18/2021	7.8	-524	66
11/19/2021	7.8	-522	65
11/20/2021	7.8	-520	65
11/21/2021	7.8	-517	64
11/22/2021	7.7	-459	64
11/23/2021	7.7	-506	63

Date	pH (7.1-7.4)	ORP (< -430 mV)	Temperature (Degrees Fahrenheit)
11/24/2021	7.7	-514	63
11/25/2021	7.7	-518	62
11/26/2021	7.7	-521	61
11/27/2021	7.7	-525	60
11/28/2021	7.7	-527	60
11/29/2021	7.7	-530	61
11/30/2021	7.7	-534	61
12/1/2021	7.7	-534	62
12/2/2021	7.7	-537	62
12/3/2021	7.7	-530	63
12/4/2021	7.7	-524	64
12/5/2021	7.7	-521	65
12/6/2021	7.7	-530	66
12/7/2021	7.7	-536	64
12/8/2021	7.7	-533	64
12/9/2021	7.7	-540	65
12/10/2021	7.7	-523	65
12/11/2021	7.7	-525	63
12/12/2021	7.7	-519	61
12/13/2021	7.7	-474	60
12/14/2021	7.7	-501	62
12/15/2021	7.7	-534	64
12/16/2021	7.7	-498	66
12/17/2021	7.7	-520	64
12/18/2021	7.7	-517	63
12/19/2021	7.7	-507	62
12/20/2021	7.7	-524	61
12/21/2021	7.7	-461	57
12/22/2021	7.7	-495	58
12/23/2021	7.7	-509	60
12/24/2021	7.7	-515	61
12/25/2021	7.7	-519	62
12/26/2021	7.7	-522	64
12/27/2021	7.7	-456	67
12/28/2021	7.7	-496	67
12/29/2021	7.7	-486	67
12/30/2021	7.7	-495	66
Note: Shaded regions = pH outside of operating parameters			

On 29 July 2021, Envirogen was onsite and identified that the inline pH probe was not working properly. As a result, pH was measured manually from 29 July 2021 through the end of the 4th Quarter 2021 reporting period. The elevated pH shaded grey in **Table 1** above was identified as one of the issues contributing to the poor performance of the FBR. The inline pH probe is on back order with delivery estimated for the 2nd Quarter of 2022.

1.5 Process Chemical Usage at GWTP

Approximate chemical consumption and the quantity delivered during the 4th Quarter of 2021 are shown in **Table 2**.

Table 2. Chemical Usage and Delivery Table

Chemical	Usage 4th Quarter 2021	Quantity Delivered 4th Quarter 2021
Hydrochloric acid	385 gallons	0
Sodium hydroxide (35%)	550 gallons	0
Acetic acid (50%)	1 drum = 55 gallons	0
Phosphoric acid (75%)	63.8 liters	0
Magnesium hydroxide	110 gallons	0
Urea	472.6 pounds (lbs)	18 bags = 900 lbs
Polymer (Magnafloc 110-L)	6.6 liters	0

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2 EVALUATION OF LHAAP-18/24 ICT EFFECTIVENESS

The ICT system at Burning Ground No. 3 is composed of 14 sections ranging in length from 100 feet (ft) to 1,300 ft. A total of approximately 5,000 linear ft of trench was installed within and around three sides of Burning Ground No. 3. The trench sections extend approximately 22 ft to 45 ft below ground surface (bgs). Most, but not all of the trenches are as deep as the confining clay layer of the shallow groundwater zone. High density polyethylene (HDPE) liners were installed outside of ICTs 12A-12E and 13A-13G, located on the southwestern and northwestern boundaries of LHAAP-18/24, respectively. The locations of the liners are shown on **Figure A-1** in **Appendix A**. **Table A-1** in **Appendix A** presents the depths of the ICTs.

2.1 Groundwater Elevation

Water levels from 92 monitoring wells and 11 piezometers are measured monthly to generate potentiometric surface maps that assist in monitoring the effectiveness of the groundwater extraction system on plume containment. Piezometer 12 (BGPZ-12) was damaged and plugged and abandoned in May 2013, and monitoring wells 18WW01 and 18WW16 were abandoned in August 2020. The groundwater contours are generated using the water levels from the shallow zone and Wilcox Formation wells. The water level data are presented in **Table 3**. No reinjection of treated groundwater or reapplication of groundwater to LHAAP-18/24 grounds via the existing irrigation system occurred during the 4th Quarter of 2021. Groundwater elevations measured during 4th Quarter of 2021 are discussed in Section 2.2. Potentiometric surface maps based on the groundwater elevations measured during 4th Quarter 2021 are contained in **Appendix B**.

2.2 Performance of Plume Capture

The intent of the ICTs is to control groundwater gradients, prevent off-site migration of contaminated groundwater, extract the most highly contaminated groundwater, and reduce the mass of contaminants in groundwater. Liners were installed in the ICTs on the northern (ICT 13) and western (ICT 12) site boundaries to limit migration of contaminated water from the site towards Harrison Bayou. At the same time, the liners reduce or prevent removal of contaminated groundwater that is outside the ICT containment area, between the site and Harrison Bayou. The ICTs are installed within the shallow subsurface at the site and capture primarily shallow groundwater (e.g., < 40 ft bgs).

In 2007 and 2008, in consultation with the Texas Commission on Environmental Quality (TCEQ) and the United States Environmental Protection Agency (USEPA), the Army ceased operations of ICTs 1, 3, 5, 10, 12A and 13G for groundwater extraction (note that extraction from ICT 12A was resumed after pump replacement in December 2012). Two other ICTs (ICT 6 and ICT 9) were changed from extraction ICTs to re-injection ICTs which ceased in July 2012. Groundwater extraction from well EW-1 located in the northeast central portion of the site began in October 2008 and well 18WW17 located to the northeast of the ICT containment area began in January 2008. **Table A-2** in **Appendix A** presents a summary of extraction equipment replacement since 2011, as dictated by poor extraction performance (malfunctioning pumps, poor pump positioning

with respect to groundwater, non-operational level probes, scale build up, etc.). Further discussion of extraction performance of various ICTs and extraction wells is presented in Section 2.3.

Potentiometric surface maps of the shallow zone groundwater in the vicinity of LHAAP-18/24, based on groundwater elevations measured on 27 October, 30 November, and 22 December 2021, are shown on **Figures B-1, B-2, and B-3 in Appendix B**, respectively. The potentiometric surface maps of the shallow zone were contoured using the Kriging geostatistical interpolation method included in the Golden Software Surfer® data analysis software.

The HDPE liners in the ICTs, where present, continue to retard groundwater flow. Additional data was collected outside of the ICT boundaries during the December 2021 semi-annual sampling event for LHAAP-18/24. The additional information has been used to update and revise the potentiometric surface contours for the area located outside of the ICTs. The potentiometric surface maps for October through December 2021 continue to reflect high groundwater elevations in the northern/northwestern portion of the site with groundwater flowing radially from groundwater highs at monitoring wells located inside the ICT containment area. Monitoring wells AWD-2 and 123, which are installed in the shallow zone, had groundwater elevations in December 2021 of 173.88 ft above mean sea level (amsl) and 175.16 ft amsl, respectively. Monitoring wells AWD-2 and 123 are in close proximity to one another. From the groundwater high at monitoring wells AWD-2 and 123, groundwater flows radially towards the surrounding ICTs which include ICT 13 to the north and northwest, and ICT 12 to the west and southwest.

The extracted groundwater volume was measured on a monthly basis as the sum of the difference between the flow meter totalizer reading at each ICT between the beginning and end of each month. During 4th Quarter 2021, approximately 390,537 gallons of groundwater were extracted from the ICTs for treatment, 143,463 gallons in October 2021; 106,305 in November 2021; and 140,769 gallons in December 2021.

During 4th Quarter 2021, no treated groundwater was discharged to Harrison Bayou from the GWTP. There was little to no flow in Harrison Bayou, therefore no water was discharged to the Bayou, only the INF Pond. No treated groundwater from the GWTP was returned to LHAAP-18/24 via the sprinkler system. **Table 4** presents the daily discharge rates and volume for the 4th Quarter of 2021. On 29 December 2021 during routine INF Pond staff gauging, it was observed that there was vandalism to the locked access gate and an estimated 271,500 gallons of treated groundwater had been released via the drain valve to the Harrison Bayou. It should be noted that on 27 December 2021, during routine staff gauging at the INF Pond the drain valve was closed, indicating that un-granted access and release of groundwater occurred sometime between the evening of 24 December 2021 and the morning of 27 December 2021. In response to the vandalism, the access gate will be repaired during the next reporting period. Additional, security measures such as the use of video monitoring are being evaluated to prevent further vandalism.

Groundwater levels in Wilcox Formation wells (generally > 40 to 50 ft bgs) were measured during the 4th Quarter of 2021 groundwater gauging events. Wilcox Formation wells correspond generally to those wells previously identified as "intermediate" and "deep" wells. "Intermediate" wells are designated as Upper Wilcox Formation wells and "Deep" wells are designated as Lower Wilcox Formation wells. Generally, groundwater in the Upper and Lower Wilcox Formation wells are in hydraulic communication and so can be treated as a single hydrogeologic unit. Therefore, the groundwater elevations in Upper Wilcox wells were used to construct the potentiometric surface maps for the Wilcox Formation. It is noted that there are locations where groundwater elevation and contamination concentration data indicate a lack of hydraulic communication between the Upper and Lower Wilcox formation wells. However, the Upper and Lower Wilcox formation wells are generally treated as a single hydrogeologic unit for the purposes of this report. **Figures B-4, B-5, and B-6 in Appendix B** show the locations of the Wilcox Formation monitoring wells and the potentiometric surface of the Wilcox Formation, based on static water levels measured during the October, November, and December 2021 gauging events, respectively. Groundwater in the Wilcox Formation generally flows in a northerly direction, towards Caddo Lake and there is a downward vertical gradient between the overlying shallow zone and the Wilcox Formation. A groundwater high is present in the Wilcox Formation in the area of MW-14.

2.3 Quantity of Water Extracted from LHAAP-18/24

The average daily extraction rates from the ICTs were approximately 4,628 gallons per day (gpd) in October 2021, approximately 3,544 gpd in November 2021, and approximately 4,541 gpd in December 2021 (**Table 5**).

The volume of groundwater removed from LHAAP-18/24 during the 4th Quarter of 2021 measured approximately 422,084 gallons based on the influent totalizer (FIT-140). **Figure 2-1** shows the historical trends of extracted volumes based on the influent totalizer by quarter.

In contrast to the approximate total extracted volume based on total flow measured at the GWTP, the total estimated volume discharged to the INF Pond (**Table 4**) following treatment by the GWTP was 263,411 gallons discharged in the 4th Quarter of 2021. The difference between the total extracted and total discharged volumes during the 4th Quarter of 2021 is approximately 158,673 gallons as of 29 December 2021. The discrepancy in extracted and discharged volumes can be partially accounted for due to the storage capacity of the plant in the equalization tank (TK-140) and the effluent storage tank (TK-630), and to a lesser extent the volume of water loss by evaporative losses and water within the plant. Effluent from LHAAP-18/24 is pumped to the GWTP and is stored in the 300,000 gallon equalization tank (TK-140). The equalization tank stores water until it is run through the treatment process and acts as a batch tank. All the groundwater that is pumped from LHAAP-18/24 doesn't necessarily run through the GWTP before the end of the reporting period. Therefore the storage capacity of the plant is estimated to account for the discrepancy. The repairs completed in the 3rd Quarter 2021 have allowed the GWTP to operate more efficiently during the 4th Quarter of 2021. The discrepancy between influent and effluent volume should continue to decline in the 1st Quarter 2022.

As indicated by **Table 5**, 20 of 28 ICTs and wells produced water in the 4th Quarter 2021. ICTs 1, 3, 5, 10, 13C, 13G, 14C, and 14D did not produce water in the 4th Quarter of 2021. ICTs 1, 3, 5, and 10 were deactivated on 18 February 2008 as part of a pilot study for system optimization. ICT 13G is dry and no longer active. ICT 12D produced water in October 2021, but due to malfunctioning motor produced no water for November and December 2021. ICT 13B and ICT 13C need new pumps. ICTs 14C and 14D need new wiring harnesses and/or motors. Additional evaluation of ICTs 7, 8, 12C, and 13C is necessary to determine why low volumes of water were produced in the 4th Quarter 2021. ICT repairs are planned for the 1st Quarter 2022.

ICT repairs completed in 4th Quarter 2021 included replacement of the breaker in ICT 13A and cleaning and replacement of level probes on ICT 8 and ICT 12A.

2.4 Sampling Activities at LHAAP-18/24

Groundwater sampling was completed at LHAAP-18/24 in accordance with the requirements documented in the Final Revised Installation-Wide Work Plan (Bhate Environmental Associates, Inc. [Bhate], May 2018). The following 54 monitoring wells were sampled during the 4th Quarter of 2021: AWD-1, 18CPTMW01SW, 18CPTMW03SW, 18CPTMW04, 18CPTMW04SW, 18CPTMW06, 18CPTMW07, 18CPTMW08SW, 18CPTMW08DW, 18CPTMW10SW, 18CPTMW10DW, 18CPTMW12SW, 18CPTMW12DW, 18CPTMW14, 18CPTMW15, 18CPTMW16, 18CPTMW19, 18CPTMW22R, 18CPTMW22SW, 18CPTMW23, 18CPTMW24, 1824DPTMW01, 1824DPTMW02, 1824DPTMW03, 1824DPTMW04, 1824DPTMW05, 1824DPTMW06, 18WW02, 18WW06, 18WW08, 18WW10, 18WW17, 18WW22, 18WW24, C-03, C-08, MW-2, MW-3, MW-5, MW-7, MW-8, MW-9, MW-14, MW-16, MW-17, MW-18, MW-19, MW-21, MW-22, MW-23, 109, 120, 125, and 126. These were sampled between 6 December and 20 December 2021. None of the ICTs were sampled in the 4thQuarter of 2021.

Monitoring wells AWD-3, AWD-4, MW-10, 18CPTMW18, C-09, and MW-20 are typically sampled during Quarter 4. However, in December 2021, these six monitoring wells were not sampled as requested by the Army. Monitoring wells 1824DPTMW01 through 1824DPTMW06 were selected to be sampled in their place. Sampling of AWD-3, AWD-4, MW-10, 18CPTMW18, C-09, and MW-20 will continue in 2nd Quarter of 2022 (June) and 4th Quarter of 2022 (December).

The analytical results are presented in **Table 6**. Laboratory data packages are provided in **Appendix C**. Parameters exceeding their respective Maximum Contaminant Levels (MCLs), Medium Specific Concentrations (MSCs), or PCLs are as follows: perchlorate; 1,1,2-trichloroethane; 1,1-dichloroethene (DCE); 1,2-dichloroethane (DCA); benzene; carbon tetrachloride; cis-1,2-DCE; methylene chloride (MC); tetrachloroethene (PCE); trichloroethene (TCE); vinyl chloride (VC); arsenic; barium; chromium; manganese; nickel; and 1,4-dioxane.

Groundwater chemicals of concern (COC) maps showing the results of the December 2021 groundwater sampling event for perchlorate, TCE, and MC are presented by shallow aquifer zone and Wilcox Formation as **Figures D-1 through D-6** in **Appendix D**.

2.4.1 LHAAP-18/24 Analytical Results

Perchlorate exceedances of the (PCL [17 µg/L]) in the shallow zone groundwater ranged from 19.8 µg/L in 1824DPTMW01 to 402,000 µg/L in 1824DPTMW05 (**Table 6**). The highest perchlorate concentrations in the shallow zone were observed in MW-7, MW-23, 18WW08, MW-109, MW-120, 1824DPTMW02 and 1824DPTMW05, with concentrations in these wells ranging between 15,200 micrograms per liter (µg/L) in 120 to 402,000 µg/L in 1824DPTMW05 (**Figure D-1**). Shallow groundwater zone monitoring wells 1824DPTMW01 through 1824DPTMW05 were sampled for the first time in December 2021.

Perchlorate was detected below the PCL (17 µg/L) at 1824DPTMW03 and 1824DPTMW04. However, elevated perchlorate was detected at 1824DPTMW02, outside of the northeast ICT boundary at 107,000 µg/L and at 1824DPTMW05, inside the ICT boundary at 402,000 µg/L. The perchlorate concentration in 18CPTMW23, which is located northwest just outside of the LHAAP-18/24 boundary, was reported at 4.63 µg/L. The perchlorate concentration in 18CPTMW23 was 253 µg/L in June 2021. Based on the last 3 years of perchlorate data (December 2019 through December 2021), the December detections in the shallow zone wells are regularly orders of magnitude lower due to decreased rainfall. These changes in concentration are likely influenced by groundwater level fluctuations, rain amounts, and performance of the ICTs.

Perchlorate exceedances of the (PCL [17 µg/L]) in the Wilcox Formation ranged from 129 µg/L in 18CPTMW04 to 164,000 µg/L in MW-14 (**Table 6**). Perchlorate in the Wilcox Formation was identified at an elevated concentration in MW-14, with a reported December 2021 concentration of 164,000 µg/L. This December 2021 detection is less than the detection in June 2021 of 198,000 µg/L. Perchlorate in the Wilcox Formation was detected in 18CPTMW08SW at a concentration of 19,700 µg/L (**Figure D-2**), which is consistent with the concentrations reported in December 2020 (18,400 µg/L) and the June 2021 concentration of 18,700 µg/L. Perchlorate concentration decreases rapidly downgradient from 18CPTMW08SW. Monitoring well 18CPTMW08DW contained an elevated concentration of perchlorate at 4,240 µg/L compared to 2,490 µg/L in June 2021. However, the December 2021 perchlorate detection is less than the detection of 4,300 µg/L in June 2019.

The highest TCE detection in the shallow zone was 4,900 µg/L in monitoring well 120 (**Figure D-3**), which is less than the December 2020 detection of 5,700 µg/L and the June 2021 detection of 7,600 µg/L. This is a significant decrease compared to the June 2018 concentration of 17,000 µg/L and the December 2018 concentration of 22,000 µg/L. Monitoring wells 1824DPTMW02 and 1824DPTMW05, which were sampled for the first time in December 2021 had TCE detections of 190 µg/L and 4,600 J (estimated concentration) µg/L, respectively. Monitoring well 1824DPTMW04 had a detection of TCE (1.3 µg/L) below the MCL (5 µg/L). TCE was not detected in December 2021 at monitoring wells 1824DPTMW01 and 1824DPTMW03.

TCE in the Wilcox Formation was generally present at low concentrations with the exception of monitoring well MW-14 (**Figure D-4**) with a concentration of 6,200 µg/L in December 2021. Although the December 2021 TCE detection at MW-14 is higher than the December 2020 TCE detection (4,400 µg/L), the concentration of TCE decreased from a concentration of 9,000 µg/L

in June 2021. A TCE concentration of 230 µg/L was reported in December 2021 in 18CPTMW01SW, an increase from 42 µg/L in December 2020 and 180 µg/L in June 2021.

The elevated concentration of MC above the MCL (5 µg/L) in the shallow zone remains centered on MW-2 with a concentration of 1,900 µg/L (duplicate result). The concentrations of MC in MW-2 have fluctuated since June 2017; however, MC was 290,000 µg/L as recently as June 2020. No MC detections were noted in monitoring wells 1824DPTMW-01 through 1824DPTMW05 in December 2021. The extent of MC in the shallow formation is depicted on **Figure D-5**.

MC in the Wilcox Formation was detected in 18CPTMW01SW at 21,000 µg/L in December 2021. This was a marked increase from the June 2021 MC concentration of 3,300 µg/L and an increase from the concentration of 100 µg/L reported in June 2019 and of 1,600 µg/L in December 2018. MC was not detected at 18CPTMW01SW in June or December 2020. The concentrations of MC in the Wilcox Formation are shown on **Figure D-6**.

2.4.2 LHAAP-18/24 Trend Analysis

Time-series graphs for the shallow zone and Wilcox Formation wells are presented in **Appendix E**. Graphs for shallow zone wells 18WW08, C-08, MW-2, MW-7, MW-8, MW-16, MW-17, MW-21, MW-22, MW-23, MW-109, MW-120, and MW-126 are included. Graphs for Wilcox Formation wells C-03 and MW-14 are also included.

2.4.2.1 Shallow Zone Trend Analysis

The following observations were made for the shallow zone groundwater, based on the December 2021 groundwater monitoring results:

- 18WW08 is located north-northwest of the site in the shallow zone. Perchlorate increased significantly to 23,600 µg/L in December 2021 compared to 1,520 µg/L in June 2021. Historical, detections have fluctuated from 20,300 µg/L in November 2003, to non-detect in June 2019. Perchlorate detections have seasonal fluctuations at this well. The concentration of MC continues to be non-detect in 18WW08. TCE was detected at 10 µg/L in December 2021, and has increased compared to recent sampling events including 3.9 µg/L in June 2021 and 3.8 µg/L in December 2020.
- C-08 is located to the northeast of the ICT containment area in the shallow zone. Perchlorate was detected at a low concentration of 0.273 µg/L in December 2021. Perchlorate has been non-detect since December 2018. MC remained below the detection limit in C-08. TCE increased slightly in December 2021 to 1.3 µg/L and 0.87 µg/L in June 2021. However TCE remains relatively the same as compared to December 2020 (1.5 µg/L). TCE concentrations are trending down.
- MW-2 is located inside the ICT containment area in the shallow zone. Perchlorate was detected at a low concentration of 0.281 µg/L (duplicate result) in December 2021. Perchlorate was non-detect in since December 2018. MC has significantly decreased from 510,000 µg/L in June 2019; to 290,000 µg/L in June 2020; to 6,400 µg/L in June 2021; and then to 1,900 µg/L (duplicate result) in December 2021. The TCE concentration decreased

in December 2021 to 3,600 µg/L from 6,200 µg/L in June 2021 and 6,900 µg/L in December 2020. Overall TCE concentrations are trending down. Both MC and TCE fluctuate seasonally at this well.

- Monitoring wells MW-7, MW-8, and MW-17 are located to the southwest of the ICT containment area in the shallow zone.
  - Perchlorate increased in MW-7 to 16,300 µg/L in December 2021 from 13,100 µg/L in June 2021. However, both the June and December 2021 perchlorate concentrations represent an overall decrease from 20,300 µg/L in June 2020 and 25,000 µg/L in December 2019. TCE at MW-7 decreased to 1,700 µg/L in December 2021, from 2,000 µg/L in June 2021 and 2,700 µg/L in December 2020. This well has seen an upward swing in TCE from 1,300 µg/L in June 2019. MC was detected at MW-7 at an estimated concentration of 9.2 µg/L in December 2021. Previously, MC has been non-detect at MW-7 since June 2013.
  - Perchlorate increased in MW-8 to 3,880 µg/L in December 2021 from 2,500 µg/L in June 2021. However, perchlorate is still trending down from a historical high of 78,000 µg/L in March 2012. TCE at MW-8 was detected at 200 µg/L in December 2021 and has remained relatively stable since December 2019 (180 µg/L). TCE and perchlorate both fluctuate seasonally at this well. MC remained below the detection limit in MW-8.
  - Perchlorate was detected at MW-17 at a low estimated concentration of 0.0282 J µg/L in December 2021. The perchlorate concentration in MW-17 had previously remained below the detection limit since June 2016. TCE and MC were not analyzed at MW-17 in December 2021.
- MW-16 is located west of the site in the shallow zone. Perchlorate was detected at a low estimated concentration in MW-16 at 0.0269 J µg/L in December 2021 and not detected (at 0.05 µg/L) in June 2021, a decrease as compared to 1.07 µg/L in December of 2020, and a significant decrease from 848 µg/L in June 2020. Historical detections at this well include a low 1.8 J µg/L in December 2019 but the well had a concentration of 2,900 µg/L in June 2019. TCE decreased in December 2021 to 380 µg/L compared to 960 µg/L in June 2021, and 440 µg/L in December 2020. Historical detections include 1,200 µg/L in June of 2020, 550 µg/L in December 2019, and 1,200 µg/L in June 2019. This variability in the TCE detection has been observed since 2014. MC remained below the detection limit.
- MW-21 is located on the eastern side of the site in the shallow zone. The perchlorate concentration in MW-21 continued to decrease to 9,660 µg/L in December 2021 from 10,600 µg/L in June 2021, 25,500 µg/L in December 2020, and from 33,200 µg/L in June 2020. Previous detections include 13,000 µg/L in December 2019 and 24,000 µg/L in June 2019. Perchlorate fluctuates seasonally at this well, but was detected at the lowest concentration to date in December 2021. MC remained below the detection limit. TCE in MW-21 increased to 4,500 µg/L in December 2021 from 3,900 µg/L in June 2021. However, both the June and December 2021 TCE detections represent a decrease from 8,700 µg/L in December 2020, and 7,200 µg/L in June 2020. TCE is trending stable overall.

- MW-22 is located in the east-southeast portion of the site in the shallow zone. Perchlorate increased in December 2021 to 1,060 µg/L compared to 484 µg/L in June 2021 and 474 µg/L in December 2020. The TCE concentration in MW-22 increased to 380 µg/L in December 2021 as compared to 220 µg/L in June 2021. Previous TCE concentrations include 420 µg/L in December 2020, 400 µg/L in June 2020, 240 µg/L in December 2019, and 230 µg/L in June 2019. This variability in the TCE detection has been observed since 2013. MC remained below the detection limit.
- MW-23 is located in the south central portion of the site in the shallow zone. Perchlorate detected in MW-23 increased to 81,600 µg/L in December 2021 from a concentration of 76,800 µg/L in June 2021, and a concentration of 66,900 µg/L in December 2020. Perchlorate has slightly increased from a concentration of 80,000 µg/L in December 2019. TCE increased to 3,100 µg/L in December 2021 from 2,200 µg/L in June 2021, 2,800 µg/L in December 2020, 2,300 µg/L in June 2020, and 3,000 µg/L in December 2019. MC was detected at 6.7 µg/L in December 2021, but had previously remained below the detection limit since June 2015.
- MW-109 is located in the northeastern portion of the site in the shallow zone. MW-109, saw an increase of perchlorate to 21,500 µg/L in December 2021 from 20,400 µg/L in June 2021. The June and December 2021 perchlorate detections are a marked increase from 4,350 µg/L in December 2020, and from the June 2020 concentration of 10,500 µg/L. Conversely, TCE decreased to 120 µg/L in December 2021 from 240 µg/L in June 2021, from 400 µg/L in December of 2020, and from 310 µg/L in June 2020. December 2019 saw a concentration of 400 µg/L, which was an increase compared to 130 µg/L in June 2019. TCE and perchlorate both fluctuate seasonally at this well. MC remained below the detection limit.
- MW-120 is located on the west side of the site in the shallow zone. Perchlorate in MW-120 increased to 15,200 µg/L in December 2021, from 12,000 µg/L in June 2021, and from 13,600 µg/L in December 2020. The perchlorate levels are overall trending down. MC has remained below the detection limit since June 2015. TCE decreased to 4,900 µg/L in December 2021, from 7,600 µg/L in June 2021, and from 5,700 µg/L in December 2020. TCE concentrations continue on an overall downward trend.

As of December 2021, monitoring well MW-126 had no detections of TCE or MC and perchlorate was detected a low concentration of 0.658 µg/L. This well confirms that the extent of groundwater contamination in the shallow zone is currently delineated to the south.

2.4.2.2 Wilcox Formation Trend Analysis

The following observations were made for the Wilcox Formation groundwater, based on the December 2021 groundwater monitoring results:

- C-03 is a Wilcox Formation well located northeast of the ICT containment area. Perchlorate increased to 220 µg/L in December 2021 compared to 67.7 µg/L in June 2021, 0.970 J µg/L in December of 2020, and from non-detect in June 2020. However, perchlorate has

decreased compared to 619 µg/L in September 2012. TCE was last detected at 0.491 µg/L in December 2019 and has remained non-detect since MC has remained non-detect since December 2014.

- MW-14 is located inside the containment area in the Wilcox Formation. The current concentration of perchlorate in MW-14 decreased to 164,000 µg/L in December 2021 compared to 198,000 µg/L in June 2021. Perchlorate has fluctuated historically, with recent detections including 73,800 µg/L in December 2020, 158,000 µg/L in June 2020, and 130,000 µg/L in December 2019. These levels reflect a seasonal fluctuation but are overall trending downward from a historical high concentration of 288,000 µg/L detected in December 2015. The concentration of TCE decreased to 6,200 µg/L in December 2021, compared to 9,000 µg/L in June 2021, 4,400 µg/L in December 2020, 7,700 µg/L in June 2020, and from 9,200 µg/L in December 2019. Overall TCE levels continue to trend downward at this well. MC remained below the detection limit.

In general, other than the changes observed above in perchlorate, TCE, and MC concentrations, the COC concentration trends indicate that the plumes are stable, supporting the conclusion that the extraction system is effective in minimizing contaminant transport offsite and reducing COC concentrations.

2.5 Groundwater Treatment Plant Sampling and Analysis

Sampling and analysis was conducted in accordance with the requirements specified in the Final Revised Sampling and Analysis Plan (AECOM Technical Services [AECOM], Inc., September 2017). Besides the Record of Decision (ROD) sampling requirement, additional sample analyses are typically performed on the influent and effluent samples to monitor the effectiveness of the perchlorate treatment (FBR and/or IX vessels) process. Sections 2.5.1 through 2.5.4 present the results of analyses conducted during the 4th Quarter of 2021. The complete laboratory results are provided electronically as a separate file (**Appendix F**).

2.5.1 Weekly Perchlorate Sampling

Table 7 presents the weekly effluent perchlorate results for the 4th Quarter of 2021. Perchlorate was detected in one of the effluent samples collected during the 4th Quarter of 2021, above the Harrison Bayou Maximum Allowable Daily Discharge Perchlorate Concentration (589 µg/L). The effluent sample collected on 20 October 2021 (LH18/24-SP650_102021_BIX) had a perchlorate detection of 3,020 µg/L. The 20 October 2021 effluent sample was collected before the IX vessel (BIX) treatment and was not discharged without being treated by the IX process. In October 2021, treated groundwater was discharged to the INF Pond due to low flow within Harrison Bayou. As a result, the treated groundwater from the 20 October 2021 effluent sample was also run through the IX vessels prior to discharge to the INF Pond. The weekly effluent sample collected on 25 October 2021 (LH18/24-SP650_102521_AIX) was collected after the first IX vessel (AIX), and confirms that perchlorate was not detected in the treated groundwater discharged to the INF Pond. Perchlorate was detected below the PCL (17 µg/L) in the remaining weekly effluent samples in October, November, and December 2021.

2.5.2 Monthly VOC Sampling

Tables 8, 9, and 10 present the effluent VOC results for October, November, and December 2021. Sampling of the effluent for VOCs was conducted on a biweekly basis. The results were below the discharge limits. No monthly influent or effluent samples were collected in October 2021 as the GWTP was under maintenance and was not operating during much of the month, due a power outage, load switch repair, and HCl pump motor repair activities. Once the plant was brought back online on 18 October 2021, weekly effluent sampling was conducted on 20 October 2021 and 25 October 2021 to evaluate FBR performance but no treated groundwater was discharged until November 2021. The GWTP was operating in recycle mode from 20 October 2021 to 1 November 2021 while waiting on weekly effluent sample confirmation. Additionally, no monthly influent or effluent samples were collected in December 2021. Due to the holidays and sampling activities at LHAAP-18/24, monthly sampling of the GWTP was inadvertently omitted in December 2021. In response, weekly planning and tracking of GWTP sample collection will be conducted moving forward to ensure compliance with GWTP sampling protocols.

2.5.3 Monthly Metals Sampling

Table 9 presents the monthly influent and effluent metals results for November 2021. Sampling of the influent and effluent for metals is typically conducted on a monthly basis per the Final Installation-Wide Work Plan (Bhate, May 2018). However, no monthly influent or effluent samples were collected in October 2021 as the GWTP did not operate for much of the month due a power outage, load switch repair, and HCl pump motor repair activities. No treated water was discharged in October 2021. In November 2021, none of the metals exceeded the effluent MCLs. Monthly influent and effluent samples were inadvertently omitted in December 2021.

2.5.4 Quarterly Sampling

Quarterly sampling of the effluent for VOCs, anions, chemical oxygen demand (COD), oil and grease, perchlorate, and metals was conducted on 14 December 2021 during this quarter and the results were below the MCLs. **Table 11** presents the quarterly analytical results for the 4th Quarter of 2021.

On 14 September 2021 (3rd Quarter of 2021), barium was detected at 2.66 µg/L just above the daily maximum discharge limit and MCL (2 µg/L). The September 2021 barium exceedance may have been a result of the September 2021 repairs completed on the GWTP, including replacement of sand in the sand filter. However, during the 4th Quarter of 2021, barium was detected at 0.534 µg/L on 9 November 2021 and 0.425 µg/L on 14 December 2021, below the daily maximum discharge limit and MCL (2 µg/L), confirming sufficient treatment by the GWTP.

Figure 2-1. Quarterly Extraction Rate

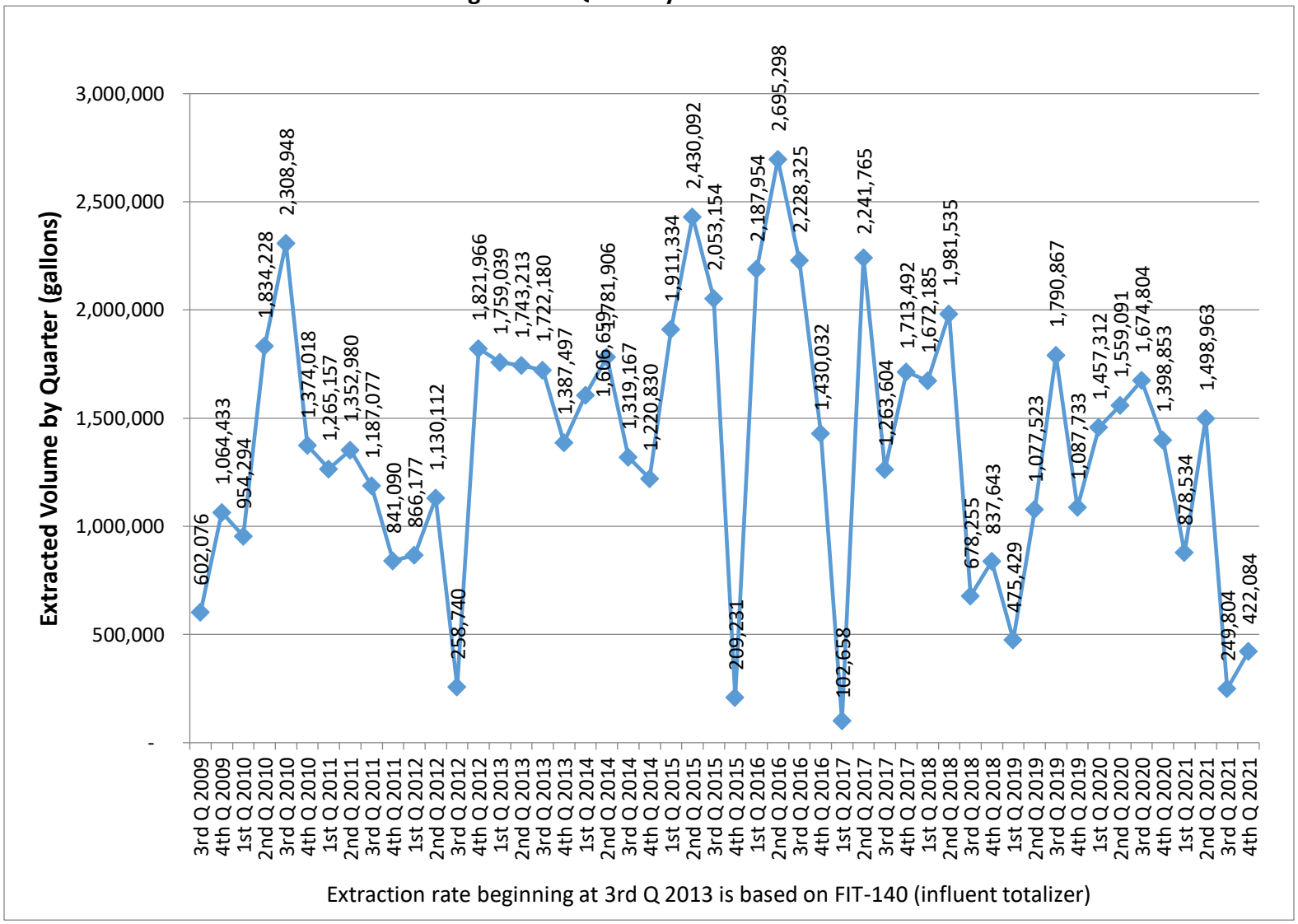

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Table 3. Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

Location Identification	Type	Reference Elevation (ft amsl)	Depth to Water (ft) 10/27/2021	Groundwater Elevation (ft amsl) 10/27/2021	Depth to Water (ft) 11/30/2021	Groundwater Elevation (ft amsl) 11/30/2021	Depth to Water (ft) 12/22/2021	Groundwater Elevation (ft amsl) 12/22/2021
BGPZ-1	Piezometer	184.99	6.51	178.48	6.67	178.32	7.71	177.28
BGPZ-2	Piezometer	184.39	13.19	171.20	13.27	171.12	14.07	170.32
BGPZ-3	Piezometer	180.35	10.44	169.91	10.55	169.80	11.44	168.91
BGPZ-4	Piezometer	177.77	8.08	169.69	8.19	169.58	9.51	168.26
BGPZ-5	Piezometer	180.76	10.11	170.65	10.24	170.52	11.10	169.66
BGPZ-6	Piezometer	197.82	26.40	171.42	26.51	171.31	27.12	170.70
BGPZ-7	Piezometer	195.96	25.83	170.13	25.96	170.00	26.50	169.46
BGPZ-8	Piezometer	197.08	27.78	169.30	27.90	169.18	28.33	168.75
BGPZ-9	Piezometer	196.45	26.41	170.04	26.59	169.86	26.97	169.48
BGPZ-10	Piezometer	197.00	27.32	169.68	27.44	169.56	27.89	169.11
BGPZ-11	Piezometer	196.99	26.15	170.84	26.27	170.72	26.63	170.36
BGPZ-12	Piezometer	188.17	NA	Plugged	NA	Plugged	NA	Plugged
AWD-1	Monitoring Well	182.27	8.07	174.20	8.51	173.76	9.90	172.37
AWD-2	Monitoring Well	186.78	12.90	173.88	13.08	173.70	13.71	173.07
AWD-3	Monitoring Well	200.13	26.35	173.78	26.51	173.62	27.08	173.05
AWD-4	Monitoring Well	193.89	20.03	173.86	20.20	173.69	21.18	172.71
MW-1	Monitoring Well	199.22	24.38	174.84	24.51	174.71	24.39	174.83
MW-2	Monitoring Well	196.73	24.67	172.06	24.75	171.98	24.45	172.28
MW-3	Monitoring Well	196.54	25.10	171.44	25.32	171.22	25.80	170.74
MW-4	Monitoring Well	197.27	26.31	170.96	26.50	170.77	26.77	170.50
MW-5	Monitoring Well	194.97	22.62	172.35	22.77	172.20	24.60	170.37
MW-6	Monitoring Well	192.18	20.19	171.99	20.31	171.87	21.29	170.89
MW-7	Monitoring Well	188.47	17.45	171.02	17.62	170.85	17.45	171.02

Table 3. Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

Location Identification	Type	Reference Elevation (ft amsl)	Depth to Water (ft) 10/27/2021	Groundwater Elevation (ft amsl) 10/27/2021	Depth to Water (ft) 11/30/2021	Groundwater Elevation (ft amsl) 11/30/2021	Depth to Water (ft) 12/22/2021	Groundwater Elevation (ft amsl) 12/22/2021
MW-8	Monitoring Well	187.13	15.93	171.20	16.05	171.08	16.12	171.01
MW-9	Monitoring Well	184.73	12.75	171.98	12.84	171.89	13.88	170.85
MW-10	Monitoring Well	178.12	8.12	170.00	8.39	169.73	8.89	169.23
MW-11	Monitoring Well	184.65	14.58	170.07	14.65	170.00	15.05	169.60
MW-12	Monitoring Well	178.33	8.81	169.52	8.95	169.38	9.40	168.93
MW-13	Monitoring Well	176.72	7.15	169.57	7.43	169.29	7.92	168.80
MW-14	Monitoring Well	186.19	11.95	174.24	12.13	174.06	13.10	173.09
MW-16	Monitoring Well	178.59	8.20	170.39	8.53	170.06	9.41	169.18
MW-17	Monitoring Well	179.03	7.97	171.06	8.12	170.91	9.73	169.30
MW-18	Monitoring Well	178.58	7.59	170.99	7.75	170.83	8.58	170.00
MW-19	Monitoring Well	178.60	7.71	170.89	7.91	170.69	8.35	170.25
MW-20	Monitoring Well	186.64	8.03	178.61	8.45	178.19	8.69	177.95
MW-21	Monitoring Well	198.70	30.11	168.59	30.19	168.51	28.15	170.55
MW-22	Monitoring Well	197.51	27.12	170.39	27.25	170.26	25.87	171.64
MW-23	Monitoring Well	198.79	27.40	171.39	27.53	171.26	26.35	172.44
101	Monitoring Well	197.53	7.13	190.40	7.49	190.04	8.12	189.41
102	Monitoring Well	193.94	18.20	175.74	18.44	175.50	19.15	174.79
109	Monitoring Well	197.02	27.67	169.35	27.79	169.23	26.30	170.72
120	Monitoring Well	184.19	10.65	173.54	10.83	173.36	12.98	171.21
123	Monitoring Well	186.21	11.05	175.16	11.27	174.94	11.95	174.26
125	Monitoring Well	196.28	22.50	173.78	22.74	173.54	26.14	170.14
126	Monitoring Well	199.37	28.29	171.08	28.41	170.96	28.02	171.35
129	Monitoring Well	197.24	26.00	171.24	26.19	171.05	26.57	170.67

Table 3. Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

Location Identification	Type	Reference Elevation (ft amsl)	Depth to Water (ft) 10/27/2021	Groundwater Elevation (ft amsl) 10/27/2021	Depth to Water (ft) 11/30/2021	Groundwater Elevation (ft amsl) 11/30/2021	Depth to Water (ft) 12/22/2021	Groundwater Elevation (ft amsl) 12/22/2021
130	Monitoring Well	177.73	7.14	170.59	7.55	170.18	8.07	169.66
C-01	Monitoring Well	193.89	22.63	171.26	22.81	171.08	23.45	170.44
C-02	Monitoring Well	175.95	7.30	168.65	7.59	168.36	8.02	167.93
C-03	Monitoring Well	196.34	25.90	170.44	26.06	170.28	26.18	170.16
C-04	Monitoring Well	194.64	23.66	170.98	23.84	170.80	24.20	170.44
C-04A	Monitoring Well	194.61	23.49	171.12	23.65	170.96	24.05	170.56
C-05	Monitoring Well	180.74	11.53	169.21	11.83	168.91	12.66	168.08
C-06	Monitoring Well	192.22	23.67	168.55	23.80	168.42	24.48	167.74
C-07	Monitoring Well	196.80	26.07	170.73	26.33	170.47	27.10	169.70
C-08	Monitoring Well	193.10	23.79	169.31	23.95	169.15	22.55	170.55
C-09	Monitoring Well	202.35	31.70	170.65	31.79	170.56	31.97	170.38
C-10	Monitoring Well	201.86	31.93	169.93	32.00	169.86	32.29	169.57
17WW08	Monitoring Well	179.72	9.01	170.71	9.54	170.18	10.14	169.58
18WW02	Monitoring Well	179.30	8.80	170.50	8.97	170.33	9.55	169.75
18WW03	Monitoring Well	195.59	26.59	169.00	26.78	168.81	27.28	168.31
18WW04	Monitoring Well	183.74	15.75	167.99	15.98	167.76	16.71	167.03
18WW05	Monitoring Well	189.59	21.21	168.38	21.50	168.09	22.21	167.38
18WW06	Monitoring Well	179.70	9.44	170.26	9.65	170.05	10.25	169.45
18WW08	Monitoring Well	177.77	9.10	168.67	9.47	168.30	10.18	167.59
18WW09	Monitoring Well	177.51	8.11	169.40	8.45	169.06	9.18	168.33
18WW10	Monitoring Well	182.26	11.78	170.48	11.95	170.31	13.84	168.42
18WW11	Monitoring Well	182.29	12.07	170.22	12.29	170.00	14.17	168.12
18WW14	Monitoring Well	186.47	14.69	171.78	14.88	171.59	15.41	171.06

Table 3. Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

Location Identification	Type	Reference Elevation (ft amsl)	Depth to Water (ft) 10/27/2021	Groundwater Elevation (ft amsl) 10/27/2021	Depth to Water (ft) 11/30/2021	Groundwater Elevation (ft amsl) 11/30/2021	Depth to Water (ft) 12/22/2021	Groundwater Elevation (ft amsl) 12/22/2021
18WW15	Monitoring Well	186.24	14.09	172.15	14.31	171.93	14.95	171.29
18WW18	Monitoring Well	196.82	26.41	170.41	26.64	170.18	27.20	169.62
18WW19	Monitoring Well	179.56	10.88	168.68	11.03	168.53	11.65	167.91
18WW20	Monitoring Well	180.42	11.42	169.00	11.61	168.81	12.12	168.30
18WW21	Monitoring Well	195.20	25.58	169.62	25.75	169.45	26.27	168.93
18WW22	Monitoring Well	195.37	24.70	170.67	24.89	170.48	25.88	169.49
18WW24	Monitoring Well	176.40	8.51	167.89	8.85	167.55	9.82	166.58
18WW25	Monitoring Well	175.15	8.02	167.13	8.53	166.62	9.41	165.74
18CPTMW01SW	Monitoring Well	198.20	25.98	172.22	26.20	172.00	24.80	173.40
18CPTMW01DW	Monitoring Well	197.92	27.37	170.55	27.55	170.37	26.93	170.99
18CPTMW03SW	Monitoring Well	198.53	27.77	170.76	27.94	170.59	28.63	169.90
18CPTMW04	Monitoring Well	196.60	21.55	175.05	21.76	174.84	23.77	172.83
18CPTMW04SW	Monitoring Well	196.42	25.21	171.21	25.39	171.03	26.60	169.82
18CPTMW06	Monitoring Well	198.12	27.58	170.54	27.80	170.32	27.12	171.00
18CPTMW07	Monitoring Well	197.32	26.89	170.43	27.05	170.27	27.38	169.94
18CPTMW08SW	Monitoring Well	196.38	24.95	171.43	25.17	171.21	26.42	169.96
18CPTMW08DW	Monitoring Well	196.59	25.57	171.02	25.75	170.84	27.12	169.47
18CPTMW10SW	Monitoring Well	186.98	16.07	170.91	16.29	170.69	17.00	169.98
18CPTMW10DW	Monitoring Well	187.38	16.95	170.43	17.14	170.24	17.85	169.53
18CPTMW12SW	Monitoring Well	190.90	20.04	170.86	20.25	170.65	20.73	170.17
18CPTMW12DW	Monitoring Well	190.25	19.54	170.71	19.77	170.48	20.32	169.93
18CPTMW14	Monitoring Well	196.69	27.06	169.63	27.30	169.39	25.24	171.45
18CPTMW15	Monitoring Well	179.79	10.10	169.69	10.47	169.32	11.22	168.57

Table 3. Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

Location Identification	Type	Reference Elevation (ft amsl)	Depth to Water (ft) 10/27/2021	Groundwater Elevation (ft amsl) 10/27/2021	Depth to Water (ft) 11/30/2021	Groundwater Elevation (ft amsl) 11/30/2021	Depth to Water (ft) 12/22/2021	Groundwater Elevation (ft amsl) 12/22/2021
18CPTMW16	Monitoring Well	175.37	8.04	167.33	8.59	166.78	7.42	167.95
18CPTMW18	Monitoring Well	194.53	27.12	167.41	27.20	167.33	27.87	166.66
18CPTMW19	Monitoring Well	193.59	19.05	174.54	19.22	174.37	22.55	171.04
18CPTMW19SW	Monitoring Well	193.29	22.47	170.82	22.66	170.63	23.19	170.10
18CPTMW22SW	Monitoring Well	187.79	17.25	170.54	17.45	170.34	17.75	170.04
18CPTMW22R	Monitoring Well	187.23	8.21	179.02	8.83	178.40	12.37	174.86
18CPTMW22DW	Monitoring Well	188.00	17.50	170.50	17.72	170.28	18.49	169.51
18CPTMW23	Monitoring Well	177.47	8.73	168.74	8.96	168.51	8.72	168.75
18CPTMW23SW	Monitoring Well	177.43	8.65	168.78	8.88	168.55	8.67	168.76
18CPTMW24	Monitoring Well	194.89	26.60	168.29	26.82	168.07	24.65	170.24
18CPTMW26	Monitoring Well	182.60	16.83	165.77	17.00	165.60	17.39	165.21
18CPTMW26SW	Monitoring Well	182.00	11.63	170.37	11.81	170.19	12.65	169.35
1824HBSW7	Surface Water	167.92	0.32	168.24	0.51	168.43	0.65	168.57

Table 4. Treated Groundwater Discharged – October through December 2021

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
10/01/2021	NA	NA	0	0	0	0	2.80
10/02/2021	NA	NA	0	0	0	0	2.79
10/03/2021	NA	NA	0	0	0	0	2.78
10/04/2021	NA	NA	0	0	0	0	2.76
10/05/2021	NA	NA	0	0	0	0	2.75
10/06/2021	NA	NA	0	0	0	0	2.75
10/07/2021	NA	NA	0	0	0	0	2.74
10/08/2021	NA	NA	0	0	0	0	2.73
10/09/2021	NA	NA	0	0	0	0	2.73
10/10/2021	NA	NA	0	0	0	0	2.72
10/11/2021	NA	NA	0	0	0	0	2.71
10/12/2021	NA	NA	0	0	0	0	2.70
10/13/2021	NA	NA	0	0	0	0	2.70
10/14/2021	NA	NA	0	0	0	0	2.69
10/15/2021	NA	NA	0	0	0	0	2.69
10/16/2021	NA	NA	0	0	0	0	2.68
10/17/2021	NA	NA	0	0	0	0	2.67
10/18/2021	NA	NA	0	0	0	0	2.66
10/19/2021	NA	NA	0	0	0	0	2.65
10/20/2021	NA	NA	0	0	0	0	2.64
10/21/2021	NA	NA	0	0	0	0	2.63
10/22/2021	NA	NA	0	0	0	0	2.63
10/23/2021	NA	NA	0	0	0	0	2.62
10/24/2021	NA	NA	0	0	0	0	2.62
10/25/2021	NA	NA	0	0	0	0	2.61
10/26/2021	NA	NA	0	0	0	0	2.61

Table 4. Treated Groundwater Discharged – October through December 2021

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
10/27/2021	NA	NA	0	0	0	0	2.60
10/28/2021	NA	NA	0	0	0	0	2.69
10/29/2021	NA	NA	0	0	0	0	2.69
10/30/2021	NA	NA	0	0	0	0	2.68
10/31/2021	NA	NA	0	0	0	0	2.68
11/01/2021	NA	NA	0	0	32,073	0	2.72
11/02/2021	NA	NA	0	0	0	0	2.72
11/03/2021	NA	NA	0	0	0	0	2.71
11/04/2021	NA	NA	0	0	0	0	2.71
11/05/2021	NA	NA	0	0	0	0	2.82
11/06/2021	NA	NA	0	0	0	0	2.82
11/07/2021	NA	NA	0	0	0	0	2.81
11/08/2021	NA	NA	0	0	28,704	0	2.81
11/09/2021	NA	NA	0	0	0	0	2.80
11/10/2021	NA	NA	0	0	0	0	2.80
11/11/2021	NA	NA	0	0	0	0	2.79
11/12/2021	NA	NA	0	0	0	0	2.85
11/13/2021	NA	NA	0	0	0	0	2.85
11/14/2021	NA	NA	0	0	0	0	2.84
11/15/2021	NA	NA	0	0	34,549	0	2.99
11/16/2021	NA	NA	0	0	0	0	2.99
11/17/2021	NA	NA	0	0	0	0	2.98
11/18/2021	NA	NA	0	0	0	0	2.97
11/19/2021	NA	NA	0	0	0	0	2.96
11/20/2021	NA	NA	0	0	0	0	2.96
11/21/2021	NA	NA	0	0	0	0	2.95

Table 4. Treated Groundwater Discharged – October through December 2021

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
11/22/2021	NA	NA	0	0	0	0	2.95
11/23/2021	NA	NA	0	0	0	0	2.94
11/24/2021	NA	NA	0	0	0	0	2.94
11/25/2021	NA	NA	0	0	0	0	3.05
11/26/2021	NA	NA	0	0	0	0	3.05
11/27/2021	NA	NA	0	0	0	0	3.04
11/28/2021	NA	NA	0	0	0	0	3.04
11/29/2021	NA	NA	0	0	0	0	3.03
11/30/2021	NA	NA	0	0	0	0	3.03
12/01/2021	NA	NA	0	0	0	0	2.98
12/02/2021	NA	NA	0	0	0	0	2.98
12/03/2021	NA	NA	0	0	35,616	0	3.04
12/04/2021	NA	NA	0	0	0	0	3.03
12/05/2021	NA	NA	0	0	0	0	3.01
12/06/2021	NA	NA	0	0	0	0	3.00
12/07/2021	NA	NA	0	0	0	0	3.00
12/08/2021	NA	NA	0	0	0	0	2.99
12/09/2021	NA	NA	0	0	0	0	2.99
12/10/2021	NA	NA	0	0	0	0	2.98
12/11/2021	NA	NA	0	0	0	0	2.97
12/12/2021	NA	NA	0	0	0	0	2.97
12/13/2021	NA	NA	0	0	35,811	0	3.11
12/14/2021	NA	NA	0	0	3,076	0	3.13
12/15/2021	NA	NA	0	0	9,234	0	3.15
12/16/2021	NA	NA	0	0	5,691	0	3.19
12/17/2021	NA	NA	0	0	0	0	3.19

Table 4. Treated Groundwater Discharged – October through December 2021

DATE	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released From GWTP To Harrison Bayou	Released From INF Pond to Harrison Bayou	Released From GWTP to INF Pond	Combined Total Released to Harrison Bayou	INF Pond Staff Reading (6.20 = 3 ft. Freeboard)
12/18/2021	NA	NA	0	0	0	0	3.18
12/19/2021	NA	NA	0	0	0	0	3.18
12/20/2021	NA	NA	0	0	26,644	0	3.28
12/21/2021	NA	NA	0	0	0	0	3.28
12/22/2021	NA	NA	0	0	0	0	3.27
12/23/2021	NA	NA	0	0	0	0	3.27
12/24/2021	NA	NA	0	0	0	0	3.26
12/25/2021	NA	NA	0	0	0	0	3.26
12/26/2021	NA	NA	0	0	0	0	3.25
12/27/2021	NA	NA	0	0	31,106	0	3.37
12/28/2021	NA	NA	0	0	11,949	0	3.40
12/29/2021	NA	NA	0	0	8,958	0	1.40
12/30/2021	NA	NA	0	0	0	0	0.00
12/31/2021	NA	NA	0	0	0	0	0.00
TOTALS			0	271,500 [1]	263,411	0	

Notes: The maximum discharge rate from the INF Pond is 170 gpm and the maximum discharge rate from the GWTP is 30 gpm.
NA = Not applicable
Treated groundwater volume released over the weekend is included in the total for the next working day. These volumes are marked with an asterisk (*).

[1] Unintentional release of water from INF pond to Harrison Bayou due to unauthorized access and vandalism. The exact date of the release is undetermined. Discovered 29 December 2021.

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Table 5. Monthly Groundwater Extraction Quantities – October through December 2021

ICT or Well Number	October 2021 (gallons)	November 2021 (gallons)	December 2021 (gallons)	Total
1	0	0	0	0
2	10,038	7,413	7,030	24,481
3	0	0	0	0
4	32,160	23,674	32,270	88,104
5	0	0	0	0
EW-01	0	10	8	18
7	4,559	3,462	3,903	11,924
8	734	0	0	734
18WW17	6,394	3,167	4,011	13,570
10	0	0	0	0
11	25,284	12,554	19,643	57,481
12A	1,152	1,140	1,453	3,745
12B	17,271	18,660	22,026	57,957
12C	156	1,109	154	1,419
12D	191	0	0	191
12E	11,840	11,500	14,264	37,604
13A	4,496	0	6,405	10,901
13B	0	10	0	10
13C	0	0	0	0
13D	6,575	6,911	8,067	21,553
13E	3,057	2,367	2,962	8,386
13F	1,686	1,151	1,446	4,283
13G	0	0	0	0
14A	39	10	538	587
14B	6,140	4,323	5,453	15,916
14C	0	0	0	0
14D	0	0	0	0
14E	11,691	8,844	11,136	31,671
LHAAP-18/24 Total	**143,463**	**106,305**	**140,769**	**390,537**
Site 16	0	0	0	0
LHAAP-16 Total	***0***	***0***	***0***	***0***
	143,463	**106,305**	**140,769**	**390,537**
Average Daily Extraction Rate (gpd)	**4,628**	**3,544**	**4,541**	

Notes:
Gpd – gallons per day
ICT 6 and 9 were converted from extraction to infiltration trenches beginning 18 September 2007
ICTs 1, 3, 5, and 10 were deactivated on 18 February 2008 as part of a pilot study for system optimization.
Low production in ICT 13F and EW-01 due to low water table. ICT 13G is dry and no longer active.
ICTs 7, 8, and 12C need to be diagnosed for repair.
ICT 12D needs a new motor. Repair planned for 1st Quarter 2022.
ICT 13B and ICT 13C need new pumps. Repairs planned for 1st Quarter 2022.
ICTs 14C and 14D need new wiring harnesses and/or motors. Repairs planned for 1st Quarter 2022.

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Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				AWD1_120921	CO8_121421	18CPTMW14_120921	18CPTMW15-120821	18CPTMW16_121521	18CPTMW19_121321	18CPTMW22R_120721	18CPTMW23_121521	18CPTMW24_121421	1824DPTMW01_122021	1824DPTMW02_122021	1824DPTMW03_122021
Date		MCL/MSC/PCL		12/9/2021	12/14/2021	12/9/2021	12/8/2021	12/15/2021	12/13/2021	12/7/2021	12/15/2021	12/14/2021	12/20/2021	12/20/2021	12/20/2021
Lab Package	CAS NUMBER		UNITS	HS21120658-08	HS21120921-05	HS21120658-07	HS21120589-08	HS21121014-07	HS21120917-08	HS21120475-05	HS21121014-03	HS21120921-04	HS21121254-02	HS21121254-06	HS21121254-03
Well ID				AWD-1	C-08	18CPTMW14	18CPTMW15	18CPTMW16	18CPTMW19	18CPTMW22R	18CPTMW23	18CPTMW24	1824DPTMW01	1824DPTMW02	1824DPTMW03
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Method: SW8260															
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	**0.62 J**	< 0.50
1,1-Dichloroethene	75-35-4	7	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	563-58-6	2.9	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	95-50-1	600	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	107-06-2	5	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	**110**	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	78-87-5	5	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	142-28-9	29	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	594-20-7	42	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50 UJ	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone	78-93-3	61,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	95-49-8	2,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	591-78-6	6,100	µg/L	NA	< 2.0	< 10	< 2.0	NA	< 2.0	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	106-43-4	2,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	NA	< 2.0	< 10	< 2.0	NA	< 2.0	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	67-64-1	92,000	µg/L	NA	< 2.0	< 10	< 2.0 UJ	NA	< 2.0	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	71-43-2	5	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Bromobenzene	108-86-1	2,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	74-97-5	4,100	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	75-27-4	4.6	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	75-25-2	36	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	74-83-9	140	µg/L	NA	< 1.0	< 5.0 UJ	< 1.0 UJ	NA	< 1.0	< 1.0 UJ	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	75-15-0	10,000	µg/L	NA	< 2.0	< 10 UJ	< 2.0	NA	< 2.0	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 2.0
Carbon tetrachloride	56-23-5	5	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	108-90-7	100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	75-00-3	41,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	67-66-3	1,000	µg/L	NA	< 0.50	**9.0**	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	**1.7**	< 0.50
Chloromethane	74-87-3	220	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50 UJ	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,2-Dichloroethene	156-59-2	70	µg/L	NA	< 0.50	**11**	< 0.50	NA	< 0.50	< 0.50	**230**	**14**	< 0.50	**11**	< 0.50
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	124-48-1	34	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	74-95-3	380	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	75-71-8	20,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	100-41-4	700	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	87-68-3	20	µg/L	NA	< 1.0	< 5.0 UJ	< 1.0 UJ	NA	< 1.0	< 1.0 UJ	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	98-82-8	10,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	179601-23-1	10,000**	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	75-09-2	5	µg/L	NA	< 2.0	**23**	< 1.0	NA	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0
n-Butylbenzene	104-51-8	4,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	103-65-1	4,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				AWD1_120921	CO8_121421	18CPTMW14_120921	18CPTMW15-120821	18CPTMW16_121521	18CPTMW19_121321	18CPTMW22R_120721	18CPTMW23_121521	18CPTMW24_121421	1824DPTMW01_122021	1824DPTMW02_122021	1824DPTMW03_122021
Date		MCL/MSC/PCL		12/9/2021	12/14/2021	12/9/2021	12/8/2021	12/15/2021	12/13/2021	12/7/2021	12/15/2021	12/14/2021	12/20/2021	12/20/2021	12/20/2021
Lab Package	CAS NUMBER		UNITS	HS21120658-08	HS21120921-05	HS21120658-07	HS21120589-08	HS21121014-07	HS21120917-08	HS21120475-05	HS21121014-03	HS21120921-04	HS21121254-02	HS21121254-06	HS21121254-03
Well ID				AWD-1	C-08	18CPTMW14	18CPTMW15	18CPTMW16	18CPTMW19	18CPTMW22R	18CPTMW23	18CPTMW24	1824DPTMW01	1824DPTMW02	1824DPTMW03
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Method: SW8260															
Naphthalene	91-20-3	2,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	95-47-6	10,000**	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	135-98-8	4,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100-42-5	100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	98-06-6	4,100	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	127-18-4	5	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	108-88-3	1,000	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	156-60-5	100	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	**0.42 J**	< 0.50
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	79-01-6	5	µg/L	NA	**1.3**	**890**	**1.5**	NA	< 0.50	< 0.50	**1,600**	**7.5**	< 0.50	**190**	< 0.50
Trichlorofluoromethane	75-69-4	31,000	µg/L	NA	< 1.0	< 5.0	< 1.0	NA	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	75-01-4	2	µg/L	NA	< 0.50	< 2.5	< 0.50	NA	< 0.50	< 0.50	< 5.0	**15**	< 0.50	**0.86 J**	< 0.50
Method: SW8270SIM															
1,4-Dioxane	123-91-1	9.1*	ug/L	**3.5**	< 0.010	**0.17**	**1.7**	< 0.010	**0.21**	**0.48**	**5.5**	**0.053**	**0.052**	**0.50**	< 0.010
Method: 6850															
Perchlorate	14797-73-0	17*	µg/L	**0.345**	**0.273**	**4,300**	**0.364**	< 0.0500	**2.37**	**0.392**	**4.63**	**27.6**	**19.8**	**107,000**	**0.0978 J**
Method: SW6020A															
Aluminum	7429-90-5	100	mg/L	**1.61**	**0.275**	**0.532**	NA	NA	NA	**8.22**	NA	**0.0334**	NA	NA	NA
Antimony	7440-36-0	0.006	mg/L	**0.000856 J**	<0.000400	< 0.00100	NA	NA	NA	< 0.00100	NA	<0.000400	NA	NA	NA
Arsenic	7440-38-2	0.01	mg/L	**0.0127**	**0.00112 J**	**0.00205 J**	NA	NA	NA	**0.00351 J**	NA	**0.00718**	NA	NA	NA
Barium	7440-39-3	2	mg/L	**0.298**	**5.42**	**3.95**	NA	NA	NA	**0.171**	NA	**10.6**	NA	NA	NA
Beryllium	7440-41-7	0.004	mg/L	**0.000305 J**	<0.000200	< 0.000500	NA	NA	NA	**0.000971 J**	NA	<0.000200	NA	NA	NA
Cadmium	7440-43-9	0.005	mg/L	< 0.000500	**0.000477 J**	**0.000270 J**	NA	NA	NA	< 0.000500	NA	<0.000200	NA	NA	NA
Calcium	7440-70-2	NV	mg/L	**2.58**	**302**	**440**	NA	NA	NA	**1.91**	NA	**393**	NA	NA	NA
Chromium	7440-47-3	0.1	mg/L	**0.0181**	**0.00143 J**	**0.0213**	NA	NA	NA	**0.00922**	NA	**0.00229 J**	NA	NA	NA
Cobalt	7440-48-4	6.1	mg/L	**0.00786**	**0.00603**	**0.00530**	NA	NA	NA	**0.0146**	NA	**0.00259 J**	NA	NA	NA
Copper	7440-50-8	1.3	mg/L	**0.00226 J**	**0.00101 J**	< 0.00250	NA	NA	NA	**0.00724**	NA	<0.00100	NA	NA	NA
Iron	7439-89-6	NV	mg/L	**6.11**	**2.28**	**0.797**	NA	NA	NA	**10.8**	NA	**6.84**	NA	NA	NA
Lead	7439-92-1	0.015	mg/L	**0.00179 J**	<0.000600	< 0.00100	NA	NA	NA	**0.00631**	NA	<0.000600	NA	NA	NA
Magnesium	7439-95-4	NV	mg/L	**2.93**	**179**	**124**	NA	NA	NA	**2.26**	NA	**258**	NA	NA	NA
Manganese	7439-96-5	1.1*	mg/L	**0.242**	**1.18**	**0.285**	NA	NA	NA	**0.112**	NA	**0.483**	NA	NA	NA
Nickel	7440-02-0	0.49*	mg/L	**0.0320**	**0.00775**	**0.00476 J**	NA	NA	NA	**0.00890**	NA	**0.00758**	NA	NA	NA
Potassium	7440-09-7	NV	mg/L	**2.98**	**2.70**	**10.5**	NA	NA	NA	**0.867**	NA	**2.50**	NA	NA	NA
Selenium	7782-49-2	0.05	mg/L	**0.00325 J**	<0.00110	< 0.00250	NA	NA	NA	< 0.00250	NA	<0.00110	NA	NA	NA
Silver	7440-22-4	0.51	mg/L	< 0.000500	<0.000200	< 0.000500	NA	NA	NA	< 0.000500	NA	<0.000200	NA	NA	NA
Sodium	7440-23-5	NV	mg/L	**105**	**866**	**637**	NA	NA	NA	**33.1**	NA	**983**	NA	NA	NA
Thallium	7440-28-0	0.002	mg/L	< 0.000500	<0.000200	< 0.000500	NA	NA	NA	< 0.000500	NA	<0.000200	NA	NA	NA
Vanadium	7440-62-2	0.72	mg/L	**0.00600**	**0.00212 J**	**0.00242 J**	NA	NA	NA	**0.0146**	NA	**0.00188 J**	NA	NA	NA
Zinc	7440-66-6	31	mg/L	**0.0113**	**0.0107**	**0.00528**	NA	NA	NA	**0.0284**	NA	**0.00652**	NA	NA	NA
Method: SW7470A															
Mercury	7439-97-6	0.002	mg/L	**0.000145 J**	**0.000121 J**	**0.0000640 J**	NA	NA	NA	**0.000153 J**	NA	< 0.000100	NA	NA	NA

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Level

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: The analyte was positively identified, the quantitation is anestimation due to discrepancies in meeting certain analyte-specific qualityc ontrol criteria.

UJ - The analyte was not detected; however, the result is estimated due todi screpancies in meeting certain analyte-specific quality control criteria.

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				1824DPTMW03_122021_a	18DPTMW04_121421	18DPTMW05_121321	18WW08_121321	18WW10_120921	18WW22_121521	18WW24_121521	MW-2_120921	MW-2_120921_a	MW3_120921	MW5_120621	MW7_120621	MW8_122021	MW9_121521	MW16_121521
Date		MCL/MSC/PCL		12/20/2021	12/14/2021	12/13/2021	12/13/2021	12/9/2021	12/15/2021	12/15/2021	12/9/2021	12/9/2021	12/9/2021	12/6/2021	12/6/2021	12/20/2021	12/15/2021	12/15/2021
Lab Package	CAS NUMBER		UNITS	HS21121254-04	HS21120921-06	HS21120917-02	HS21120917-07	HS21120658-05	HS21121014-05	HS21121014-04	HS21120658-01	HS21120658-02	HS21120658-04	HS21120428-01	HS21120428-06	HS21121254-01	HS21121014-01	HS21121014-02
Well ID				1824DPTMW03	1824DPTMW04	1824DPTMW05	18WW08	18WW10	18WW22	18WW24	MW-2	MW-2	MW-3	MW-5	MW-7	MW-8	MW-9	MW-16
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Method: SW8260																		
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	**5.7 J**	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	< 0.50	< 0.50	< 2.5 UJ	**0.65 J**	< 0.50	< 0.50	< 0.50 UJ	**18 J**	**22**	**4.0 J**	**1.8**	< 2.5	< 0.50	< 12	< 2.5
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	**160**	**190**	< 0.50	< 0.50	**6.6**	< 0.50	< 12	**4.8 J**
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50	< 0.50	**71 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50	**25**	**2.9**	< 12	**30**
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50 UJ	< 2.5 UJ	< 0.50	< 12	< 2.5
2-Butanone	78-93-3	61,000	µg/L	**1.3 J**	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 20	< 2.0 UJ	< 2.0	< 10	< 2.0	< 50	< 10
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 20	< 2.0 UJ	< 2.0	< 10	< 2.0	< 50	< 10
Acetone	67-64-1	92,000	µg/L	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 20	< 2.0	< 2.0 UJ	< 10 UJ	< 2.0	< 50	< 10
Benzene	71-43-2	5	µg/L	< 0.50	< 0.50	**9.4 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 0.50 UJ	< 0.50	**5.4**	**0.84 J**	< 12	< 2.5
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
Bromoform	75-25-2	36	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Bromomethane	74-83-9	140	µg/L	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10 UJ	< 1.0 UJ	< 1.0 UJ	< 5.0 UJ	< 1.0	< 25	< 5.0
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 20 UJ	< 20 UJ	< 2.0 UJ	< 2.0	< 10	< 2.0	< 50	< 10
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	**14 J**	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	**9.0**	< 1.0	< 25	< 5.0
Chlorobenzene	108-90-7	100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Chloroform	67-66-3	1,000	µg/L	< 0.50	< 0.50	**30 J**	< 0.50	< 0.50	< 0.50	< 0.50	**22**	**26**	**1.00 J**	< 0.50	**13**	< 0.50	< 12	< 2.5
Chloromethane	74-87-3	220	µg/L	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50	< 0.50 UJ	< 2.5 UJ	< 0.50	< 12	< 2.5
cis-1,2-Dichloroethene	156-59-2	70	µg/L	< 0.50	< 0.50	**69 J**	**2.9**	< 0.50	**1.3**	< 0.50	**18,000**	**17,000**	**55 J**	**5.8**	**19**	**23**	**28**	**18**
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Dibromomethane	74-95-3	380	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10 UJ	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Methylene chloride	75-09-2	5	µg/L	< 2.0	< 2.0	< 5.0 UJ	< 2.0	< 2.0	< 1.0	< 1.0 UJ	**1,600**	**1,900**	< 2.0	**1.9 J**	**9.2 J**	< 2.0	< 50	< 5.0
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				1824DPTMW03_122021_a	18DPTMW04_121421	18DPTMW05_121321	18WW08_121321	18WW10_120921	18WW22_121521	18WW24_121521	MW-2_120921	MW-2_120921_a	MW3_120921	MW5_120621	MW7_120621	MW8_122021	MW9_121521	MW16_121521
Date		MCL/MSC/PCL		12/20/2021	12/14/2021	12/13/2021	12/13/2021	12/9/2021	12/15/2021	12/15/2021	12/9/2021	12/9/2021	12/9/2021	12/6/2021	12/6/2021	12/20/2021	12/15/2021	12/15/2021
Lab Package	CAS NUMBER		UNITS	HS21121254-04	HS21120921-06	HS21120917-02	HS21120917-07	HS21120658-05	HS21121014-05	HS21121014-04	HS21120658-01	HS21120658-02	HS21120658-04	HS21120428-01	HS21120428-06	HS21121254-01	HS21121014-01	HS21121014-02
Well ID				1824DPTMW03	1824DPTMW04	1824DPTMW05	18WW08	18WW10	18WW22	18WW24	MW-2	MW-2	MW-3	MW-5	MW-7	MW-8	MW-9	MW-16
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Method: SW8260																		
Naphthalene	91-20-3	2,000	µg/L	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 1.0 UJ	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	< 1.0	< 5.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	**31**	**37**	**1.3**	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Toluene	108-88-3	1,000	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	**7.7 J**	**9.4 J**	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50 UJ	**37**	**44**	**2.6 J**	< 0.50	< 2.5	< 0.50	< 12	< 2.5
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 0.50 UJ	< 0.50	< 2.5	< 0.50	< 12	< 2.5
Trichloroethene	79-01-6	5	µg/L	< 0.50	**1.3**	**4,600 J**	**10**	3.3 UB	**56**	< 0.50	**3,600**	**3,300**	**270 J**	**18**	**1,700**	**200**	**1,200**	**380**
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 1.0	< 1.0	< 5.0	< 1.0	< 25	< 5.0
Vinyl chloride	75-01-4	2	µg/L	< 0.50	< 0.50	< 2.5	**1.2**	< 0.50	< 0.50	< 0.50	**8.4 J**	**10**	**23 J**	**1.5**	< 2.5	< 0.50	< 12	< 2.5
Method: SW8270SIM																		
1,4-Dioxane	123-91-1	9.1*	ug/L	< 0.010	< 0.010	**46**	**0.10**	**0.078**	< 0.010	NA	**1.8**	**1.2**	NA	**0.96**	**4.0**	**1.7**	**2.4**	**4.8**
Method: 6850																		
Perchlorate	14797-73-0	17*	µg/L	**0.113**	**10.9**	**402,000**	**23,600**	**0.147**	**0.457**	**0.0729 J**	**0.263**	**0.281**	**8,220**	**28,900**	**16,300**	**3,880**	**81.8**	**0.0269 J**
Method: SW6020A																		
Aluminum	7429-90-5	100	mg/L	NA	NA	NA	NA	NA	**0.247**	**0.434**	**0.0230**	**0.0232**	0.0118 UB	0.00396 UB	NA	NA	**0.0293**	NA
Antimony	7440-36-0	0.006	mg/L	NA	NA	NA	NA	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA	NA	< 0.00100	NA
Arsenic	7440-38-2	0.01	mg/L	NA	NA	NA	NA	NA	**0.00206 J**	**0.000899 J**	**0.0259**	**0.0265**	**0.000461 J**	< 0.00100	NA	NA	< 0.00100	NA
Barium	7440-39-3	2	mg/L	NA	NA	NA	NA	NA	**0.0919**	**0.0464**	**2.68**	**3.06**	**0.551**	**0.698**	NA	NA	**0.105**	NA
Beryllium	7440-41-7	0.004	mg/L	NA	NA	NA	NA	NA	< 0.000500	**0.000886 J**	**0.000349 J**	**0.000350 J**	< 0.000500	< 0.000500	NA	NA	< 0.000500	NA
Cadmium	7440-43-9	0.005	mg/L	NA	NA	NA	NA	NA	< 0.000500	**0.000369 J**	< 0.000500	< 0.000500	**0.000341 J**	**0.000671 J**	NA	NA	< 0.000500	NA
Calcium	7440-70-2	NV	mg/L	NA	NA	NA	NA	NA	**15.4**	**53.2**	**71.5**	**73.8**	**31.7**	**15.5**	NA	NA	**9.38**	NA
Chromium	7440-47-3	0.1	mg/L	NA	NA	NA	NA	NA	**0.0251**	**0.00165 J**	**0.218**	**0.252**	**0.00305 J**	**0.0771**	NA	NA	**0.147**	NA
Cobalt	7440-48-4	6.1	mg/L	NA	NA	NA	NA	NA	**0.000265 J**	**0.0211**	**0.136**	**0.145**	**0.00452 J**	**0.00228 J**	NA	NA	**0.00666**	NA
Copper	7440-50-8	1.3	mg/L	NA	NA	NA	NA	NA	<0.00100	**0.00278 J**	**0.00670**	**0.00651**	**0.00138 J**	**0.00121 J**	NA	NA	**0.00225 J**	NA
Iron	7439-89-6	NV	mg/L	NA	NA	NA	NA	NA	**0.0609 J**	**0.364**	**31.8**	**33.1**	**0.808**	**0.392**	NA	NA	**1.22**	NA
Lead	7439-92-1	0.015	mg/L	NA	NA	NA	NA	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA	NA	< 0.00100	NA
Magnesium	7439-95-4	NV	mg/L	NA	NA	NA	NA	NA	**2.06**	**45.5**	**53.5**	**55.8**	**17.9**	**16.5**	NA	NA	**3.66**	NA
Manganese	7439-96-5	1.1*	mg/L	NA	NA	NA	NA	NA	**0.00243 J**	**7.16**	**7.69**	**8.83**	**2.39**	**0.0644**	NA	NA	**0.147**	NA
Nickel	7440-02-0	0.49*	mg/L	NA	NA	NA	NA	NA	<0.000600	**0.178 J**	**0.396**	**0.408**	**0.00722**	**0.0599**	NA	NA	**0.0476**	NA
Potassium	7440-09-7	NV	mg/L	NA	NA	NA	NA	NA	**3.47**	**0.738**	**2.91**	**3.07**	**1.72**	**1.89**	NA	NA	**0.304**	NA
Selenium	7782-49-2	0.05	mg/L	NA	NA	NA	NA	NA	< 0.00250	< 0.00250	< 0.00250	< 0.00250	< 0.00250	< 0.00250	NA	NA	< 0.00250	NA
Silver	7440-22-4	0.51	mg/L	NA	NA	NA	NA	NA	<0.000200	<0.000200	< 0.000500	< 0.000500	< 0.000500	< 0.000500	NA	NA	<0.000200	NA
Sodium	7440-23-5	NV	mg/L	NA	NA	NA	NA	NA	**45.8**	**732**	**201**	**234**	**277**	**87.2**	NA	NA	**18.3**	NA
Thallium	7440-28-0	0.002	mg/L	NA	NA	NA	NA	NA	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	NA	NA	< 0.000500	NA
Vanadium	7440-62-2	0.72	mg/L	NA	NA	NA	NA	NA	**0.0189**	**0.00152 J**	**0.00119 J**	**0.00127 J**	**0.000602 J**	**0.00234 J**	NA	NA	**0.00125 J**	NA
Zinc	7440-66-6	31	mg/L	NA	NA	NA	NA	NA	< 0.00250	**0.0622**	**0.0630**	**0.0680**	**0.00696**	**0.0175**	NA	NA	**0.0366**	NA
Method: SW7470A																		
Mercury	7439-97-6	0.002	mg/L	NA	NA	NA	NA	NA	**0.0000540 J**	**0.0000570 J**	< 0.000100	< 0.000100	**0.0000540 J**	**0.0000990 J**	NA	NA	**0.000116 J**	NA

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/ Protective Concentration Lev

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: The analyte was positively identified, the quantitation is ane stimation due to discrepancies

UJ - The analyte was not detected; however, the result is estimated due todi screpancies in meeting certa U - Undetected: The analyte was analyzed for, but not detected.

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Lev a - duplicate sample

< - non-detect

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				MW17_120921	MW18_120721	MW18_120721_a	MW19_120721	MW21_121321	MW22_120821	MW22_120821_a	MW23_120621	109_121421	120_120721	125_121421	126_121421	CO3_122021	18CPTMW01SW_120921	18CPTMW03SW_121321
Date		MCL/MSC/PCL		12/9/2021	12/7/2021	12/7/2021	12/7/2021	12/13/2021	12/8/2021	12/8/2021	12/6/2021	12/14/2021	12/7/2021	12/14/2021	12/14/2021	12/20/2021	12/9/2021	12/13/2021
Lab Package	CAS NUMBER		UNITS	HS21120658-06	HS21120475-08	HS21120475-09	HS21120475-07	HS21120917-03	HS21120589-03	HS21120589-04	HS21120428-07	HS21120921-02	HS21120475-01	HS21120921-07	HS21120921-01	HS21121254-05	HS21120658-03	HS21120917-01
Well ID				MW-17	MW-18	MW-18	MW-19	MW-21	MW-22	MW-22	MW-23	109	120	125	126	C-03	18CPTMW01SW	18CPTMW03SW
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox	Wilcox	Wilcox
Method: SW8260																		
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	NA	< 1.0	< 1.0	< 1.0	**8.6**	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	NA	< 0.50	< 0.50	< 0.50	**3.2 J**	< 0.50	< 0.50	< 2.5	**0.40 J**	**11**	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
1,1-Dichloroethene	75-35-4	7	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	**38**	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50
1,1-Dichloropropene	563-58-6	2.9	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
1,2-Dichlorobenzene	95-50-1	600	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,2-Dichloroethane	107-06-2	5	µg/L	NA	< 0.50	< 0.50	< 0.50	**16**	**5.1**	**5.1**	**69**	< 0.50	**20**	< 0.50	< 0.50	< 0.50	< 5.0 UJ	**0.60 J**
1,2-Dichloropropane	78-87-5	5	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	NA	< 1.0	< 1.0	< 1.0	**3.0 J**	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
1,3-Dichloropropane	142-28-9	29	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
2,2-Dichloropropane	594-20-7	42	µg/L	NA	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0 UJ	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
2-Butanone	78-93-3	61,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
2-Chlorotoluene	95-49-8	2,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
2-Hexanone	591-78-6	6,100	µg/L	NA	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 10	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 20	< 2.0
4-Chlorotoluene	106-43-4	2,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	NA	< 1.0	< 1.0	< 1.0	**3.9 J**	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	NA	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 10	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 20	< 2.0
Acetone	67-64-1	92,000	µg/L	NA	< 2.0	< 2.0	< 2.0	< 10	< 2.0 UJ	< 2.0 UJ	< 10 UJ	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 20	< 2.0
Benzene	71-43-2	5	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	**0.88 J**	**0.89 J**	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0	**1.6**
Bromobenzene	108-86-1	2,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Bromochloromethane	74-97-5	4,100	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	**20 J**	< 0.50
Bromodichloromethane	75-27-4	4.6	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
Bromoform	75-25-2	36	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Bromomethane	74-83-9	140	µg/L	NA	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 5.0	< 1.0 UJ	< 1.0 UJ	< 5.0 UJ	< 1.0	< 10 UJ	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
Carbon disulfide	75-15-0	10,000	µg/L	NA	< 2.0	< 2.0	< 2.0	< 10	< 2.0	< 2.0	< 10	< 2.0	< 20	< 2.0	< 2.0	< 2.0	< 20 UJ	< 2.0
Carbon tetrachloride	56-23-5	5	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Chlorobenzene	108-90-7	100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Chloroethane	75-00-3	41,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
Chloroform	67-66-3	1,000	µg/L	NA	< 0.50	< 0.50	< 0.50	**9.2**	**2.3**	**2.3**	**10**	< 0.50	**12**	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50
Chloromethane	74-87-3	220	µg/L	NA	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 2.5	< 0.50	< 0.50	< 2.5 UJ	< 0.50	< 5.0 UJ	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
cis-1,2-Dichloroethene	156-59-2	70	µg/L	NA	**0.89 J**	**0.94 J**	**5.1**	**880**	**3.6**	**3.6**	**21**	**65**	**800**	< 0.50	< 0.50	< 0.50	**1,600**	**32**
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50
Dibromochloromethane	124-48-1	34	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
Dibromomethane	74-95-3	380	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 0.50
Dichlorodifluoromethane	75-71-8	20,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
Ethylbenzene	100-41-4	700	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Hexachlorobutadiene	87-68-3	20	µg/L	NA	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 5.0	< 1.0 UJ	< 1.0 UJ	< 5.0	< 1.0	< 10 UJ	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
Isopropylbenzene	98-82-8	10,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
m,p-Xylene	179601-23-1	10,000**	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Methylene chloride	75-09-2	5	µg/L	NA	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 1.0	**6.7 J**	< 2.0	< 10	< 2.0	< 2.0	< 2.0	**21,000**	< 2.0
n-Butylbenzene	104-51-8	4,100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
n-Propylbenzene	103-65-1	4,100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				MW17_120921	MW18_120721	MW18_120721_a	MW19_120721	MW21_121321	MW22_120821	MW22_120821_a	MW23_120621	109_121421	120_120721	125_121421	126_121421	CO3_122021	18CPTMW01SW_120921	18CPTMW03SW_121321
Date		MCL/MSC/PCL		12/9/2021	12/7/2021	12/7/2021	12/7/2021	12/13/2021	12/8/2021	12/8/2021	12/6/2021	12/14/2021	12/7/2021	12/14/2021	12/14/2021	12/20/2021	12/9/2021	12/13/2021
Lab Package	CAS NUMBER		UNITS	HS21120658-06	HS21120475-08	HS21120475-09	HS21120475-07	HS21120917-03	HS21120589-03	HS21120589-04	HS21120428-07	HS21120921-02	HS21120475-01	HS21120921-07	HS21120921-01	HS21121254-05	HS21120658-03	HS21120917-01
Well ID				MW-17	MW-18	MW-18	MW-19	MW-21	MW-22	MW-22	MW-23	109	120	125	126	C-03	18CPTMW01SW	18CPTMW03SW
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox	Wilcox	Wilcox
Method: SW8260																		
Naphthalene	91-20-3	2,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
o-Xylene	95-47-6	10,000**	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
sec-Butylbenzene	135-98-8	4,100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Styrene	100-42-5	100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
tert-Butylbenzene	98-06-6	4,100	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Tetrachloroethene	127-18-4	5	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10	< 1.0
Toluene	108-88-3	1,000	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50
trans-1,2-Dichloroethene	156-60-5	100	µg/L	NA	< 0.50	< 0.50	< 0.50	**6.7**	< 0.50	< 0.50	**2.2 J**	**0.43 J**	**5.4 J**	< 0.50	< 0.50	< 0.50	**5.7 J**	**1.2**
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 5.0	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50
Trichloroethene	79-01-6	5	µg/L	NA	**11**	**11**	**6.8**	**4,500 J**	**380**	**370**	**3,100**	**120**	**4,900**	**1.1**	< 0.50	< 0.50	**230**	7.4 UB
Trichlorofluoromethane	75-69-4	31,000	µg/L	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 10 UJ	< 1.0
Vinyl chloride	75-01-4	2	µg/L	NA	< 0.50	< 0.50	< 0.50	**20**	**0.55 J**	**0.51 J**	< 2.5	< 0.50	**13**	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50
Method: SW8270SIM																		
1,4-Dioxane	123-91-1	9.1*	ug/L	**0.11**	NA	NA	NA	**3.6**	NA	NA	NA	**0.054**	**49**	NA	< 0.010	**0.12**	**0.052**	**1.3**
Method: 6850																		
Perchlorate	14797-73-0	17*	µg/L	**0.0282 J**	**0.0818 J**	**0.700 J**	**0.117**	**9,660**	**1,060**	**1,180**	**81,600**	**21,500**	**15,200**	**2,670**	**0.658**	**220**	< 0.0500	**0.0753**
Method: SW6020A																		
Aluminum	7429-90-5	100	mg/L	NA	NA	NA	**0.673**	**0.0233**	**0.0378 J**	**0.0220 J**	NA	NA	NA	**3.50**	**0.228**	NA	**0.0257**	**0.0351**
Antimony	7440-36-0	0.006	mg/L	NA	NA	NA	< 0.00100	< 0.00100	**0.000604 J**	**0.000509 J**	NA	NA	NA	<0.000400	<0.000400	NA	< 0.00100	< 0.00100
Arsenic	7440-38-2	0.01	mg/L	NA	NA	NA	**0.00328 J**	**0.000799 J**	**0.00153 J**	**0.00143 J**	NA	NA	NA	**0.0129**	**0.0233**	NA	**0.0108**	**0.00479 J**
Barium	7440-39-3	2	mg/L	NA	NA	NA	**0.323**	**4.09**	**1.02**	**0.972**	NA	NA	NA	**0.139**	**10.5**	NA	**1.13**	**0.607**
Beryllium	7440-41-7	0.004	mg/L	NA	NA	NA	< 0.000500	< 0.000500	< 0.00500	< 0.00500	NA	NA	NA	**0.000384 J**	**0.000259 J**	NA	< 0.000500	< 0.000500
Cadmium	7440-43-9	0.005	mg/L	NA	NA	NA	**0.00134 J**	**0.000508 J**	**0.000493 J**	**0.000436 J**	NA	NA	NA	**0.000269 J**	**0.000726 J**	NA	< 0.000500	< 0.000500
Calcium	7440-70-2	NV	mg/L	NA	NA	NA	**114**	**132**	**97.1**	**91.3**	NA	NA	NA	**1.90**	**310**	NA	**37.1**	**122**
Chromium	7440-47-3	0.1	mg/L	NA	NA	NA	**0.0517**	**0.623**	**1.25**	**1.00**	NA	NA	NA	**0.0110**	**0.00180 J**	NA	**0.00254 J**	**0.00571**
Cobalt	7440-48-4	6.1	mg/L	NA	NA	NA	**0.0142**	**0.0370**	**0.0102**	**0.00965**	NA	NA	NA	**0.00305 J**	**0.0311**	NA	**0.000996 J**	**0.00155 J**
Copper	7440-50-8	1.3	mg/L	NA	NA	NA	**0.00490 J**	**0.0219**	**0.0231**	**0.0207**	NA	NA	NA	**0.00402 J**	**0.00126 J**	NA	< 0.00250	< 0.00250
Iron	7439-89-6	NV	mg/L	NA	NA	NA	**47.1**	**5.13**	**13.8**	**12.3**	NA	NA	NA	**8.10**	**20.7**	NA	**54.2**	**11.5**
Lead	7439-92-1	0.015	mg/L	NA	NA	NA	**0.000644 J**	< 0.00100	< 0.00100	< 0.00100	NA	NA	NA	**0.00482 J**	**0.000872 J**	NA	< 0.00100	< 0.00100
Magnesium	7439-95-4	NV	mg/L	NA	NA	NA	**64.7**	**99.9**	**27.9**	**25.9**	NA	NA	NA	**1.94**	**245**	NA	**23.4**	**19.4**
Manganese	7439-96-5	1.1*	mg/L	NA	NA	NA	**2.71**	**1.14**	**0.288**	**0.267**	NA	NA	NA	**0.0581**	**0.398**	NA	**0.576**	**0.674**
Nickel	7440-02-0	0.49*	mg/L	NA	NA	NA	**0.0433**	**0.478**	**0.930**	**0.865**	NA	NA	NA	**0.00696**	**0.0204**	NA	**0.00192 J**	**0.00314 J**
Potassium	7440-09-7	NV	mg/L	NA	NA	NA	**4.46**	**1.92**	**2.06**	**1.95**	NA	NA	NA	**1.47**	**4.25**	NA	**8.39**	**118**
Selenium	7782-49-2	0.05	mg/L	NA	NA	NA	**0.00637**	< 0.00250	< 0.00250	< 0.00250	NA	NA	NA	<0.00110	<0.00110	NA	< 0.00250	< 0.00250
Silver	7440-22-4	0.51	mg/L	NA	NA	NA	< 0.000500	< 0.000500	< 0.00500	< 0.00500	NA	NA	NA	<0.000200	<0.000200	NA	< 0.000500	< 0.000500
Sodium	7440-23-5	NV	mg/L	NA	NA	NA	**854**	**399**	**368**	**351**	NA	NA	NA	**35.7**	**836**	NA	**109**	**217**
Thallium	7440-28-0	0.002	mg/L	NA	NA	NA	< 0.000500	< 0.000500	< 0.00500	< 0.00500	NA	NA	NA	<0.000200	<0.000200	NA	< 0.000500	< 0.000500
Vanadium	7440-62-2	0.72	mg/L	NA	NA	NA	**0.00157 J**	**0.00387 J**	**0.00613**	**0.00521**	NA	NA	NA	**0.0126**	**0.00361 J**	NA	< 0.00100	< 0.00100
Zinc	7440-66-6	31	mg/L	NA	NA	NA	**0.0101**	**0.0147**	**0.00370 J**	**0.00243 J**	NA	NA	NA	**0.0209**	**0.0266**	NA	**0.00769**	**0.00667**
Method: SW7470A																		
Mercury	7439-97-6	0.002	mg/L	NA	NA	NA	< 0.000100	**0.000189 J**	**0.0000740 J**	**0.0000910 J**	NA	NA	NA	**0.0000580 J**	**0.0000840 J**	NA	< 0.000100	< 0.000100

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/ Protective Concentration Lev

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: The analyte was positively identified, the quantitation is ane stimation due to discrepancies

UJ - The analyte was not detected; however, the result is estimated due todi screpancies in meeting certa U - Undetected: The analyte was analyzed for, but not detected.

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Lev a - duplicate sample

< - non-detect

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				18CPTMW04SW-120821	18CPTMW04-120821	18CPTMW06_120821	18CPTMW07_121421	18CPTMW08DW_120621	18CPTMW08SW_120621	18CPTMW10DW_121321	18CPTMW10DW_121321_a	18CPTMW10SW_121321	18CPTMW12SW_120621	18CPTMW12DW_120621
Date		MCL/MSC/PCL		12/8/2021	12/8/2021	12/8/2021	12/14/2021	12/6/2021	12/6/2021	12/13/2021	12/13/2021	12/13/2021	12/6/2021	12/6/2021
Lab Package	CAS NUMBER		UNITS	HS21120589-01	HS21120589-02	HS21120589-05	HS21120921-03	HS21120428-02	HS21120428-03	HS21120917-04	HS21120917-05	HS21120917-06	HS21120428-04	HS21120428-05
Well ID				18CPTMW04SW	18CPTMW04	18CPTMW06	18CPTMW07	18CPTMW08DW	18CPTMW08SW	18CPTMW10DW	18CPTMW10DW	18CPTMW10SW	18CPTMW12SW	18CPTMW12DW
Aquifer Zone				Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox
Method: SW8260														
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	**4.4**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	**0.74 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50	**0.63 J**	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 0.50 UJ	< 0.50 UJ
2-Butanone	78-93-3	61,000	µg/L	< 1.0 UJ	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0 UJ	< 2.0	< 2.0	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	67-64-1	92,000	µg/L	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0	NA	< 2.0 UJ	< 2.0	< 2.0	< 2.0	< 2.0 UJ	< 2.0 UJ
Benzene	71-43-2	5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50 UJ	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	75-25-2	36	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	74-83-9	140	µg/L	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0	NA	< 1.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0 UJ	< 1.0 UJ
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	108-90-7	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	67-66-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	74-87-3	220	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 0.50 UJ	< 0.50 UJ
cis-1,2-Dichloroethene	156-59-2	70	µg/L	< 0.50	**9.0**	< 0.50	< 0.50	NA	**11**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	74-95-3	380	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	75-09-2	5	µg/L	< 1.0	< 1.0	< 1.0	< 2.0	NA	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 2.0
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				18CPTMW04SW-120821	18CPTMW04-120821	18CPTMW06_120821	18CPTMW07_121421	18CPTMW08DW_120621	18CPTMW08SW_120621	18CPTMW10DW_121321	18CPTMW10DW_121321_a	18CPTMW10SW_121321	18CPTMW12SW_120621	18CPTMW12DW_120621
Date		MCL/MSC/PCL		12/8/2021	12/8/2021	12/8/2021	12/14/2021	12/6/2021	12/6/2021	12/13/2021	12/13/2021	12/13/2021	12/6/2021	12/6/2021
Lab Package	CAS NUMBER		UNITS	HS21120589-01	HS21120589-02	HS21120589-05	HS21120921-03	HS21120428-02	HS21120428-03	HS21120917-04	HS21120917-05	HS21120917-06	HS21120428-04	HS21120428-05
Well ID				18CPTMW04SW	18CPTMW04	18CPTMW06	18CPTMW07	18CPTMW08DW	18CPTMW08SW	18CPTMW10DW	18CPTMW10DW	18CPTMW10SW	18CPTMW12SW	18CPTMW12DW
Aquifer Zone				Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox
Method: SW8260														
Naphthalene	91-20-3	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	108-88-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50 UJ	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	79-01-6	5	µg/L	< 0.50	**200**	**2.0**	< 0.50	NA	**38**	2.6 UB	2.3 UB	1.9 UB	**1.3**	< 0.50
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	75-01-4	2	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	NA	**1.9**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Method: SW8270SIM														
1,4-Dioxane	123-91-1	9.1*	ug/L	**1.4**	**1.1**	**0.79**	**0.059**	**0.86**	**2.2**	NA	NA	**0.28**	**1.8**	**1.7**
Method: 6850														
Perchlorate	14797-73-0	17*	µg/L	**0.0581 J**	**129**	**0.0396 J**	**0.0850**	**4,240**	**19,700**	**0.245**	**0.262**	**0.0861**	**0.134**	**0.0516 J**
Method: SW6020A														
Aluminum	7429-90-5	100	mg/L	**0.142**	NA	NA	NA	NA	NA	**0.175**	**0.168**	NA	0.0123 UB	< 0.00500
Antimony	7440-36-0	0.006	mg/L	**0.000647 J**	NA	NA	NA	NA	NA	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100
Arsenic	7440-38-2	0.01	mg/L	**0.00684**	NA	NA	NA	NA	NA	**0.00276 J**	**0.00255 J**	NA	**0.000813 J**	**0.00264 J**
Barium	7440-39-3	2	mg/L	**0.925**	NA	NA	NA	NA	NA	**0.208**	**0.202**	NA	**0.901**	**0.327**
Beryllium	7440-41-7	0.004	mg/L	< 0.00500	NA	NA	NA	NA	NA	< 0.000500	< 0.000500	NA	< 0.000500	< 0.000500
Cadmium	7440-43-9	0.005	mg/L	< 0.00500	NA	NA	NA	NA	NA	< 0.000500	< 0.000500	NA	**0.000311 J**	< 0.000500
Calcium	7440-70-2	NV	mg/L	**30.1**	NA	NA	NA	NA	NA	**17.1**	**17.4**	NA	**56.6**	**27.4**
Chromium	7440-47-3	0.1	mg/L	**0.0111**	NA	NA	NA	NA	NA	**0.00517**	**0.00525**	NA	**0.00295 J**	**0.00329 J**
Cobalt	7440-48-4	6.1	mg/L	**0.00805**	NA	NA	NA	NA	NA	**0.000251 J**	**0.000249 J**	NA	**0.0126**	**0.000326 J**
Copper	7440-50-8	1.3	mg/L	<0.00100	NA	NA	NA	NA	NA	**0.00129 J**	**0.00117 J**	NA	< 0.00250	< 0.00250
Iron	7439-89-6	NV	mg/L	**29.3**	NA	NA	NA	NA	NA	**7.90**	**8.05**	NA	**0.613**	**6.45**
Lead	7439-92-1	0.015	mg/L	< 0.00100	NA	NA	NA	NA	NA	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100
Magnesium	7439-95-4	NV	mg/L	**17.7**	NA	NA	NA	NA	NA	**8.58**	**8.49**	NA	**32.5**	**8.60**
Manganese	7439-96-5	1.1*	mg/L	**0.561**	NA	NA	NA	NA	NA	**0.185**	**0.186**	NA	**1.46**	**0.201**
Nickel	7440-02-0	0.49*	mg/L	**0.00606**	NA	NA	NA	NA	NA	**0.00201 J**	**0.00161 J**	NA	**0.0132**	**0.000774 J**
Potassium	7440-09-7	NV	mg/L	**103**	NA	NA	NA	NA	NA	**72.8**	**72.5**	NA	**36.1**	**55.1**
Selenium	7782-49-2	0.05	mg/L	< 0.00250	NA	NA	NA	NA	NA	< 0.00250	< 0.00250	NA	< 0.00250	< 0.00250
Silver	7440-22-4	0.51	mg/L	< 0.00500	NA	NA	NA	NA	NA	< 0.000500	< 0.000500	NA	< 0.000500	< 0.000500
Sodium	7440-23-5	NV	mg/L	**132**	NA	NA	NA	NA	NA	**178**	**175**	NA	**225**	**160**
Thallium	7440-28-0	0.002	mg/L	< 0.00500	NA	NA	NA	NA	NA	< 0.000500	< 0.000500	NA	< 0.000500	< 0.000500
Vanadium	7440-62-2	0.72	mg/L	< 0.00100	NA	NA	NA	NA	NA	**0.00112 J**	**0.000822 J**	NA	**0.00161 J**	**0.000991 J**
Zinc	7440-66-6	31	mg/L	**0.0239**	NA	NA	NA	NA	NA	**0.00590**	**0.00461 J**	NA	**0.0169**	**0.00268 J**
Method: SW7470A														
Mercury	7439-97-6	0.002	mg/L	**0.0000430 J**	NA	NA	NA	NA	NA	**0.0000530 J**	< 0.000100	NA	**0.000130 J**	< 0.000100

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Lev

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: The analyte was positively identified, the quantitation is anestimation due to discrepancies

UJ - The analyte was not detected; however, the result is estimated due todiscrepancies in meeting certa

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				18CPTMW22SW_120721	1824DPTMW06_120721	1824DPTMW06_120721_a	18WW02-120821	18WW06_120821	18WW17_121521	MW14_120721
Date		MCL/MSC/PCL		12/7/2021	12/7/2021	12/7/2021	12/8/2021	12/8/2021	12/15/2021	12/7/2021
Lab Package	CAS NUMBER		UNITS	HS21120475-06	HS21120475-03	HS21120475-04	HS21120589-07	HS21120589-06	HS21121014-06	HS21120475-02
Well ID				18CPTMW22SW	1824DPTMW06	1824DPTMW06	18WW02	18WW06	18WW17	MW-14
Aquifer Zone				Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox
Method: SW8260										
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,1-Dichloroethane	75-34-3	10,000	µg/L	< 0.50	**1.2**	**1.3**	< 0.50	< 0.50	< 0.50	**20**
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**69**
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50	**1.6**	**1.6**	< 0.50	< 0.50	< 0.50	**55**
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 5.0 UJ
2-Butanone	78-93-3	61,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20
Acetone	67-64-1	92,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0 UJ	< 2.0 UJ	< 2.0	< 20
Benzene	71-43-2	5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Bromoform	75-25-2	36	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Bromomethane	74-83-9	140	µg/L	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0	< 10 UJ
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Chlorobenzene	108-90-7	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Chloroform	67-66-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Chloromethane	74-87-3	220	µg/L	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 5.0 UJ
cis-1,2-Dichloroethene	156-59-2	70	µg/L	< 0.50	**5.0**	**5.1**	< 0.50	< 0.50	< 0.50	**1,300**
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Dibromomethane	74-95-3	380	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0	< 10 UJ
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Methylene chloride	75-09-2	5	µg/L	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 10
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10

Table 6. LHAAP-18/24 Analytical Results - December 2021

Location Identification				18CPTMW22SW_120721	1824DPTMW06_120721	1824DPTMW06_120721_a	18WW02-120821	18WW06_120821	18WW17_121521	MW14_120721
Date		MCL/MSC/PCL		12/7/2021	12/7/2021	12/7/2021	12/8/2021	12/8/2021	12/15/2021	12/7/2021
Lab Package	CAS NUMBER		UNITS	HS21120475-06	HS21120475-03	HS21120475-04	HS21120589-07	HS21120589-06	HS21121014-06	HS21120475-02
Well ID				18CPTMW22SW	1824DPTMW06	1824DPTMW06	18WW02	18WW06	18WW17	MW-14
Aquifer Zone				Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox
Method: SW8260										
Naphthalene	91-20-3	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Toluene	108-88-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**13**
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Trichloroethene	79-01-6	5	µg/L	**0.97 J**	**3.0**	**3.2**	< 0.50	< 0.50	< 0.50	**6,200**
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10
Vinyl chloride	75-01-4	2	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0
Method: SW8270SIM										
1,4-Dioxane	123-91-1	9.1*	ug/L	**1.3**	**2.0**	**4.7**	**0.92**	**0.81**	NA	**96**
Method: 6850										
Perchlorate	14797-73-0	17*	µg/L	**11,700**	**1.14 J**	**0.828 J**	**0.0331 J**	< 0.0500	**13,6000**	**16,4000**
Method: SW6020A										
Aluminum	7429-90-5	100	mg/L	**0.0534**	NA	NA	**0.408**	NA	0.0105 UB	**0.0386**
Antimony	7440-36-0	0.006	mg/L	< 0.00100	NA	NA	< 0.00100	NA	< 0.00100	**0.000416 J**
Arsenic	7440-38-2	0.01	mg/L	**0.00211 J**	NA	NA	**0.000528 J**	NA	**0.000746 J**	**0.00422 J**
Barium	7440-39-3	2	mg/L	**0.110**	NA	NA	**0.0445**	NA	**3.45**	**0.341**
Beryllium	7440-41-7	0.004	mg/L	< 0.000500	NA	NA	< 0.00500	NA	< 0.000500	**0.000356 J**
Cadmium	7440-43-9	0.005	mg/L	< 0.000500	NA	NA	< 0.00500	NA	**0.000404 J**	**0.000880 J**
Calcium	7440-70-2	NV	mg/L	**12.7**	NA	NA	**7.00**	NA	**316**	**124**
Chromium	7440-47-3	0.1	mg/L	**0.0188**	NA	NA	**0.0151**	NA	**0.0272**	**0.211**
Cobalt	7440-48-4	6.1	mg/L	< 0.000500	NA	NA	**0.000189 J**	NA	**0.00102 J**	**0.0317**
Copper	7440-50-8	1.3	mg/L	< 0.00250	NA	NA	**0.00254 J**	NA	**0.0141**	**0.00229 J**
Iron	7439-89-6	NV	mg/L	**0.0452 J**	NA	NA	**0.896**	NA	**0.253**	**66.4**
Lead	7439-92-1	0.015	mg/L	< 0.00100	NA	NA	< 0.00100	NA	< 0.00100	< 0.00100
Magnesium	7439-95-4	NV	mg/L	**1.05**	NA	NA	**1.32**	NA	**209**	**50.4**
Manganese	7439-96-5	1.1*	mg/L	**0.00737**	NA	NA	**0.0803**	NA	**0.0300**	**3.11**
Nickel	7440-02-0	0.49*	mg/L	< 0.00100	NA	NA	**0.00942**	NA	**0.0531**	**0.465**
Potassium	7440-09-7	NV	mg/L	**244**	NA	NA	**1.93**	NA	**1.68**	**15.7**
Selenium	7782-49-2	0.05	mg/L	**0.00331 J**	NA	NA	< 0.00250	NA	**0.00214 J**	**0.00143 J**
Silver	7440-22-4	0.51	mg/L	< 0.000500	NA	NA	< 0.00500	NA	<0.000200	< 0.000500
Sodium	7440-23-5	NV	mg/L	**272**	NA	NA	**29.0**	NA	**1090**	**292**
Thallium	7440-28-0	0.002	mg/L	< 0.000500	NA	NA	< 0.00500	NA	< 0.000500	< 0.000500
Vanadium	7440-62-2	0.72	mg/L	**0.00108 J**	NA	NA	**0.00225 J**	NA	**0.00226 J**	**0.000712 J**
Zinc	7440-66-6	31	mg/L	**0.00264 J**	NA	NA	**0.00230 J**	NA	**0.0280**	**0.915**
Method: SW7470A										
Mercury	7439-97-6	0.002	mg/L	**0.0000410 J**	NA	NA	**0.0000370 J**	NA	**0.0000770 J**	**0.000153 J**

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Lev

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: The analyte was positively identified, the quantitation is anestimation due to discrepancies

UJ - The analyte was not detected; however, the result is estimated due todiscrepancies in meeting certa

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Table 7. Weekly Perchlorate Sample Results-4th Quarter 2021

Sample Identification	Lab Package	Date Sampled	Sample Location	Harrison Bayou Maximum Allowable Daily Discharge Perchlorate Concentration (µg/L)	INF Pond Discharge Criteria for Perchlorate (µg/L)	Reporting Limit	Influent Perchlorate (6850)	Effluent Perchlorate (6850)		Does Concentration Meet Discharge Limit? (Yes/No)	No Daily Maximum Concentration		
							Result (µg/L)	Result (µg/L)	DVQ		Ammonia as N (350.3) (mg/L)	Ortho-Phosphate (365.3) (mg/L)	Organic Carbon (415.1) (mg/L)
LH18/24-SP650_102021_BIX	HS21101165	10/20/2021	TK-650	589	17	0.1	NA	**3,020**[1]		No	**88**	**8.07**	**5.65**
LH18/24-SP650_102521_AIX	E2101141	10/25/2021	TK-650	589	17	0.1	NA	**0.0536**	J	Yes	--	--	--
LH18/24-SP650_110221_AIX	HS21110123	11/2/2021	TK-650	589	17	0.1	NA	< 0.0500	U	Yes	**140**	**9.26**	**9.65**
LH18/24-SP650_110921_AIX (monthly)	HS21110552	11/9/2021	TK-650	589	17	0.1	NA	< 0.250	U	Yes	--	--	--
LH18/24-SP140_110921 (monthly)	HS21110553	11/9/2021	TK-140	--	--	NA	**8,400**	NA		NA	--	--	--
LH18/24-SP650_110921_AIX	HS21110557	11/9/2021	TK-650	589	17	0.1	NA	< 0.250	U	Yes	**120**	**8.49**	**7.95**
LH18/24-SP650_112321_AIX	HS21111479	11/23/2021	TK-650	589	17	0.1	NA	< 0.0500	U	Yes	**110**	**8.0**	**7.12**
LH18/24-SP650_120321_AIX	E2101253	12/3/2021	TK-650	589	17	0.1	NA	< 0.0500	U	Yes	--	--	--
LH18/24-SP650_121421_AIX(quarterly)	HS21120888	12/14/2021	TK-650	589	17	0.1	NA	< 0.250	U	Yes	--	--	--
LH18/24-SP140_121421 (quarterly)	HS21120895	12/14/2021	TK-140	--	--	NA	**9,910**	NA		NA	--	--	--
LH18/24-SP650_121421_AIX	HS21120849	12/14/2021	TK-650	589	17	0.1	NA	< 0.250	U	Yes	**120**	**9.65**	**12.6**
LH18/24-SP650_122121_AIX	HS21121302	12/21/2021	TK-650	589	17	0.1	NA	**0.168**		Yes	**72**	**11.1**	**8.04**
LH18/24-SP650_122821_AIX	HS21121521	12/28/2021	TK-650	589	17	0.1	NA	**0.0932**	J	Yes	**90**	**7.2**	**14.5**

Notes:
Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (PCL)
SP140 samples are influent samples.
µg/L - micrograms per liter
DVQ - data validation qualifier
J - Estimated concentration between the detection limit and limit of quantitation and/or due to quality control discrepancies
Detected analytes are in **bold**.
Blue highlighting indicates concentrations above the INF Pond Discharge Criteria for Perchlorate
NA - not applicable
U - non detect and reported to the limit of detection
BIX - before ion exchange/AIX - after ion exchange
mg/L - milligrams per liter
[1] Groundwater above the PCL (10/20/2021) was run through the ion exchange vessels prior to discharge to the INF Pond. The sample collected on 10/25/2021 confirmed that perchlorate was not detected in groudwater discharged to the INF Pond.

Table 8. Bi-Weekly GWTP Analytical Sampling Results for October 2021

			Sample Location	EFFLUENT - Biweekly		EFFLUENT - Monthly		INFLUENT - Monthly*		Does Concentration Meet Effluent Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_102021		None collected		None collected		
			Lab Package	HS21101182						
			Sample Date	10/20/2021						
			Sample Type	GRAB		GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Table 2 of ROD									
	Daily Average Concentration	Daily Maximum Concentration	INF Pond MCL	Result	DVQ	Result	DVQ	Result	DVQ	
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	200	0.50	U			NA		Yes
1,1,2-Trichloroethane	102.5	216.9	5	1.0	U			NA		Yes
1,1-Dichloroethane	6,633	14,032	NV	0.50	U			NA		Yes
1,1-Dichloroethene	119	253	7	0.50	U			NA		Yes
1,2-Dichloroethane	85	181	5	0.50	U			NA		Yes
1,2-Dichloropropane	NA	NA	5	1.0	U			NA		Yes
Acetone	1,132	2,395	NV	2.0	U			NA		Yes
Benzene	85	181	5	0.50	U			NA		Yes
Carbon Tetrachloride	85	181	5	1.0	U			NA		Yes
Chlorobenzene	22,300	47,180	100	1.0	U			NA		Yes
Chloroform	1,708	3,615	NV	0.50	U			NA		Yes
cis-1,2-Dichloroethene	NV	NV	70	**3.0**				NA		Yes
Ethylbenzene	26,954	57,025	700	1.0	U			NA		Yes
m,p-Xylenes	39.5	83.6	NV	1.0	U			NA		Yes
Methylene Chloride	803	1,699	5	1.0	U			NA		Yes
o-Xylene	39.5	83.6	NV	1.0	U			NA		Yes
Styrene	2,829	5,987	100	1.0	U			NA		Yes
Tetrachloroethene	85.4	180.7	5	1.0	U			NA		Yes
Toluene	1,980	4,189	10	0.50	U			NA		Yes
Trichloroethene	85	181	5	**1.00**	J			NA		Yes
Vinyl Chloride	34	72	2	0.50	U			NA		Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		
Chloride	NV	NV	NV	**970**		NA		NA		NA
Sulfate	NV	NV	NV	**34.3**		NA		NA		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
Perchlorate	278	589	17	NA						Yes
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		
Hexavalent Chromium	0.058	0.124	NV	NA						Yes
Barium	1	2	2	NA						Yes
Lead	0.0022	0.0046	0.015	NA						Yes
Selenium	0.0057	0.0120	0.05	NA						Yes
Silver	0.0014	0.0030	0.1	NA						Yes
SEMI-VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
1,4-Dioxane**	NV	134.2	NV	NA				NA		Yes

Notes:
µg/L - micrograms per liter
mg/L - milligrams per liter
DVQ - data validation qualifier
NA - not applicable or not analyzed
GWTP - Groundwater Treatment Plant
ROD - Record of Decision
Grab samples are compared to the daily maximum and composite samples to the daily average.
U - not detected and reported to the limit of detection
J - estimated concentration and/or due to QC discrepancies
*Influent sample not compared to discharge limits
NV - no value
** Calculated Effluent Limit

Table 9. Bi-Weekly GWTP Analytical Sampling Results for November 2021

			Sample Location	EFFLUENT - Biweekly		EFFLUENT - Monthly		INFLUENT - Monthly*		Does Concentration Meet Effluent Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_110221		LH18/24-SP650_110921		LH18/24-SP140_110921		
			Lab Package	HS21110151		HS21110552		HS21110553		
			Sample Date	11/2/2021		11/9/2021		11/9/2021		
			Sample Type	GRAB		GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Table 2 of ROD			Result	DVQ	Result	DVQ	Result	DVQ	
	Daily Average Concentration	Daily Maximum Concentration	INF Pond MCL							
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	200	0.50	U	0.50	U	NA		Yes
1,1,2-Trichloroethane	102.5	216.9	5	1.0	U	1.0	U	NA		Yes
1,1-Dichloroethane	6,633	14,032	NV	0.50	U	0.50	U	NA		Yes
1,1-Dichloroethene	119	253	7	0.50	U	0.50	U	NA		Yes
1,2-Dichloroethane	85	181	5	0.50	U	0.50	U	NA		Yes
1,2-Dichloropropane	NA	NA	5	1.0	U	1.0	U	NA		Yes
Acetone	1,132	2,395	NV	2.0	U	2.0	U	NA		Yes
Benzene	85	181	5	0.50	U	0.50	U	NA		Yes
Carbon Tetrachloride	85	181	5	1.0	U	1.0	U	NA		Yes
Chlorobezene	22,300	47,180	100	1.0	U	1.0	U	NA		Yes
Chloroform	1,708	3,615	NV	0.50	U	0.50	U	NA		Yes
cis-1,2-Dichloroethene	NV	NV	70	**3.2**		**2.9**		NA		Yes
Ethylbenzene	26,954	57,025	700	1.0	U	1.0	U	NA		Yes
m,p-Xylenes	39.5	83.6	NV	1.0	U	1.0	U	NA		Yes
Methylene Chloride	803	1,699	5	1.0	U	2.0	U	NA		Yes
o-Xylene	39.5	83.6	NV	1.0	U	1.0	U	NA		Yes
Styrene	2,829	5,987	100	1.0	U	1.0	U	NA		Yes
Tetrachloroethene	85.4	180.7	5	1.0	U	1.0	U	NA		Yes
Toluene	1,980	4,189	10	0.50	U	0.50	U	NA		Yes
Trichloroethene	85	181	5	0.50	U	0.50	U	NA		Yes
Vinyl Chloride	34	72	2	0.50	U	0.50	U	NA		Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		
Chloride	NV	NV	NV	**900**		NA		NA		NA
Sulfate	NV	NV	NV	**14.6**		NA		NA		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
Perchlorate	278	589	17	NA		0.250	U	**8,400**		Yes
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		
Hexavalent Chromium	0.058	0.124	NV	NA		0.0100	U	0.0100	U	Yes
Barium	1	2	2	NA		**0.534**		NA		Yes
Lead	0.0022	0.0046	0.015	NA		0.00100	U	NA		Yes
Selenium	0.0057	0.0120	0.05	NA		0.00250	U	0.00250	U	Yes
Silver	0.0014	0.0030	0.1	NA		0.000500	U	0.000500	U	Yes
SEMI-VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
1,4-Dioxane**	NV	134.2	NV	NA		**4.6**		NA		Yes

Notes:

µg/L - micrograms per liter
mg/L - milligrams per liter
DVQ - data validation qualifier
ROD - Record of Decision
GWTP - Groundwater Treatment Plant
*Influent sample not compared to discharge limits
NA - not applicable or not analyzed
U - not detected and reported to the limit of detection
Grab samples are compared to the daily maximum and composite samples to the daily average.
** Calculated Effluent Limit

Table 10. Bi-Weekly GWTP Analytical Sampling Results for December 2021

			Sample Location	EFFLUENT - Biweekly		INFLUENT - Monthly*		EFFLUENT - Monthly		Does Concentration Meet Effluent Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_122821		None collected		None collected		
			Lab Package	HS21121523						
			Sample Date	12/28/2021						
			Sample Type	GRAB		GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Table 2 of ROD			Result	DVQ	Result	DVQ	Result	DVQ	
	Daily Average Concentration	Daily Maximum Concentration	INF Pond MCL							
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**						
1,1,1-Trichloroethane	3,417	7,230	200	0.50	U					Yes
1,1,2-Trichloroethane	102.5	216.9	5	1.0	U					Yes
1,1-Dichloroethane	6,633	14,032	NV	0.50	U					Yes
1,1-Dichloroethene	119	253	7	0.50	U					Yes
1,2-Dichloroethane	85	181	5	0.50	U					Yes
1,2-Dichloropropane	NA	NA	5	1.0	U					Yes
Acetone	1,132	2,395	NV	2.0	U					Yes
Benzene	85	181	5	0.50	U					Yes
Carbon Tetrachloride	85	181	5	1.0	U					Yes
Chlorobenzene	22,300	47,180	100	1.0	U					Yes
Chloroform	1,708	3,615	NV	0.50	U					Yes
cis-1,2-Dichloroethene	NV	NV	70	**2.1**						Yes
Ethylbenzene	26,954	57,025	700	1.0	U					Yes
m,p-Xylenes	39.5	83.6	NV	1.0	U					Yes
Methylene Chloride	803	1,699	5	1.0	U					Yes
o-Xylene	39.5	83.6	NV	1.0	U					Yes
Styrene	2,829	5,987	100	1.0	U					Yes
Tetrachloroethene	85.4	180.7	5	1.0	U					Yes
Toluene	1,980	4,189	10	0.50	U					Yes
Trichloroethene	85	181	5	0.50	U					Yes
Vinyl Chloride	34	72	2	0.50	U					Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		
Chloride	NV	NV	NV	**794.0**						NA
Sulfate	NV	NV	NV	**21.5**						NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
Perchlorate	278	589	17	NA						Yes
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		
Hexavalent Chromium	0.058	0.124	NV	NA						Yes
Barium	1	2	2	NA						Yes
Lead	0.0022	0.0046	0.015	NA						Yes
Selenium	0.0057	0.0120	0.05	NA						Yes
Silver	0.0014	0.0030	0.1	NA						Yes
SEMI-VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		
1,4-Dioxane**	NV	134.2	NV	NA						Yes

Notes:
µg/L - micrograms per liter
DVQ - data validation qualifier
GWTP - Groundwater Treatment Plant
U - Non detect reported to the limit of detection
mg/L - milligrams per liter
J - estimated concentration between the detection limit and limit of quantitation and/or due to quality control discrepancy
*Influent sample not compared to discharge limits
** Calculated Effluent Limit
Grab samples are compared to the daily maximum and composite samples to the daily average.
ROD - Record of Decision
NA - not applicable or not analyzed

Table 11. Quarterly GWTP Analytical Sampling Results - 4th Quarter 2021

			Sample Location	EFFLUENT		INFLUENT*		Does Concentration Meet Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_121421		LH18/24-SP140_121421		
			Lab Package	HS21120888		HS21120895		
			Sample Date	12/14/2021		12/14/2021		
			Sample Type	GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Protocol			Result	DVQ	Result	DVQ	
	Daily Average Concentration	Daily Maximum Concentration	Reporting Limit					
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	1	0.50	U	2.5	U	Yes
1,1,2-Trichloroethane	102.5	216.9	1	1.0	U	5.0	U	Yes
1,1-Dichloroethane	6,633	14,032	1	0.50	U	**3.8**	J	Yes
1,1-Dichloroethene	119	253	1	0.50	U	2.5	U	Yes
1,2-Dichloroethane	85	181	1	0.50	U	**24**		Yes
1,2-Dichloropropane	NA	NA	1	1.0	U	5.0	U	Yes
Acetone	1,132	2,395	2	2.0	U	10	U	Yes
Benzene	85	181	1	0.50	U	2.5	U	Yes
Carbon Tetrachloride	85	181	1	1.0	U	**4.0**	J	Yes
Chlorobenzene	22,300	47,180	1	1.0	U	5.0	U	Yes
Chloroform	1,708	3,615	1	0.50	U	**7.5**		Yes
Ethylbenzene	26,954	57,025	1	1.0	U	5.0	U	Yes
m,p-Xylenes	39.5	83.6	2	1.0	U	5.0	U	Yes
Methylene Chloride	803	1,699	2	2.0	U	**610**		Yes
o-Xylene	39.5	83.6	1	1.0	U	5.0	U	Yes
Styrene	2,829	5,987	1	1.0	U	5.0	U	Yes
Tetrachloroethene	85.4	180.7	1	1.0	U	5.0	U	Yes
Toluene	1,980	4,189	1	0.50	U	2.5	U	Yes
Trichloroethene	85	181	1	0.50	U	**3,100**		Yes
Vinyl Chloride	34	72	1	0.50	U	**9.4**		Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
Chloride	NA	NA	10	**939**		**320**		NA
Sulfate	NA	NA	10	**27.0**		**35.3**		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		
Perchlorate	278	589	4	0.250	U	**9,910**		Yes
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
Aluminum	0.777	1.644	0.0100	0.00892	UB	**0.0776**		Yes
Antimony	NA	NA	0.00200	0.00100	U	**0.000624**	J	NA
Arsenic	0.365	0.772	0.00200	**0.000608**	J	**0.00143**	J	Yes

Table 11. Quarterly GWTP Analytical Sampling Results - 4th Quarter 2021

			Sample Location	EFFLUENT		INFLUENT*		Does Concentration Meet Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_121421		LH18/24-SP140_121421		
			Lab Package	HS21120888		HS21120895		
			Sample Date	12/14/2021		12/14/2021		
			Sample Type	GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Protocol							
	Daily Average Concentration	Daily Maximum Concentration	Reporting Limit	Result	DVQ	Result	DVQ	
Barium	1	2	0.00400	**0.425**		**0.383**		Yes
Beryllium	NA	NA	0.00200	0.000500	U	0.000500	U	NA
Cadmium	0.0016	0.0034	0.00200	0.000500	U	0.000500	U	Yes
Calcium	NA	NA	0.500	**43.1**		**28.0**		NA
Chromium	0.355	0.752	0.00400	**0.000596**	J	**0.00153**	J	Yes
Cobalt	5.433	11.495	0.00500	**0.000178**	J	**0.00117**	J	Yes
Iron	1.132	2.395	0.200	**0.0167**	J	**0.197**	J	Yes
Lead	0.0022	0.0046	0.00200	0.00100	U	0.00100	U	Yes
Magnesium	NA	NA	0.200	**17.8**		**19.1**		NA
Manganese	7.323	15.494	0.00500	**0.0648**		**0.0614**		Yes
Nickel	0.087	0.184	0.00200	**0.000987**	J	**0.00884**		Yes
Potassium	NA	NA	0.200	**1.97**		**1.49**		NA
Selenium	0.0057	0.012	0.00200	0.00250	U	0.00250	U	Yes
Silver	0.0014	0.003	0.00200	0.000500	U	0.000500	U	Yes
Sodium	NA	NA	1.00	**523**		**237**		NA
Thallium	NA	NA	0.00200	0.000500	U	0.000500	U	NA
Vanadium	1.698	3.592	0.00500	**0.00183**	J	**0.00245**	J	Yes
Zinc	0.146	0.31	0.00400	**0.00641**		**0.0225**		Yes
Mercury	NA	NA	0.000200	0.000100	U	0.000100	U	NA
1,4-DIOXANE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		
1,4-Dioxane	NA	134.2	1	**3.6**		**13**		Yes
CHEMICAL OXYGEN DEMAND (COD)	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
COD	NA	200	75	**35.0**		**7.00**	J	Yes
OIL AND GREASE (O&G)	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
O&G	NA	15	2	**0.900**	J	1.00	U	Yes

Notes:
µg/L - micrograms per liter
DVQ - data validation qualifier
Grab samples are compared to the daily maximum and composite samples to the daily average
* only Effluent sample is compared to discharge limits
J - Estimated concentration between the detection limit and limit of quantitation and/or due to quality control discrepancy
U - non detect and reported to the limit of detection
UB - considered an artifact of blank contamination
mg/L - milligrams per liter
NA - not applicable
GWTP - Groundwater Treatment Plant
NV - no value

3 QUALITY CONTROL

This report summarizes the data for samples collected during October, November, and December 2021. The samples were reviewed and validated in accordance with the guidelines in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the quality control criteria specified in the *Basewide Uniform Federal Policy - Quality Assurance Project Plan Longhorn Army Ammunition Plant* which is in Appendix C of the *Final Installation-Wide Work Plan for Longhorn Army Ammunition Plant Karnack, Texas* (Bhate, May 2018).

The purpose of the sampling program is to evaluate the effectiveness of the groundwater pump and treat system, assess water quality within the ICT containment area, and assure compliance with the effluent discharge requirements of the Interim ROD. Quality control and quality assurance problems noted in the case narratives received from the laboratory are minor and do not affect the usability of the data for compliance at the GWTP. No sample results from the 4th Quarter of 2021 were rejected due to quality control problems.

ALS Environmental analyzed the compliance samples collected from the GWTP. Independent data verification and validation was performed by the Bhate Project Chemist as described in the Quality Control Summary Report in **Appendix G**. The laboratory reports for the 4th Quarter of 2021 sampling conducted at LHAAP-18/24 are included in **Appendix C** (as a separate file on the CD) and the laboratory results for the GWTP are included in **Appendix F** (as a separate file on the CD). Air monitoring data is presented in **Appendix H**.

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4 TREATED GROUNDWATER DISCHARGED

Reinjection of groundwater in ICT 6 and ICT 9 was discontinued as of 15 July 2012. The last reinjection occurred on 24 May 2012, immediately prior to the scrubber system malfunction which caused GWTP operation to cease temporarily.

Treated groundwater that met the perchlorate PCL (17 µg/L) was discharged to the INF Pond in accordance with the Protocol for Discharging GWTP Effluent (**Appendix I**). **Table 4** summarizes daily volume from the INF Pond to the Harrison Bayou, the maximum flow rate allowed by chloride and sulfate concentrations, and the approximate volumes discharged for the 4th Quarter of 2021. Approximately 95,326 gallons of water was discharged in November 2021, and 168,085 gallons in December 2021 from the GWTP to the INF Pond. No water was released from the GWTP to the Harrison Bayou in the 4th Quarter of 2021.

On 29 December 2021, during routine INF Pond staff gauging, it was observed that there was vandalism to the locked access gate and an estimated 271,500 gallons of treated groundwater was released via the drain valve to the Harrison Bayou. It should be noted that on 27 December 2021, during routine staff gauging at the INF Pond the drain valve was closed, indicating that un-granted access and release of groundwater occurred sometime between the evening of 24 December 2021 and the morning of 27 December 2021.

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5 AIR MONITORING

5.1 Summary of Air Monitoring Approach

Operation of the GWTP without air abatement was approved by the TCEQ and USEPA conditioned on collection of air monitoring data to determine the effect of GWTP operation on ambient air quality with respect to potential human health exposure risk. An Interim Air Monitoring Plan was developed by AECOM in August 2012 and used to implement the air monitoring program. The air monitoring program included sampling emission concentrations from the air stripper, ambient air at the GWTP, and ambient air downwind of the GWTP. Collection of air data occurred on a weekly basis from September 2012 through September 2013, on a monthly basis from September 2013 through September 2014, and on a quarterly basis since September 2014. The sampling program includes use of Summa canisters and a photoionization detector (PID) to measure vapor phase concentrations. The air stripper emission sample is collected as a grab sample while the ambient air samples are collected as composite samples. The GWTP sample is collected over 8 hours to represent a work day and the downwind sample is collected over 24 hours to represent potential exposure to an off-site receptor[1]. The downwind sample is collected at the closest downwind property boundary based on prevailing wind direction.

PID data (after system calibration) are collected each time the GWTP is operated and serve as a real-time indicator of ambient air conditions at and downwind of the GWTP. Correlations between definitive analytical air data and PID measurements were established and a means to calculate contaminant concentration from PID measurements was developed. A PID threshold of 0.4 parts per million by volume (ppmv) in ambient air was established, such that Summa canister measurements would occur when the PID threshold is exceeded.

The Summa canister samples are analyzed for VOCs using USEPA Method TO-15. The PID measurements are collected after instrument calibration. The air sampling results are summarized and reported to the USEPA and TCEQ in the GWTP quarterly reports; however, the air results are reviewed immediately upon receipt for the potential presence of any exceedances of ambient air concentrations. **Appendix J** (**Tables 1 through 3**) includes a comparison of ambient air concentrations with TCEQ Air Monitoring Comparison Values (AMCVs) or the short-term Effects Screening Levels (ESLs) for chemicals with no published AMCVs, calculations of emission rates from the emission point, and a compilation of PID results and calibration records. The air monitoring results to date indicate that all ambient air concentrations are lower than the AMCVs

[1] Off-site receptor - Any recreational area, residence, commercial/industrial facility, or other normally occupied structures not used solely by the owner or operator of the facilities or the owner of the site upon which the facilities are located. Measurements of distances to determine compliance with this distance restriction must be taken toward structures that are in use as of the date that a notification is filed with the commission.

or ESLs. The stripper stack sample concentrations are used to calculate emission rates in pounds per hour (lbs/hr) and tons per year (tpy). The calculated emission rates in lbs/hr are then compared to the allowable emission rates per 30 Texas Administrative Code (TAC) Section (§)106.533(f)(1). The emission rates have been lower than the allowable emission rates to the conservatively-selected off-site receptor. The calculated emission rate in tpy is compared to the allowable limit of 5 tpy per chemical. All emission rates have been lower than the allowable emission rates.

The air monitoring results from the first few months of operation between September and November 2012 were compiled and submitted in a separate report (December 2012) (along with validated data) to TCEQ to demonstrate compliance with Texas Permit by Rule emission standards. Approval of the analytical results and concurrence that the site will continue to meet Title 30 TAC §106.533 without the use of air abatement using a catalytic oxidation system was obtained from the TCEQ via email on 22 February 2013.

On 18 February 2013, AECOM presented analysis of the approach applicable to obtaining a variance for operating the GWTP without air abatement equipment to the TCEQ and USEPA. The analysis indicated that the use of an Explanation of Significant Difference (ESD) was the appropriate approach for the site. Approval of use of an ESD was obtained from the USEPA via email on 21 March 2013. The ESD was developed, reviewed, and accepted by USEPA and TCEQ. The ESD was signed by the designated parties on 3 April 2014, and concurrence from the TCEQ was obtained in a letter dated 16 April 2014.

5.2 Air Monitoring Results for the 4th Quarter of 2021

During the 4th Quarter of 2021, air sampling was completed on 22 – 23 November 2021. The laboratory data package is presented in **Appendix H.** A summary of the air sampling results is presented in **Appendix J (Tables 1 through 3)**. All results met the criteria described in Section 5.1.

5.2.1 Summa Canister Monitoring Results

Air sampling was conducted using Summa canisters on 22 – 23 November 2021. The samples were collected and analyzed as described in Section 5.1 and per the Interim Air Monitoring Plan (AECOM, August 2012). The analytical results were then compiled in spreadsheets where calculations were completed and comparisons to applicable criteria were made as described in Section 5.1.

5.2.1.1 Ambient Air Results

In November 2021, acetone; cis-1,2-DCE; TCE; n-hexane; toluene; propene; dichlorodifluoromethane; ethanol; trichlorofluoromethane; trichlorotrifluoroethane; alpha-pinene; and d-lionene were detected in the ambient air at the GWTP.

In November 2021, acetone; n-hexane; toluene; ethanol; dichlorodifluoromethane, trichlorofluoromethane; trichlorotrifluoroethane, alpha-pinene, and d-lionene were detected in the ambient air downwind of the GWTP.

Compounds originating at the GWTP would be expected to have lower concentrations in the downwind sampling location than at the GWTP sampling location. With the exception of alpha-pinene and d-lionene, which were higher in the downwind sampling location, this is what was measured. However, the fact that the compounds acetone; n-hexane; toluene; ethanol; trichlorofluoromethane; and trichlorotrifluoroethane were detected in downwind ambient air, suggests that they are present in the ambient (background) air.

The ambient air results during the quarter met the ambient air criteria, as presented in **Table 1** within **Appendix J**.

5.2.1.2 Air Stripper Effluent Results

The VOCs present in groundwater that are removed via the air stripper include 1,1-DCE; 1,2-DCA; cis-1,2-DCE; MC; TCE; PCE; VC; and trichlorotrifluoroethane. These compounds are frequently reported in groundwater at the site, with the exception of trichlorotrifluoroethane which is not typically a groundwater analyte at LHAAP. Trichlorotrifluoroethane, however, appears to be present in groundwater as indicated by limited analysis conducted in December 2013, where it was detected in several wells, and from historical accounts. Many of the chemicals that are reported in ambient air are not detected in the air stripper effluent. This is likely because the reporting limit for the air stripper effluent is higher than the reporting limit for the ambient air samples or the source for some of these chemicals are extraneous to groundwater.

In November 2021, 1,2-DCA; 1,1-DCE; cis-1,2-DCE; TCE; and trichlorotrifluoroethane (CFC 113) were detected in air stripper effluent. The highest concentrations were for cis-1,2-DCE; TCE; and trichlorotrifluoroethane (CFC 113). However, the air stripper effluent concentrations were below the emission criteria, as presented in **Table 2** within **Appendix J**.

5.2.2 PID Results

Along with collection of Summa canister air samples, PID measurements from the same sources/areas were collected and recorded. These simultaneous measurements allowed establishing a correlation between PID readings and VOC concentrations in the Summa canister air samples. Conversion from PID to compound concentrations was established by TCEQ in 30 TAC §106.533(h). The TCEQ equation allows use of a PID to determine individual compound concentrations if the distribution of chemicals in the ambient air is known or assumed. This allows the use of a PID as a tool to measure VOC concentrations and convert the PID results to estimates of compound concentrations. All ambient air PID measurements collected during this quarter were reported at 0.0 parts per million. No VOCs were detected at the GWTP ambient air or downwind PID locations. During 4th Quarter 2021, VOC detections at the air stripper PID location ranged between 21.0 and 25.6 parts per million at each sampling event. The results of the PID readings collected during GWTP operations are presented in **Table 3** within **Appendix J**.

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6 COMMENTS AND RESPONSES

The 3rd Quarter (July - September) 2021 GWTP Evaluation Report was provided to the TCEQ and the USEPA on 14 December 2021. The TCEQ issued an email response indicating no comments on 4 February 2022. The USEPA provided the following comments on 8 February 2022:

USEPA Comment 1: Executive Summary - Based on the following sentence…"The weekly and monthly effluent samples collected on 4 August 2021 had perchlorate detections of 1,030 µg/L and 1,070 µg/L respectively" it is unclear what the purpose of collecting weekly and monthly samples on the same day is.

> **Response to USEPA Comment 1:** Clarification. The GWTP effluent sampling is performed per the *Sampling and Analysis Plan, Groundwater Treatment Plant and Well Fields, Longhorn Army Ammunition Plant, Karnack Texas, Revision 1* (Shaw, July 2007). Perchlorate effluent samples are collected every week when treated groundwater is ready to be discharged to confirm the GWTP is operating as intended. It should be noted that the GWTP is managed in a batch operation. Therefore, there is overlap when the monthly effluent samples are collected since an effluent sample is collected every week.

USEPA Comment 2: Figure ES-1 and Section 1.1.2 – Is there an explanation for why such small volumes of groundwater were recovered during the 3rd quarter of 2021? The third paragraph of Section 1.1.2 indicates that "The GWTP operated for 63 hours during the quarter," so I suspect that is the reason for the relatively small volume of groundwater recovered. The GWTP didn't appear to be offline that much (week and a half at the end of July, a week at the beginning of August, and a week and a half at the end of September). Why was the GWTP operated for such a short amount of time during the quarter?

> **Response to USEPA Comment 2:** Clarification. Note that the GWTP was offline for much of September 2021. The GWTP was operated for 9.75 hours on 1 September 2021. However, before the plant could be operated again a number of repairs and maintenance issues had to be addressed, and the GWTP wasn't successfully restarted until October 2021. Repairs included repairing the potable water line that failed on 7 September 2021, unclogging the polymer feed line, and replacement of the PVC pipeline between the clarifier and the decant tanks. Additionally, the sand within the sand filter was replaced by Palmetto (as noted in the text of the report) starting on 20 September 2021. Note that previously treated groundwater stored in storage tank TK-650 was discharged to the INF Pond upon confirmation of perchlorate sampling on 13, 27, 28, and 29 September 2021 despite the fact that the GWTP was not operating.

USEPA Comment 3: Section 1.1.2 – In the following excerpt from the document that describes the malfunction of the pH probe, there is no discussion of what will be done to address the elevated pH readings that may be inhibiting biological activity…"Envirogen determined that the inline pH probe was not calibrating properly and giving an incorrect reading of 7.4. At this time the pH reading was 8.24 which is above the enhanced FBR operating parameters. Ideally, the pH should be between 7.1 and 7.4 in the FBR. A high pH can inhibit biological activity. Envirogen

recommended the installation and calibration of a new pH probe. A new inline pH probe was ordered and replacement and calibration are planned for the 4th quarter of 2021. In the interim a handheld pH meter is being used to verify pH conditions in the FBR."

Response to USEPA Comment 3: Concur. The inline pH probe helps identify when pH is out of range and alerts the system that pH is too high at which point acid is added to buffer the FBR. Until a new inline pH probe is installed, the GWTP operators are checking pH with a handheld pH meter and manually adjusting the acid feeding into the FBR. The Executive Summary in the next quarterly report (2021 Quarter 4 [October – December 2021] GWTP Evaluation Report) will be revised as follows: "*In the interim, a handheld pH meter is being used to verify pH conditions in the FBR, and the acid feed is manually being adjusted as necessary.*"

USEPA Comment 4: Table 1 – pH data from 7/1/2021-7/28/2021 either should not be reported or should be highlighted and qualified (in a footnote to the table, for example) because this data immediately precedes Envirogen Technologies determination on 7/29/2021 that the inline pH probe was not calibrating properly and was providing incorrect readings. The note currently included below the table refers to this issue, but only with respect to data collected on or after 7/29/2021.

Response to USEPA Comment 4: Noted. The footnote will be revised to state: "Grey shaded cells denote pH outside of operating parameters. Additionally, pH data from 7/1/2021-7/28/2021 may not be reliable as the pH probe was not calibrating properly prior to 7/29/2021." This will require issuance of a change page as Table 1 of the 2021 Quarter 4 (October – December 2021) GWTP Evaluation Report, will not include data from July 2021.

USEPA Comment 5: Section 2.1 – The GWTP from Q2 of 2021 states that…"Water levels from 94 monitoring wells and 11 piezometers (piezometer 12 was damaged and plugged and abandoned in May 2013) are measured monthly to generate potentiometric surface maps," whereas the Q3 report states that only 92 monitoring wells are measured monthly. Are water levels no longer measured in two of the monitoring wells? If so, which ones and why?

Response to USEPA Comment 5: Concur. Since Quarter 3 (Q3) of 2020, 92 monitoring wells and 11 piezometers have been measured monthly as two wells (18WW01 and 18WW16) were abandoned in August 2020. The text in the next quarterly report (2021 Quarter 4 [October – December 2021] GWTP Evaluation Report) will be revised to state: "*Water levels from 92 monitoring wells and 11 piezometers are measured monthly to generate potentiometric surface maps that assist in monitoring the effectiveness of the groundwater extraction system on plume containment. Piezometer 12 (BGPZ-12) was damaged and plugged and abandoned in May 2013, and monitoring wells 18WW01 and 18WW16 were abandoned in August 2020.*"

USEPA Comment 6: Figures B-1 to B-6 – Each of these figures only include two or three flow direction arrows, which really isn't enough to describe groundwater flow directionality. I would suggest adding more arrows or leaving them off entirely.

Response to USEPA Comment 6: Concur. Appendix B figures in the next quarterly report (2021 Quarter 4 [October – December 2021] GWTP Evaluation Report) will include additional flow arrows.

USEPA Comment 7: Section 2.2 – The assertion made in the following sentence seems unlikely for two of the three groundwater datasets (July and September) because the GWTP had been offline for more than a week prior to when the GW-level measurements were made in both of these cases… "The elevated potentiometric surface elevations in the shallow zone groundwater shown for the area located within the ICTs compared to the lower potentiometric surface elevations for the area located outside of the ICTs is likely due to groundwater extraction associated with the ICTs." It seems more likely that the potentiometric surface is lower outside of the ICTs because the ICTs restrict flow causing the water to mound behind them.

Response to USEPA Comment 7: Noted. The sentence will be deleted in the next quarterly report (2021 Quarter 4 [October – December 2021] GWTP Evaluation Report).

USEPA Comment 8: Section 2.5.4 – The following series of statements seem contradictory…" Barium was detected at 2.66 µg/L just above the daily maximum discharge limit (2 µg/L). The barium detection may be a result of the recent replacement of sand in the sand filter. The replacement sand is expected to resolve this slight barium exceedance." Should the middle sentence be changed to "the barium detection may have been caused by the need to replace the sand in the sand filter?"

Response to USEPA Comment 8: Clarification. Quarterly sampling results from GWTP effluent collected in 2021, Quarter 4 confirm that barium is no longer in exceedance of the daily maximum discharge limit. Therefore, further discussion on the barium detections will be presented in Section 2.5.4 of the 2021 Quarter 4 (October – December 2021) GWTP Evaluation Report as follows: "*On 14 September 2021 (3rd Quarter of 2021), barium was detected at 2.66 µg/L just above the daily maximum discharge limit and MCL (2 µg/L). The September 2021 barium exceedance may have been a result of the September 2021 repairs completed on the GWTP, including replacement of sand in the sand filter. However, during the 4th Quarter of 2021, barium was detected at 0.534 µg/L on 9 November 2021 and 0.425 µg/L on 14 December 2021, below the daily maximum discharge limit and MCL (2 µg/L), confirming sufficient treatment by the GWTP.*"

USEPA Comment 9: Table 9 – It is unclear why no influent or effluent samples were collected from the GWTP in September considering that the GWTP only appeared to be offline for the last third of the month and it appears that monthly samples for volatiles, perchlorate, and metals tend to be collected during the first week of the month. Section 1.2.1 mentions that on "22 September 2021, Ark-La-Tex Electric was onsite to replace a blown fuse on the power line," but was unable to determine when the power went out. Quarterly samples were collected on September 14, so presumably the GWTP was operational at that time.

Response to USEPA Comment 9: As discussed in Response to Comment No. 2, the GWTP did not operate for much of September 2021. As a result no monthly influent or effluent sample was collected in September 2021 and no biweekly effluent sample was collected in

September 2021. It is noted that weekly effluent perchlorate samples were collected for confirmation of FBR and IX vessel effectiveness between IX vessels prior to discharge of groundwater. Similarly, quarterly samples were collected at the discharge on the TK-650 holding tank on 14 September 2021.

APPENDIX A
ICT LAYOUT AND GWTP PROCESS FLOW DIAGRAM

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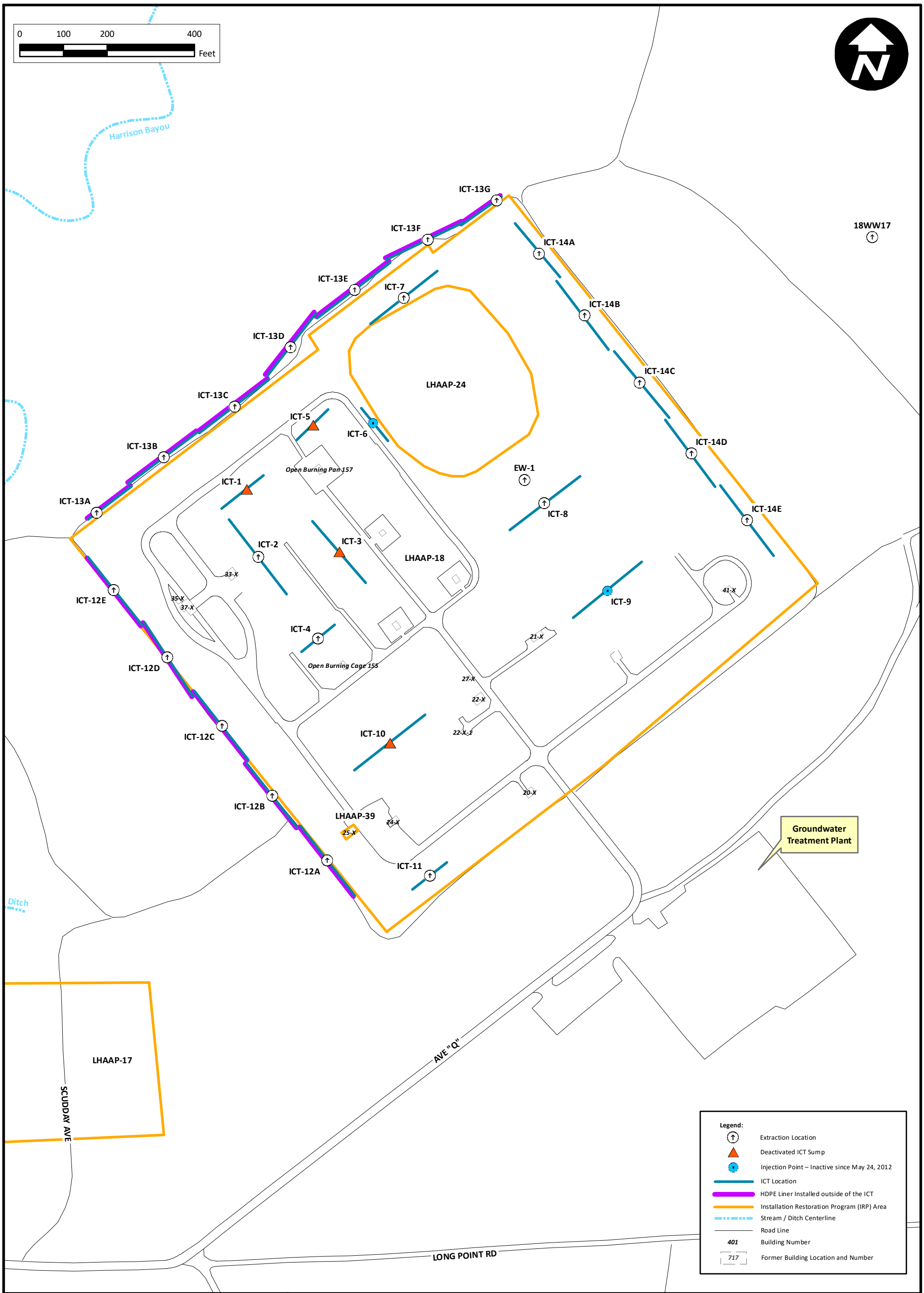

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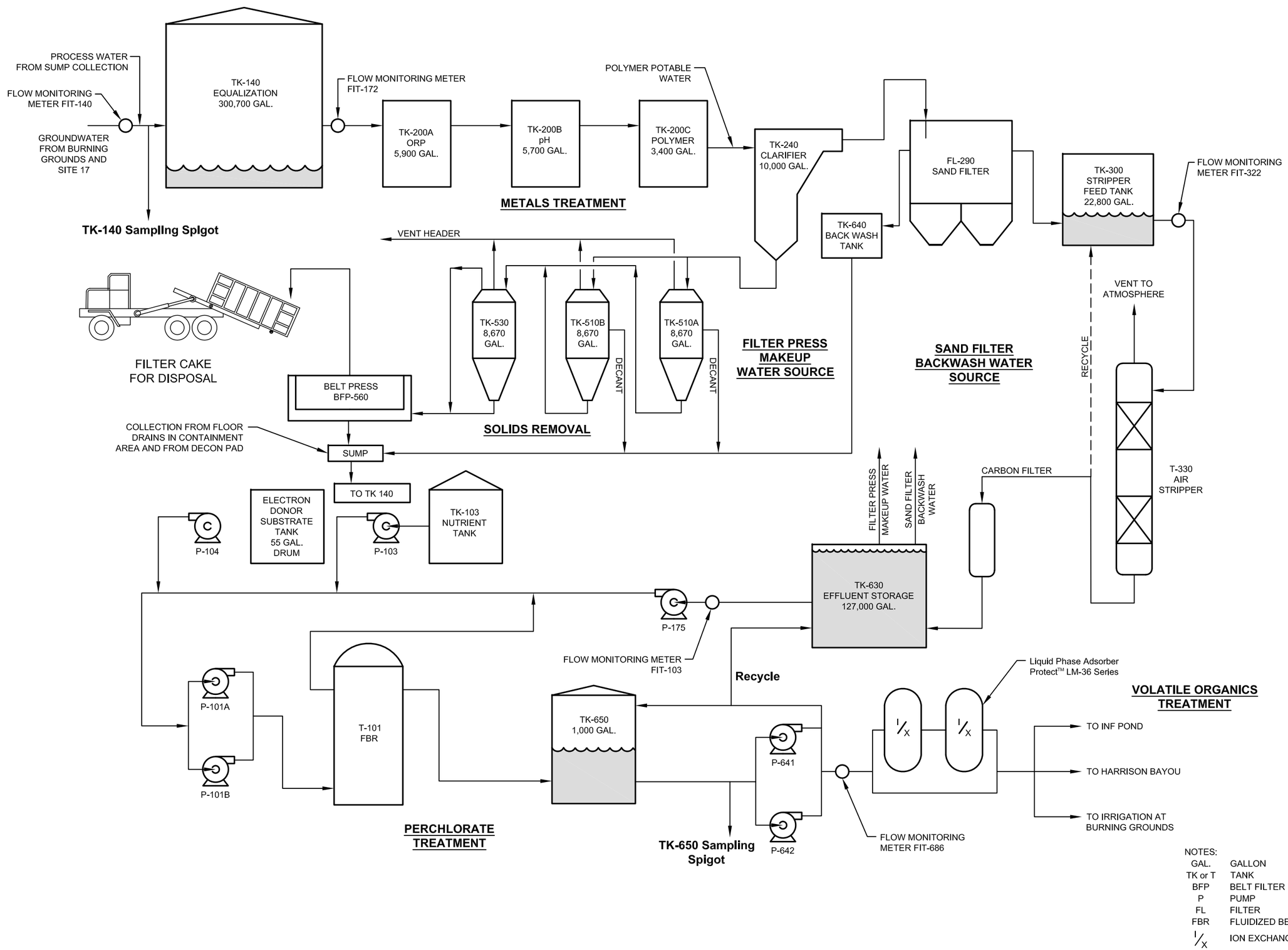
Quarterly Evaluation Report
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	2/22/2022	MRM

ICT Layout Map

Figure A-1

01115324



NOTES:

GAL.	GALLON
TK or T	TANK
BFP	BELT FILTER PRESS
P	PUMP
FL	FILTER
FBR	FLUIDIZED BED REACTOR
I/X	ION EXCHANGE

Process Flow Diagram

Figure A-2

Quarterly Evaluation Report
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM

DATE: 2/22/2022

SCALE: Not to Scale

PROJECT NO: NW01312.0150

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Table A-1: ICTs Completion Depths

ICT	TOC Elevation	Total Depth	Sump Elevation	Comment
1	186.07	22.5	163.57	Taken out of service in 2007.
2	185.02	29.5	155.52	
3	192.27	37.75	154.52	Taken out of service in 2007.
4	193.51	37.5	156.01	
5	192.67	35	157.67	Taken out of service in 2007.
6	197.30	40.75	156.55	Converted to infiltration in 2007. Ceased reinjection in July 2012.
7	198.03	32.33	165.7	
8	198.97	44.5	154.47	
9	197.64	45.5	152.14	Converted to infiltration in 2007. Ceased reinjection in July 2012.
10	198.07	45.42	152.65	Taken out of service in 2007.
11	198.01	43.33	154.68	
12A	189.06	31.5	157.56	Taken out of service in 2007. Reinstituted in December 2012.
12B	191.97	36.25	155.72	
12C	193.90	34.33	159.57	
12D	185.64	33.75	151.89	
12E	183.38	32.25	151.13	
13A	182.59	28.17	154.42	
13B	184.72	29.58	155.14	
13C	186.13	28.17	157.96	
13D	186.72	26.17	160.55	
13E	191.79	27.08	164.71	
13F	197.81	32.33	165.48	
13G	197.03	27.25	169.78	Taken out of service in 2008.
14A	196.8	43.00	153.8	
14B	197.61	43.42	154.19	
14C	197.86	41.33	156.53	
14D	198.47	44.25	154.22	
14E	198.47	43.08	155.39	

Note(s):

ICT - interception-collection trench

TOC - top of casing, measuring point for groundwater elevations

Elevations are reported as feet above mean sea level.

Total depths are reported as feet below TOC.

Sump elevation calculated by subtracting total depth from TOC elevation.

ICTs were installed in 1998.

ICT 12A was replaced on December 5, 2012, and extraction has resumed.

TOC Elevations and total depth measured in October 2003, 4th Quarter 2003, Groundwater Treatment Plant Report.

Table A-2: Extraction Equipment Maintenance Since 2011

LHAAP-18/24

Well I.D.	Replaced Parts	Date	Contractor
ICT 14E	Pump	3/15/2012	Shaw
ICT 14D	Pump, motor, level probes	3/16/2012	Shaw
ICT 14B	Pump, level probes, level probe wire	3/16/2012	Shaw
ICT 14A	Pump, motor, level probes, level probe wire	3/17/2012	Shaw
ICT 2	Pump, motor	3/17/2012	Shaw
ICT 13D	Pump	3/19/2012	Shaw
ICT 13B	Pump	3/20/2012	Shaw
ICT 14E	Pump, motor, broken piping	11/19/2012	AECOM
ICT 13C	Pump	11/20/2012	AECOM
ICT13E	Pump	11/20/2012	AECOM
ICT 12A	Pump, motor, wiring harness, level probes, level probe wire	12/5/2012	AECOM
ICT 7	Pump, motor, wiring harness, level probes	12/6/2012	AECOM
ICT2	Pump	6/10/2013	AECOM
ICT 13C	Pump	6/11/2013	AECOM
ICT 13D	Pump	6/12/2013	AECOM
ICT 14E	Pump rebuilt	6/15/2013	AECOM
ICT 14E	Replaced low level switch	6/19/2013	AECOM
ICT 13C	Pump, wiring harness, flow meter	4/15/2014	AECOM
ICT 14D	Repaired level probes	6/24/2014	AECOM
ICT 14E	Repaired level probes	6/24/2014	AECOM
ICT 14E	Pump and motor troubleshooting	6/26/2014	AECOM
ICT2, 13F, 14C, 14D, 14E	Repaired level probes	7/7/2014	AECOM
ICT 12E	Pump, motor	10/2/2014	AECOM
ICT 12E	Wiring harness, fixed leak	10/8/2014	AECOM
ICT 12E	Level probes	10/9/2014	AECOM
ICT13A	Pump, piping	10/15/2014	AECOM
ICT 12E	Repaired leaking fittings	10/16/2014	AECOM
ICT 11	1" tee and 1" elbow	1/13/2015	AECOM
ICT 12B	Flow meter	1/13/2015	AECOM
ICT 7	1" tee, repaired 1" pipe	1/13/2015	AECOM
ICT 13A	Flow meter	1/15/2015	AECOM
ICT 13B	Pump	1/15/2015	AECOM
ICT 13C	Pump	1/16/2015	AECOM
ICT 7	Low level probe	1/16/2015	AECOM
ICT 13D	Pump, level probes	1/17/2015	AECOM
ICT 14C	Low level probe	1/17/2015	AECOM
ICT 14C	Low level probe	1/29/2015	AECOM
ICT 14D	Low level probe	1/29/2015	AECOM
ICT 13D	Level probes	1/29/2015	AECOM
ICT 2	Pump	1/30/2015	AECOM
ICT 8	Fuse	3/2/2015	AECOM
ICT 8	Fuse	3/9/2015	AECOM
ICT 12E	Flow meter	3/13/2015	AECOM
ICT 13D	Union	3/13/2015	AECOM
ICT 14C	Cleaned level probes	4/1/2015	AECOM
ICT 14D	Cleaned level probes	4/1/2015	AECOM
ICT 13A	Cleaned level probes	4/21/2015	AECOM
ICT 14C	Cleaned level probes	4/21/2015	AECOM
ICT 8	Low level probe	7/24/2015	AECOM
ICT 13C	Installed New Pump	7/28/2015	AECOM

Table A-2: Extraction Equipment Maintenance Since 2011

Well I.D.	Replaced Parts	Date	Contractor
ICT 14C	Installed New Pump and Electric Motor	7/29/2015	AECOM
ICT 14E	Installed New Pump and Electric Motor	7/31/2015	AECOM
ICT 12E	Repaired wiring	8/12/2015	AECOM
ICT 13E	Replaced high and low level probes	8/12/2015	AECOM
ICT 2	Installed Rebuilt Pump	9/9/2015	AECOM
ICT 12 E, ICT 14E	Replaced high level probe and wiring	9/15/2015	AECOM
ICT 13A	Installed new pump	12/23/2015	AECOM
ICT 13B	Installed new pump	12/24/2015	AECOM
ICT 13D	Replaced high level probe	2/11/2016	Aerotek
ICT 14C	Replace low level probe on ICT 14C	2/15/2016	Aerotek
ICT 8	Installed new pump and electric motor	2/19/2016	Aerotek
ICT 14C	Repaired piping leak	3/10/2016	Aerotek
ICT 14E	Installed high and low level probes, level probe wire	3/22/2016	Aerotek
ICT 13D, ICT 14B	Installed high and low level probes, level probe wire	3/24/2016	Aerotek
ICT 14B	Installed new pump and electric motor	3/31/2016	Aerotek
ICT 14C	Installed new low level probe	4/20/2016	Aerotek
ICT 12B	Installed new mechanical flow meter	6/16/2016	Aerotek
ICT 13C	Installed rebuilt pump and new flow meter	8/10/2016	Aerotek
ICT 13A	Installed rebuilt pump, new flow meter, and new 1" unions	8/24/2016	Aerotek
ICT 14E	Installed new mechanical flow meter	8/26/2016	Aerotek
ICT 12C	Repair flow meter	8/30/2016	Aerotek
ICT 2	Install rebuilt pump and new flow meter	8/31/2016	Aerotek
ICT 14C	Clean and adjust level probes	9/7/2016	Aerotek
ICT 14C	Replaced level probes	9/12/2016	Aerotek
ICT 14C	Installed new level probe wire and level probes	9/21/2016	Aerotek
ICT 12C	Installed rebuilt pump, new electric motor, new wiring harness, new level probe wire, and new level probes	9/27/2016	Aerotek
ICT 14C	Cleaned and adjusted level probes	10/14/2016	Aerotek
ICT 13C	Cleaned and adjusted level probes	10/21/2016	Aerotek
ICT 13B	Installed rebuilt pump	10/25/2016	Aerotek
ICT 14D	Installed rebuilt pump	10/27/2016	Aerotek
ICT 13C	Replace low level probe	11/8/2016	Aerotek
ICT 13B	Replace relay base plate	11/8/2016	Aerotek
ICT 13E	Clean and adjust low level probe	11/15/2016	Aerotek
ICT 13B	Replace broken relay base plate and bad level probe wire	11/17/2016	Aerotek
ICT 13C	Clean & repair leaking flow meter	11/18/2016	Aerotek
ICT 13B	Clean & adjust low level probe	11/18/2016	Aerotek
ICT 13A, 13B, & 13E	Clean and adjust low level probes	12/2/2016	Aerotek
ICT 13C & 14C	Pulled piping and pumps	2/8/2017	Aerotek
ICT 14C	Installed new electric motor	2/8/2017	Aerotek
ICT 13C & 14C	Installed rebuilt grundfos pumps	2/8/2017	Aerotek
ICT 7, 13A, & 14D	Repaired sample ports	2/9/2017	Aerotek
ICT 13B & 14E	Cleaned and adjusted low level probes	3/30/2017	Aerotek
ICT 13B & 13F	Installed new flow meters	3/30/2017	Aerotek
ICT 12B	Repair flow meter	4/13/2017	Aerotek
ICT 12C	Replace broken 1" tee	5/1/2017	Aerotek
ICT 11	Installed new manual flow meter	5/5/2017	Aerotek
ICT 2	Installed new flow meter	5/9/2017	Aerotek
ICT 14C & 14D	Cleaned and adjusted low level probes	5/31/2017	Aerotek
ICT 14C	Cleaned and adjusted low level probe	6/27/2017	Aerotek
ICT 8	Clean low level probe	7/11/2017	Aerotek
ICT 2 & 14D	Cleaned and replaced level probes	7/17/2017	Aerotek
ICT 14C	Cleaned low level probe	7/24/2017	Aerotek

Table A-2: Extraction Equipment Maintenance Since 2011

Well I.D.	Replaced Parts	Date	Contractor
ICT 13A	Installed new pump and flow meter	8/8/2017	Aerotek
ICT 13C & 13B	Installed new pump and flow meter	8/9/2017	Aerotek
ICT 13B	Installed new low level probe	8/10/2017	Aerotek
ICT 11	Installed new pump and flow meter	8/11/2017	Aerotek
ICT 4	Replaced low level probe	8/11/2017	Aerotek
ICT 2	Installed rebuilt pump	9/19/2017	Aerotek
ICT 13D	Adjusted level probes	9/22/2017	Aerotek
ICT 14C	Cleaned level probes	10/11/2017	Bhate
ICT 13E	Clean and adjust level probes	10/24/2017	Bhate
ICT 12B	Adjust level probes	11/15/2017	Bhate
ICT 14D	Cleaned level probes	11/15/2017	Bhate
ICT 8	Clean and adjust level probes	11/28/2017	Bhate
ICT 2	Cleaned level probes	12/20/2017	Bhate
ICT 13C	Install new flow meter	1/30/2018	Bhate
ICT 14C	Cleaned level probes	1/30/2018	Bhate
ICT 13C	Cleaned & adjusted level probes	2/1/2018	Bhate
ICT 13B	Repair broken 1" union	2/1/2018	Bhate
ICT 14A	Repair 2 broken 1" elbows & lower high level probe	2/1/2018	Bhate
ICT 14B	Repair broken 1" tee & lower high level probe	2/1/2018	Bhate
ICT 14D	Install new flow meter	2/8/2018	Bhate
ICT 8	Replace broken 1" tee & clened level probes	2/8/2018	Bhate
ICT 14D	Cleaned level probes	2/28/2018	Bhate
ICT 14C	Replace low level probe	2/28/2018	Bhate
ICT 13B	Cleaned level probes	2/28/2018	Bhate
ICT 13A	Install new motor & replace leaking 1" union	3/14/2018	Bhate
ICT 13C	Cleaned & adjusted level probes	3/21/2018	Bhate
ICT 12B	Replace broken 1" elbow & install new flow meter	3/21/2018	Bhate
ICT 2	Install new pump	3/22/2018	Bhate
ICT 13B	Replaced level probes	3/30/2018	Bhate
ICT 14E	Lower high level probe	3/30/2018	Bhate
ICT 14C	Cleaned level probes	4/27/2018	Bhate
ICT 11	Install new breaker	4/27/2018	Bhate
ICT 14E	Cleaned level probes	6/7/2018	Bhate
ICT 12C	Cleaned level probes	6/7/2018	Bhate
EW 01	Cleaned level probes	6/7/2018	Bhate
ICT 14E	Replaced level probes	6/8/2018	Bhate
ICT 11	Install new electrical wire from breaker to well	6/14/2018	Bhate
ICT 12B	Replaced pump	6/25/2018	Bhate
ICT 14E	Cleaned level probes	6/26/2018	Bhate
ICT 8	Cleaned level probes	6/26/2018	Bhate
ICT 14C	Replaced pump	6/27/2018	Bhate
EW01	Replaced level probes	9/12/2018	Bhate
ICT 7	Cleaned level probes	9/12/2018	Bhate
ICT 12C	Replaced low level probe wire and probe	9/12/2018	Bhate
ICT 14D	Replaced high level probe wire & probe	9/13/2018	Bhate
ICT 12B	Replaced high and low level probe wires & probes	9/13/2018	Bhate
ICT 12B	Replaced electrical relay and relay base plate	9/13/2018	Bhate
ICT 14C	Cleaned level probes	9/13/2018	Bhate
ICT 13E	Replaced flow meter	9/14/2018	Bhate
ICT 14D	Replace low level probe	10/31/2018	Bhate
ICT 8	Cleaned level probes	10/31/2018	Bhate
ICT 14C	Cleaned level probes	10/31/2018	Bhate
ICT 13A	Replace broken 1" Tee	12/12/2018	Bhate
ICT 14C	Cleaned level probes	12/12/2018	Bhate
ICT 13A	Install new flow meters	2/14/2019	Bhate

Table A-2: Extraction Equipment Maintenance Since 2011

Well I.D.	Replaced Parts	Date	Contractor
ICT 12D	Replace pump & motor	3/6/2019	Bhate
ICT 13C	Replace pump	3/8/2019	Bhate
ICT 2	Replace pump & flow meter	3/11/2019	Bhate
ICT 14C	Replace pump & motor	3/12/2019	Bhate
ICT 14D	Replace pump	3/12/2019	Bhate
ICT 14E	Replace pump, seal plate & level probes	3/14/2019	Bhate
ICT 14A	Replace pump and repair leaking 1" pipe	3/15/2019	Bhate
ICT 13C	Lower high level probe	3/22/2019	Bhate
ICT 14A	Lower high level probe	3/22/2019	Bhate
EW-01	Replace pump	3/29/2019	Bhate
ICT 8	Clean level probes	4/1/2019	Bhate
ICT 12C	Clean level probes	4/1/2019	Bhate
ICT 13D	Clean level probes	4/1/2019	Bhate
ICT 14E	Replaced bad relay	4/2/2019	Bhate
ICT 12A	Replace flow meter	4/3/2019	Bhate
ICT 13F	Replace flow meter	4/3/2019	Bhate
ICT 13D	Replace low level probe	4/3/2019	Bhate
ICT 13C	Clean level probes	5/8/2019	Bhate
ICT 14 C	Clean level probes	5/8/2019	Bhate
ICT 12D	Replace bad relay	5/8/2019	Bhate
ICT 13A	Replace pump	7/10/2019	Bhate
ICT 13D	Replace pump	7/17/2019	Bhate
ICT 14C	Clean level probes	9/25/2019	Bhate
ICT 14D	Clean level probes	9/25/2019	Bhate
ICT 12D	Clean level probes	10/2/2019	Bhate
ICT 13B	Clean level probes	10/2/2019	Bhate
ICT 13C	Clean level probes	10/2/2019	Bhate
ICT 14E	Clean level probes	10/2/2019	Bhate
18WW17	Install double wall pipe	10/28/2019	Bhate
ICT 14C	Clean level probes	4/16/2020	Bhate
ICT 12B	Replace coil in electrical panel	5/5/2020	Bhate
ICT 14D	Replace coil in electrical panel	5/5/2020	Bhate
ICT 11	Replace broken 1" union	5/12/2020	Bhate
ICT 13E	Replace broken 1" union	5/12/2020	Bhate
ICT 14A	Replace broken 1" tee	5/12/2020	Bhate
ICT 14C	Clean level probes	5/12/2020	Bhate
ICT 14A	Clean level probes	5/12/2020	Bhate
ICT 7	Clean level probes	5/12/2020	Bhate
ICT 13C	Replace pump	5/13/2020	Bhate
ICT 13C	Replace broken 1" union and 1" nipple	5/13/2020	Bhate
ICT 13B	Replace pump	5/19/2020	Bhate
ICT 13B	Replace flow meter	5/19/2020	Bhate
ICT 2	Replace pump	5/20/2020	Bhate
ICT 4	Replace flow meter	9/29/2020	Bhate
ICT 8	Replace flow meter	9/29/2020	Bhate
ICT 12C	Repaired flow meter	9/29/2020	Bhate
ICT 13C	Replace flow meter	9/30/2020	Bhate
ICT 14B	Replace flow meter	9/30/2020	Bhate
ICT 7	Replace flow meter	9/30/2020	Bhate
ICT 14E	Replace pump	10/6/2020	Bhate
ICT 14C	Replace pump and motor	10/7/2020	Bhate
18WW17	Replace bad coil	12/9/2020	Bhate
ICT 14A	Electrical problem repaired	12/15/2020	Bhate
ICT 13F	Electrical problem repaired	12/15/2020	Bhate
ICT 8	Clean level probes	12/16/2020	Bhate

Table A-2: Extraction Equipment Maintenance Since 2011

Well I.D.	Replaced Parts	Date	Contractor
ICT 14C	Clean level probes	12/16/2020	Bhate
ICT 14B	Replace blown fuse	1/26/2021	Bhate
ICT 13A	Replace pump	1/27/2021	Bhate
ICT 13D	Replace Pump & motor	1/27/2021	Bhate
ICT 2	Replace pump & flowmeter	2/9/2021	Bhate
ICT 12E	Replace pump	2/9/2021	Bhate
ICT14A	Replace broken 1" tee	3/3/2021	Bhate
ICT 8	Replaced pump and repaired wiring harness	4/1/2021	Bhate
ICT 14E	Replaced pump and motor	5/1/2021	Bhate
ICT 14D	Replaced pump	5/1/2021	Bhate
ICT 14C	Replaced pump	5/1/2021	Bhate
ICT 7	Replaced blown fuse	9/7/2021	Bhate
ICT 13A	Replace breaker	10/5/2021	Bloc Design
ICT 12A	Clean level probes	10/20/2021	Bhate
ICT 8	Replace low level probe	10/20/2021	Bhate
	LHAAP-16		
Well I.D.	**Replaced Parts**	**Date**	**Contractor**
EW08	New pump	2/28/2011	Shaw
EW01	Rebuild pump	8/25/2011	Shaw
EW06	Rebuild pump	8/25/2011	Shaw
EW02	Rebuild pump	2/12/2012	Shaw
EW03	Rebuild pump	2/12/2012	Shaw
EW08	Rebuild pump	11/8/2012	AECOM
EW01	Rebuild pump	11/8/2012	AECOM
EW04	Repair pump	11/13/2012	AECOM
EW07	Rebuild pump	11/13/2012	AECOM
EW04	Installed New Pump	11/28/2012	AECOM
EW06	Installed New Pump	11/28/2012	AECOM
EW02	Installed New Pump	12/4/2012	AECOM
EW03	Installed New Pump	12/4/2012	AECOM
EW01	Installed New Pump	12/17/2012	AECOM
EW01	Replaced Low level probe	1/17/2015	AECOM
EW01	Cleaned and adjusted level probes	10/21/2016	Aerotek

APPENDIX B
GROUNDWATER ELEVATION CONTOUR MAPS

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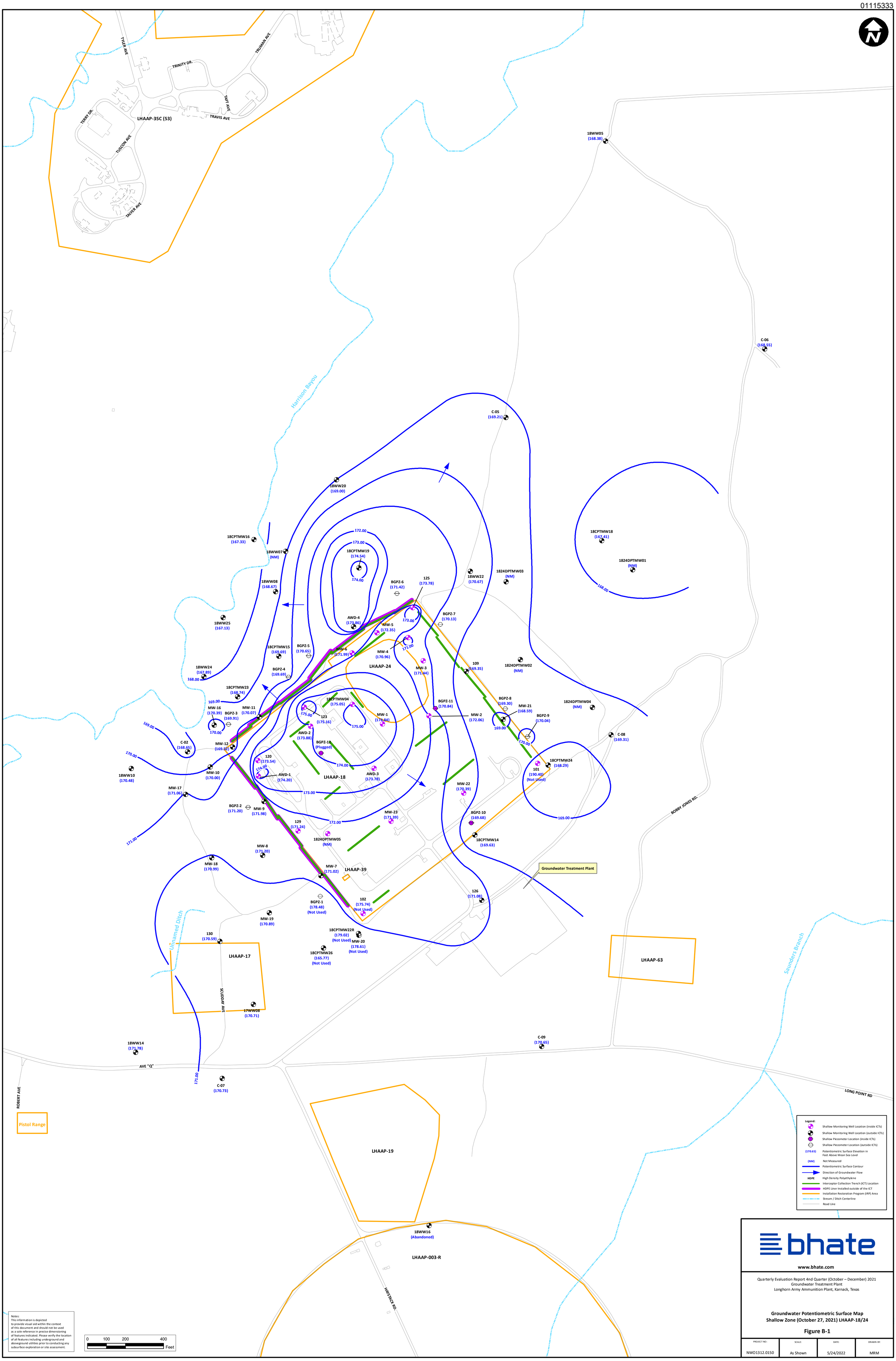

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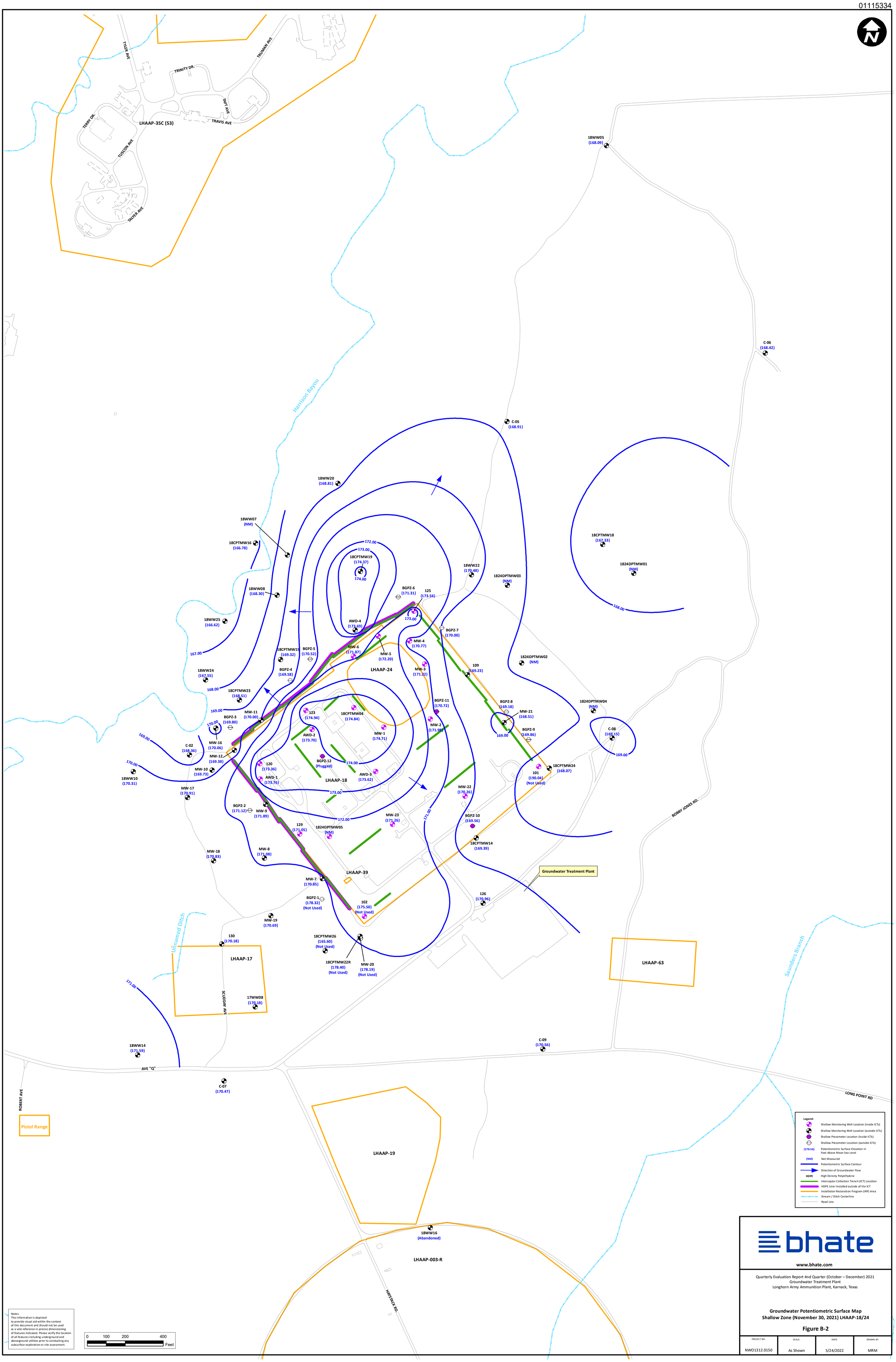
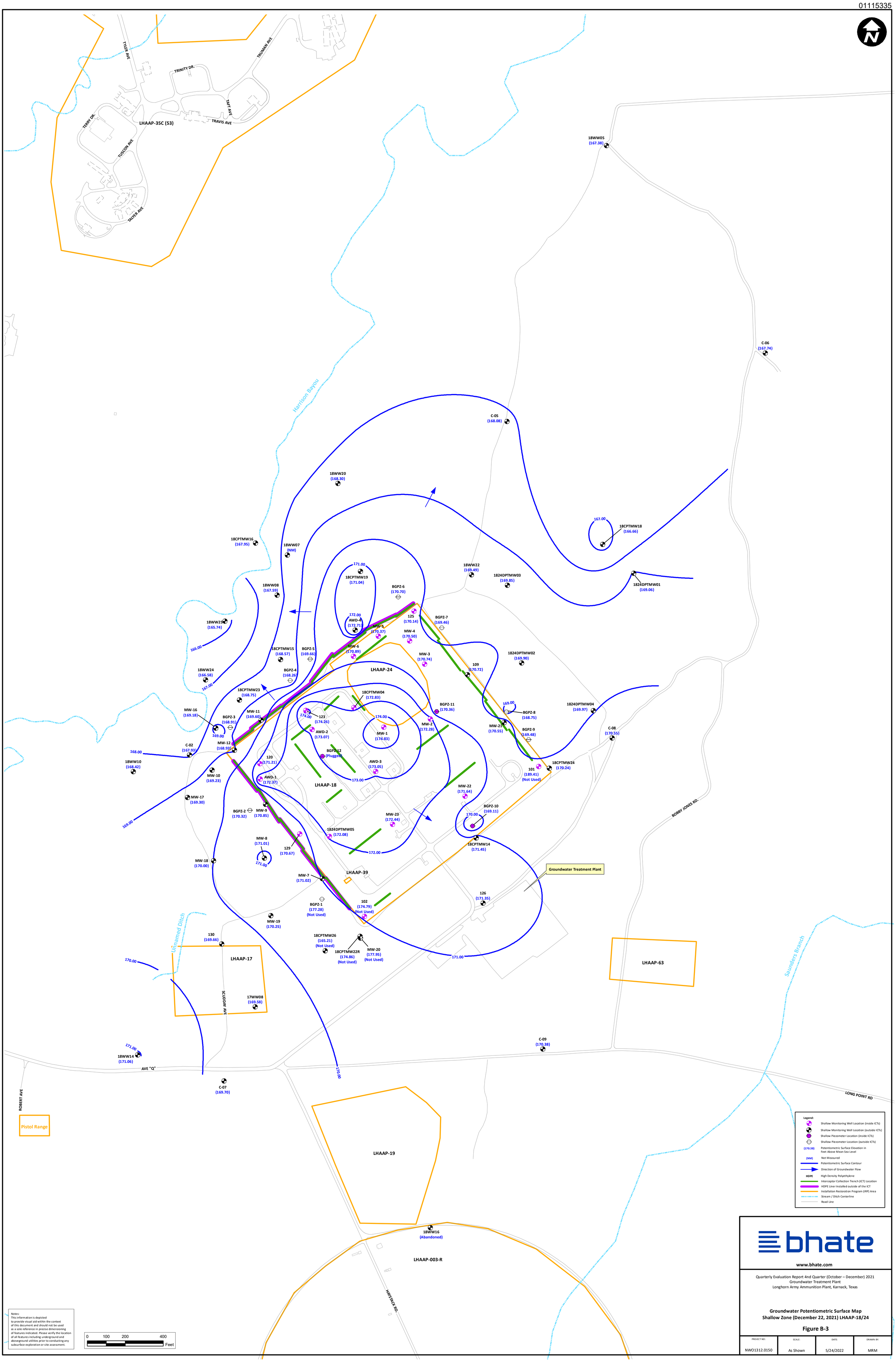
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

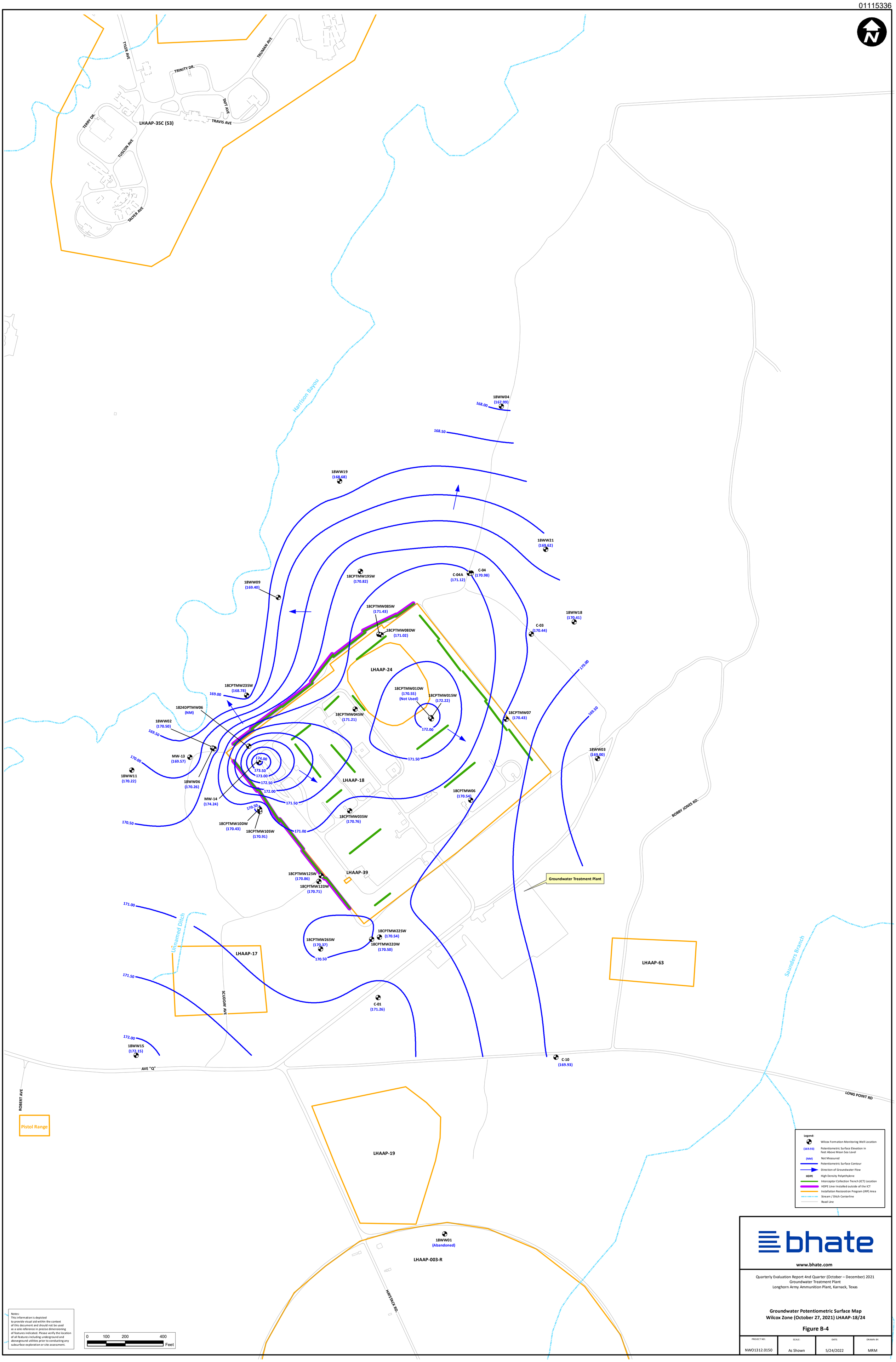
Groundwater Potentiometric Surface Map
Shallow Zone (October 27, 2021) LHAAP-18/24

Figure B-1

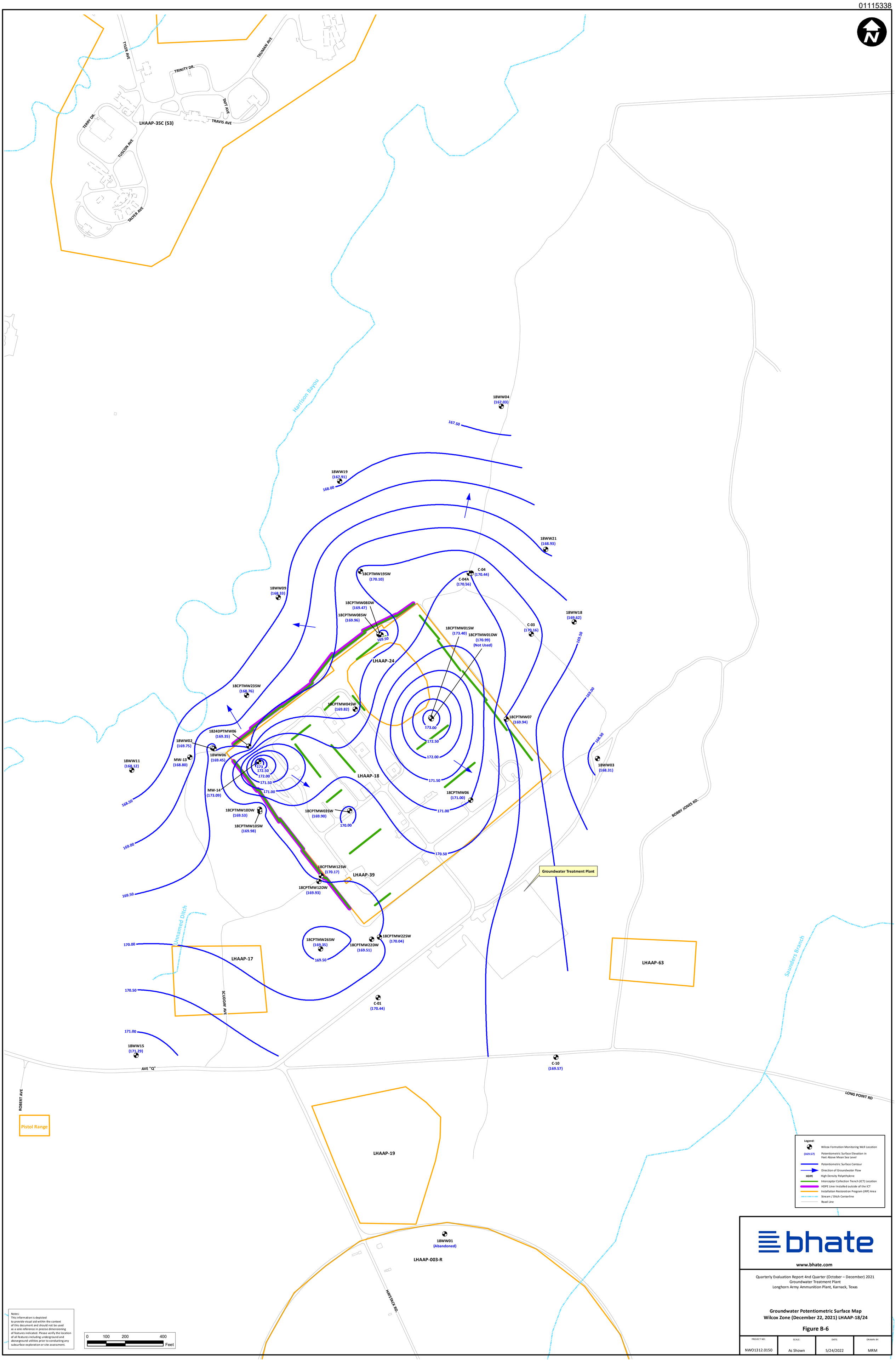
PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/24/2022	MRM


TYLER AVE
TRUMAN AVE
TRINITY DR.
TAFT AVE
TRAVIS AVE
TERRY DR.
LHAAP-35C (53)
TUSCON AVE
TALVER AVE
18WW05
(168.09)
C-06
(168.42)
Harrison Bayou
C-05
(168.91)
18WW20
(168.81)
18WW07
(NM)
18CPTMW16
(166.78)
18CPTMW19
(174.37)
18WW22
(170.48)
1824DPTMW03
(NM)
18CPTMW18
(167.33)
1824DPTMW01
(NM)
18WW08
(168.30)
BGPZ-6
(171.31)
125
(173.54)
18WW25
(166.62)
AWD-4
(173.69)
BGPZ-7
(170.00)
MW-4
(170.77)
MW-6
(171.87)
MW-5
(172.20)
18CPTMW15
(169.32)
BGPZ-5
(170.52)
LHAAP-24
MW-3
(171.22)
1824DPTMW02
(NM)
109
(169.23)
18WW24
(167.55)
BGPZ-4
(169.58)
18CPTMW23
(168.51)
BGPZ-11
(170.72)
BGPZ-8
(169.18)
1824DPTMW04
(NM)
MW-21
(168.51)
123
(174.94)
18CPTMW04
(174.84)
MW-11
(170.00)
BGPZ-3
(169.80)
MW-2
(171.99)
MW-1
(174.71)
BGPZ-9
(169.86)
C-08
(169.15)
AWD-2
(173.70)
MW-16
(170.06)
C-02
(168.36)
MW-12
(169.38)
BGPZ-12
(Plugged)
120
(173.36)
AWD-3
(173.62)
18CPTMW24
(168.07)
101
(190.04)
(Not Used)
MW-10
(169.73)
18WW10
(170.31)
AWD-1
(173.76)
LHAAP-18
MW-17
(170.91)
MW-22
(170.26)
BOBBY JONES RD.
BGPZ-2
(171.12)
MW-9
(171.89)
MW-23
(171.26)
BGPZ-10
(169.56)
129
(171.05)
1824DPTMW05
(NM)
18CPTMW14
(169.39)
MW-18
(170.83)
MW-8
(171.08)
LHAAP-39
Groundwater Treatment Plant
MW-7
(170.85)
126
(170.96)
BGPZ-1
(178.32)
(Not Used)
102
(175.50)
(Not Used)
MW-19
(170.69)
Unnamed Ditch
130
(170.18)
18CPTMW26
(165.60)
(Not Used)
LHAAP-17
18CPTMW22R
(178.40)
(Not Used)
MW-20
(178.19)
(Not Used)
LHAAP-63
Saunders Branch
SCUDDAY AVE
17WW08
(170.18)
18WW14
(171.59)
C-09
(170.56)
AVE "Q"
C-07
(170.47)
LONG POINT RD
ROBERT AVE
Pistol Range
LHAAP-19
18WW16
(Abandoned)
LHAAP-003-R
HAYSTACK RD.
172.00
173.00
174.00
171.00
170.00
169.00
168.00
167.00
Legend:
Shallow Monitoring Well Location (inside ICTs)
Shallow Monitoring Well Location (outside ICTs)
Shallow Piezometer Location (inside ICTs)
Shallow Piezometer Location (outside ICTs)
(170.56) Potentiometric Surface Elevation in Feet Above Mean Sea Level
(NM) Not Measured
Potentiometric Surface Contour
Direction of Groundwater Flow
HDPE High Density Polyethylene
Interceptor Collection Trench (ICT) Location
HDPE Liner Installed outside of the ICT
Installation Restoration Program (IRP) Area
Stream / Ditch Centerline
Road Line
Notes:
This information is depicted to provide visual aid within the context of this document and should not be used as a sole reference in precise dimensioning of features indicated. Please verify the location of all features including underground and aboveground utilities prior to conducting any subsurface exploration or site assessment.
0 100 200 400
Feet
bhate
www.bhate.com
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas
Groundwater Potentiometric Surface Map
Shallow Zone (November 30, 2021) LHAAP-18/24
Figure B-2
PROJECT NO: NWO1312.0150
SCALE: As Shown
DATE: 5/24/2022
DRAWN BY: MRM


TYLER AVE
TRUMAN AVE
TRINITY DR.
TAFT AVE
TRAVIS AVE
TERRY DR.
TUSCON AVE
TALVER AVE
LHAAP-35C (53)
18WW05
(167.38)
C-06
(167.74)
Harrison Bayou
C-05
(168.08)
18WW20
(168.30)
167.00
18CPTMW18
(166.66)
18CPTMW16
(167.95)
18WW07
(NM)
171.00
18CPTMW19
(171.04)
18WW22
(169.49)
1824DPTMW03
(169.85)
1824DPTMW01
(169.06)
18WW08
(167.59)
BGPZ-6
(170.70)
172.00
AWD-4
(172.71)
125
(170.14)
BGPZ-7
(169.46)
18WW25
(165.74)
MW-5
(170.37)
MW-4
(170.50)
166.00
18CPTMW15
(168.57)
BGPZ-5
(169.66)
MW-6
(170.89)
MW-3
(170.74)
1824DPTMW02
(169.90)
18WW24
(166.58)
BGPZ-4
(168.26)
LHAAP-24
109
(170.72)
167.00
18CPTMW23
(168.75)
18CPTMW04
(172.83)
BGPZ-11
(170.36)
169.00
BGPZ-8
(168.75)
1824DPTMW04
(169.97)
MW-16
(169.18)
BGPZ-3
(168.91)
MW-11
(169.60)
174.00
123
(174.26)
174.00
MW-1
(174.83)
MW-2
(172.28)
MW-21
(170.55)
BGPZ-9
(169.48)
C-08
(170.55)
169.00
AWD-2
(173.07)
C-02
(167.93)
MW-12
(168.93)
168.00
BGPZ-12
(Plugged)
AWD-3
(173.05)
18WW10
(168.42)
120
(171.21)
18CPTMW24
(170.24)
101
(189.41)
(Not Used)
MW-10
(169.23)
AWD-1
(172.37)
LHAAP-18
173.00
MW-22
(171.64)
MW-17
(169.30)
BGPZ-10
(169.11)
BOBBY JONES RD.
BGPZ-2
(170.32)
MW-9
(170.85)
MW-23
(172.44)
170.00
169.00
1824DPTMW05
(172.08)
18CPTMW14
(171.45)
MW-8
(171.01)
129
(170.67)
172.00
171.00
MW-18
(170.00)
Groundwater Treatment Plant
LHAAP-39
MW-7
(171.02)
126
(171.35)
BGPZ-1
(177.28)
(Not Used)
102
(174.79)
(Not Used)
MW-19
(170.25)
Unnamed Ditch
130
(169.66)
18CPTMW26
(165.21)
(Not Used)
18CPTMW22R
(174.86)
(Not Used)
MW-20
(177.95)
(Not Used)
171.00
LHAAP-63
Saunders Branch
LHAAP-17
170.00
SCUDDAY AVE
17WW08
(169.58)
C-09
(170.38)
171.00
18WW14
(171.06)
AVE "Q"
170.00
C-07
(169.70)
LONG POINT RD
ROBERT AVE
Pistol Range
LHAAP-19
18WW16
(Abandoned)
LHAAP-003-R
HAYSTACK RD.
Legend:
Shallow Monitoring Well Location (inside ICTs)
Shallow Monitoring Well Location (outside ICTs)
Shallow Piezometer Location (inside ICTs)
Shallow Piezometer Location (outside ICTs)
(170.38) Potentiometric Surface Elevation in Feet Above Mean Sea Level
(NM) Not Measured
Potentiometric Surface Contour
Direction of Groundwater Flow
HDPE High Density Polyethylene
Interceptor Collection Trench (ICT) Location
HDPE Liner Installed outside of the ICT
Installation Restoration Program (IRP) Area
Stream / Ditch Centerline
Road Line
Notes:
This information is depicted to provide visual aid within the context of this document and should not be used as a sole reference in precise dimensioning of features indicated. Please verify the location of all features including underground and aboveground utilities prior to conducting any subsurface exploration or site assessment.
0 100 200 400
Feet
bhate
www.bhate.com
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas
Groundwater Potentiometric Surface Map
Shallow Zone (December 22, 2021) LHAAP-18/24
Figure B-3
PROJECT NO: NWO1312.0150
SCALE: As Shown
DATE: 5/24/2022
DRAWN BY: MRM


N
TYLER AVE
TRUMAN AVE
TRINITY DR.
TAFT AVE
TRAVIS AVE
TERRY DR.
LHAAP-35C (53)
TUSCON AVE
TALVER AVE
Harrison Bayou
18WW04
(167.99)
168.00
168.50
18WW19
(168.68)
18WW21
(169.62)
18CPTMW19SW
(170.82)
C-04A
(171.12)
C-04
(170.98)
18WW09
(169.40)
18CPTMW08SW
(171.43)
18CPTMW08DW
(171.02)
18WW18
(170.41)
C-03
(170.44)
LHAAP-24
18CPTMW23SW
(168.78)
169.00
18CPTMW01DW
(170.55)
(Not Used)
18CPTMW01SW
(172.22)
172.00
1824DPTMW06
(NM)
18CPTMW04SW
(171.21)
18CPTMW07
(170.43)
18WW02
(170.50)
169.50
170.00
MW-13
(169.57)
174.00
173.50
173.00
172.50
172.00
171.50
18WW03
(169.00)
18WW11
(170.22)
18WW06
(170.26)
LHAAP-18
18CPTMW06
(170.54)
MW-14
(174.24)
170.50
18CPTMW03SW
(170.76)
18CPTMW10DW
(170.43)
18CPTMW10SW
(170.91)
171.00
BOBBY JONES RD.
18CPTMW12SW
(170.86)
LHAAP-39
18CPTMW12DW
(170.71)
Groundwater Treatment Plant
Unnamed Ditch
18CPTMW22SW
(170.54)
18CPTMW26SW
(170.37)
18CPTMW22DW
(170.50)
LHAAP-17
LHAAP-63
Saunders Branch
SCUDDAY AVE
C-01
(171.26)
18WW15
(172.15)
C-10
(169.93)
AVE "Q"
LONG POINT RD
ROBERT AVE
Pistol Range
LHAAP-19
18WW01
(Abandoned)
LHAAP-003-R
HAYSTACK RD.
Legend:
Wilcox Formation Monitoring Well Location
(169.93) Potentiometric Surface Elevation in Feet Above Mean Sea Level
(NM) Not Measured
Potentiometric Surface Contour
Direction of Groundwater Flow
HDPE High Density Polyethylene
Interceptor Collection Trench (ICT) Location
HDPE Liner Installed outside of the ICT
Installation Restoration Program (IRP) Area
Stream / Ditch Centerline
Road Line
Notes:
This information is depicted to provide visual aid within the context of this document and should not be used as a sole reference in precise dimensioning of features indicated. Please verify the location of all features including underground and aboveground utilities prior to conducting any subsurface exploration or site assessment.
0 100 200 400
Feet
bhate
www.bhate.com
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas
Groundwater Potentiometric Surface Map
Wilcox Zone (October 27, 2021) LHAAP-18/24
Figure B-4
PROJECT NO: NWO1312.0150
SCALE: As Shown
DATE: 5/24/2022
DRAWN BY: MRM

N
TYLER AVE
TRUMAN AVE
TRINITY DR.
TAFT AVE
TRAVIS AVE
TERRY DR.
LHAAP-35C (53)
TUSCON AVE
TALVER AVE
Harrison Bayou
18WW04
(167.76)
168.00
168.50
18WW19
(168.53)
18WW21
(169.45)
C-04A
(170.96)
C-04
(170.80)
18CPTMW19SW
(170.63)
18CPTMW08DW
(170.84)
18CPTMW08SW
(171.21)
(Not Used)
18WW09
(169.06)
18WW18
(170.18)
C-03
(170.28)
170.00
LHAAP-24
18CPTMW23SW
(168.55)
169.00
1824DPTMW06
(NM)
18CPTMW04SW
(171.03)
18CPTMW01SW
(172.00)
18CPTMW01DW
(170.37)
(Not Used)
171.50
18CPTMW07
(170.27)
169.50
18WW02
(170.33)
MW-13
(169.29)
18WW11
(170.00)
174
173.50
173.00
172.50
172.00
171.50
171.00
170.50
LHAAP-18
18WW03
(168.81)
18WW06
(170.05)
MW-14
(174.06)
18CPTMW10DW
(170.24)
18CPTMW10SW
(170.69)
18CPTMW03SW
(170.59)
18CPTMW06
(170.32)
BOBBY JONES RD.
18CPTMW12SW
(170.65)
18CPTMW12DW
(170.48)
LHAAP-39
Groundwater Treatment Plant
Unnamed Ditch
18CPTMW22SW
(170.34)
18CPTMW26SW
(170.19)
18CPTMW22DW
(170.28)
LHAAP-17
LHAAP-63
Saunders Branch
SCUDDAY AVE
C-01
(171.08)
18WW15
(171.93)
C-10
(169.86)
AVE "Q"
LONG POINT RD
ROBERT AVE
Pistol Range
LHAAP-19
18WW01
(Abandoned)
LHAAP-003-R
HAYSTACK RD.
Legend:
Wilcox Formation Monitoring Well Location
(169.86) Potentiometric Surface Elevation in Feet Above Mean Sea Level
(NM) Not Measured
Potentiometric Surface Contour
Direction of Groundwater Flow
HDPE High Density Polyethylene
Interceptor Collection Trench (ICT) Location
HDPE Liner Installed outside of the ICT
Installation Restoration Program (IRP) Area
Stream / Ditch Centerline
Road Line
Notes:
This information is depicted to provide visual aid within the context of this document and should not be used as a sole reference in precise dimensioning of features indicated. Please verify the location of all features including underground and aboveground utilities prior to conducting any subsurface exploration or site assessment.
0 100 200 400
Feet
bhate
www.bhate.com
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas
Groundwater Potentiometric Surface Map
Wilcox Zone (November 30, 2021) LHAAP-18/24
Figure B-5
PROJECT NO: NWO1312.0150
SCALE: As Shown
DATE: 5/24/2022
DRAWN BY: MRM


N
TYLER AVE
TRUMAN AVE
TRINITY DR.
TAFT AVE
TRAVIS AVE
TERRY DR.
LHAAP-35C (53)
TUSCON AVE
TALVER AVE
Harrison Bayou
18WW04
(167.03)
167.50
18WW19
(167.91)
168.00
18WW21
(168.93)
18CPTMW19SW
(170.10)
C-04
(170.44)
C-04A
(170.56)
18WW09
(168.33)
18CPTMW08DW
(169.47)
18CPTMW08SW
(169.96)
18WW18
(169.62)
C-03
(170.16)
18CPTMW01SW
(173.40)
18CPTMW01DW
(170.99)
(Not Used)
169.50
LHAAP-24
18CPTMW23SW
(168.76)
18CPTMW04SW
(169.82)
169.00
18CPTMW07
(169.94)
1824DPTMW06
(169.35)
18WW02
(169.75)
18WW06
(169.45)
MW-13
(168.80)
18WW11
(168.12)
173.00
172.50
172.00
171.50
171.00
168.50
18WW03
(168.31)
LHAAP-18
MW-14
(173.09)
18CPTMW06
(171.00)
18CPTMW10DW
(169.53)
18CPTMW10SW
(169.98)
18CPTMW03SW
(169.90)
170.00
170.50
BOBBY JONES RD.
18CPTMW12SW
(170.17)
LHAAP-39
18CPTMW12DW
(169.93)
Groundwater Treatment Plant
Unnamed Ditch
18CPTMW26SW
(169.35)
18CPTMW22SW
(170.04)
18CPTMW22DW
(169.51)
LHAAP-17
LHAAP-63
Saunders Branch
SCUDDAY AVE
C-01
(170.44)
171.00
18WW15
(171.29)
C-10
(169.57)
AVE "Q"
LONG POINT RD
ROBERT AVE
Pistol Range
LHAAP-19
18WW01
(Abandoned)
LHAAP-003-R
HAYSTACK RD.
Legend:
Wilcox Formation Monitoring Well Location
(169.57) Potentiometric Surface Elevation in Feet Above Mean Sea Level
Potentiometric Surface Contour
Direction of Groundwater Flow
HDPE High Density Polyethylene
Interceptor Collection Trench (ICT) Location
HDPE Liner Installed outside of the ICT
Installation Restoration Program (IRP) Area
Stream / Ditch Centerline
Road Line
Notes:
This information is depicted to provide visual aid within the context of this document and should not be used as a sole reference in precise dimensioning of features indicated. Please verify the location of all features including underground and aboveground utilities prior to conducting any subsurface exploration or site assessment.
0 100 200 400
Feet
bhate
www.bhate.com
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas
Groundwater Potentiometric Surface Map
Wilcox Zone (December 22, 2021) LHAAP-18/24
Figure B-6
PROJECT NO: NWO1312.0150
SCALE: As Shown
DATE: 5/24/2022
DRAWN BY: MRM

APPENDIX C
LABORATORY ANALYTICAL RESULTS FOR LHAAP-18/24
(PROVIDED ELECTRONICALLY AS A SEPARATE FILE)

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APPENDIX D
ISOPLETH CONTOUR MAPS

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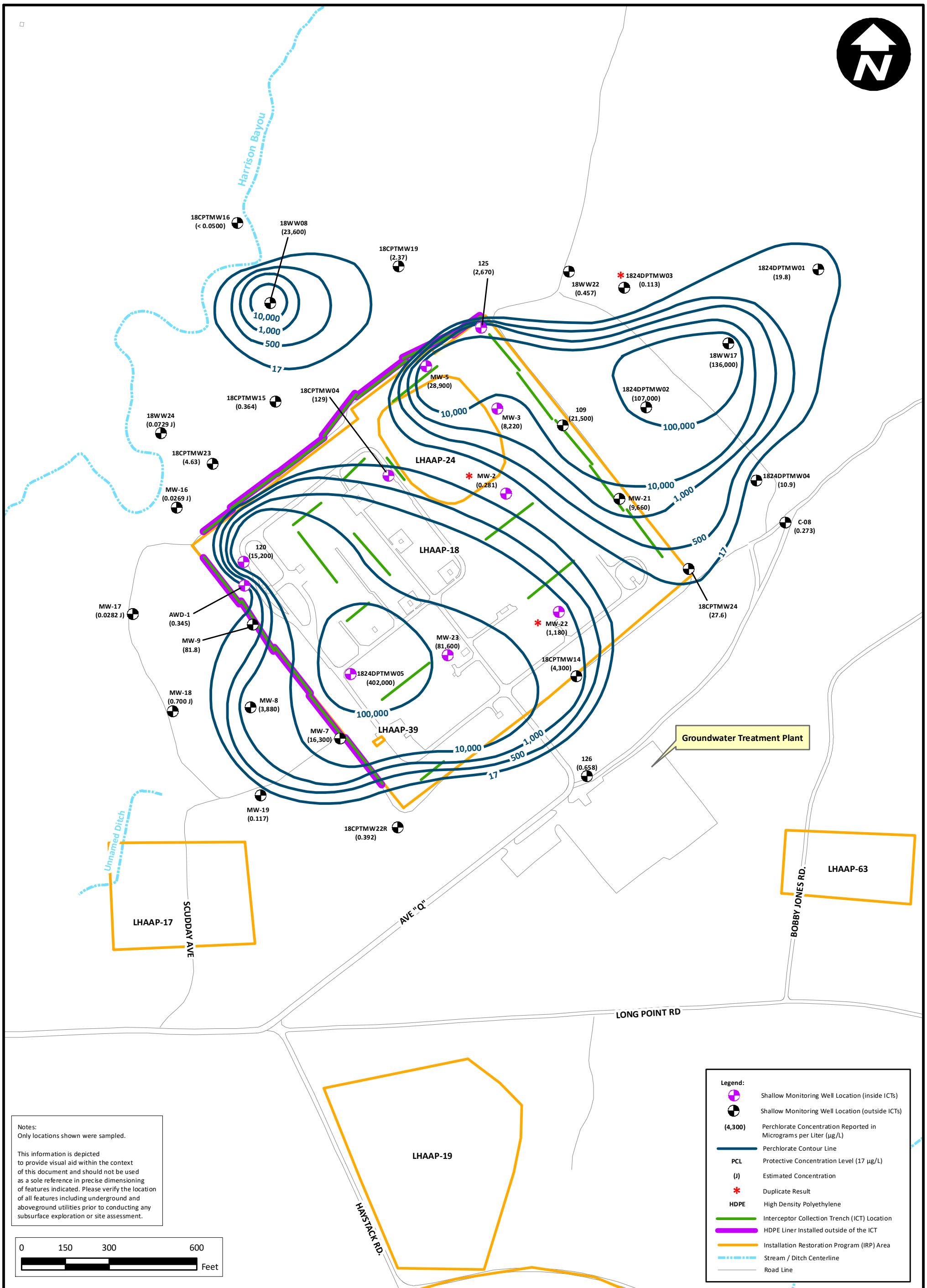

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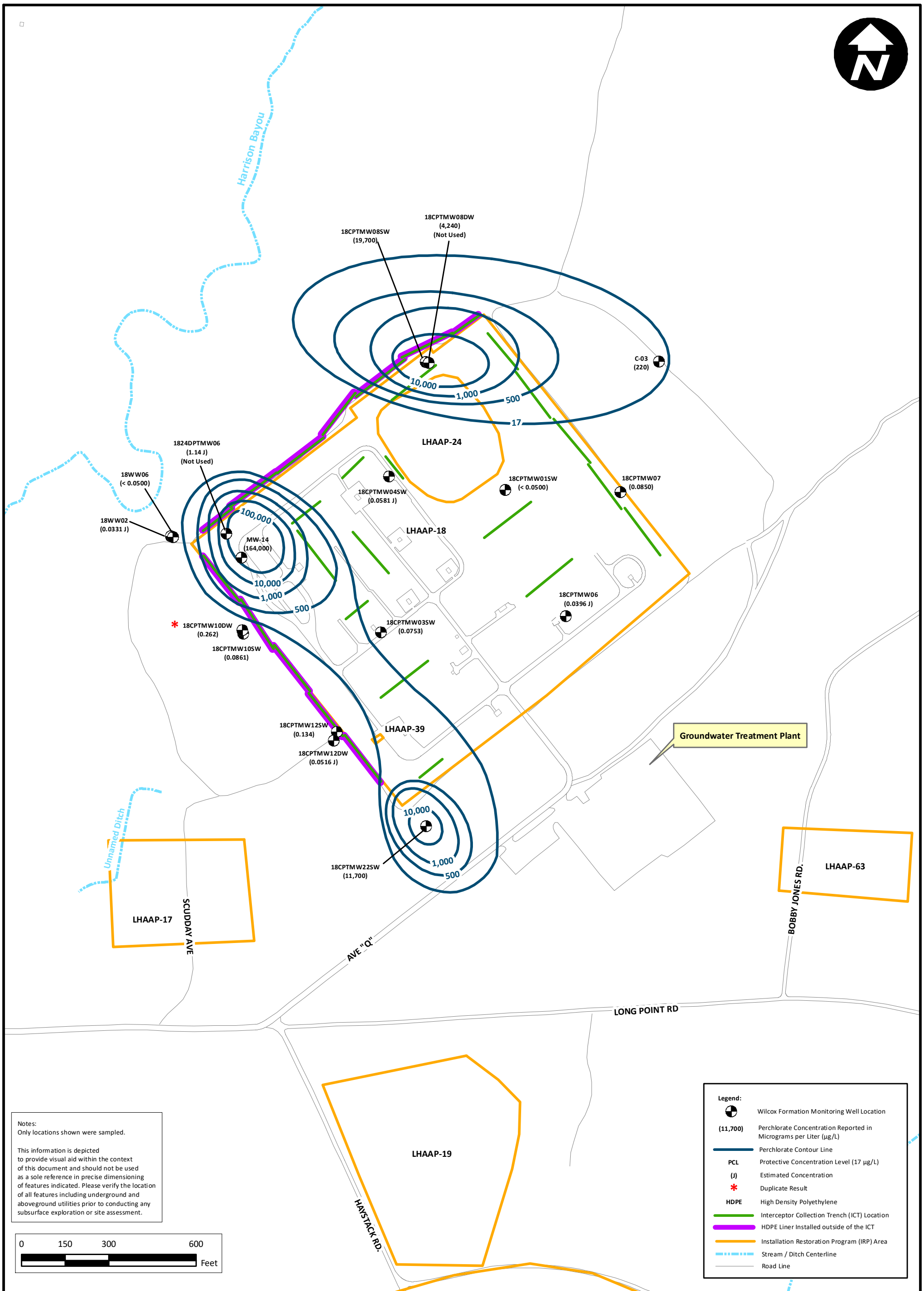
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/19/2022	MRM

Perchlorate Isopleth Contours in Shallow Zone (December 2021)

Figure D-1



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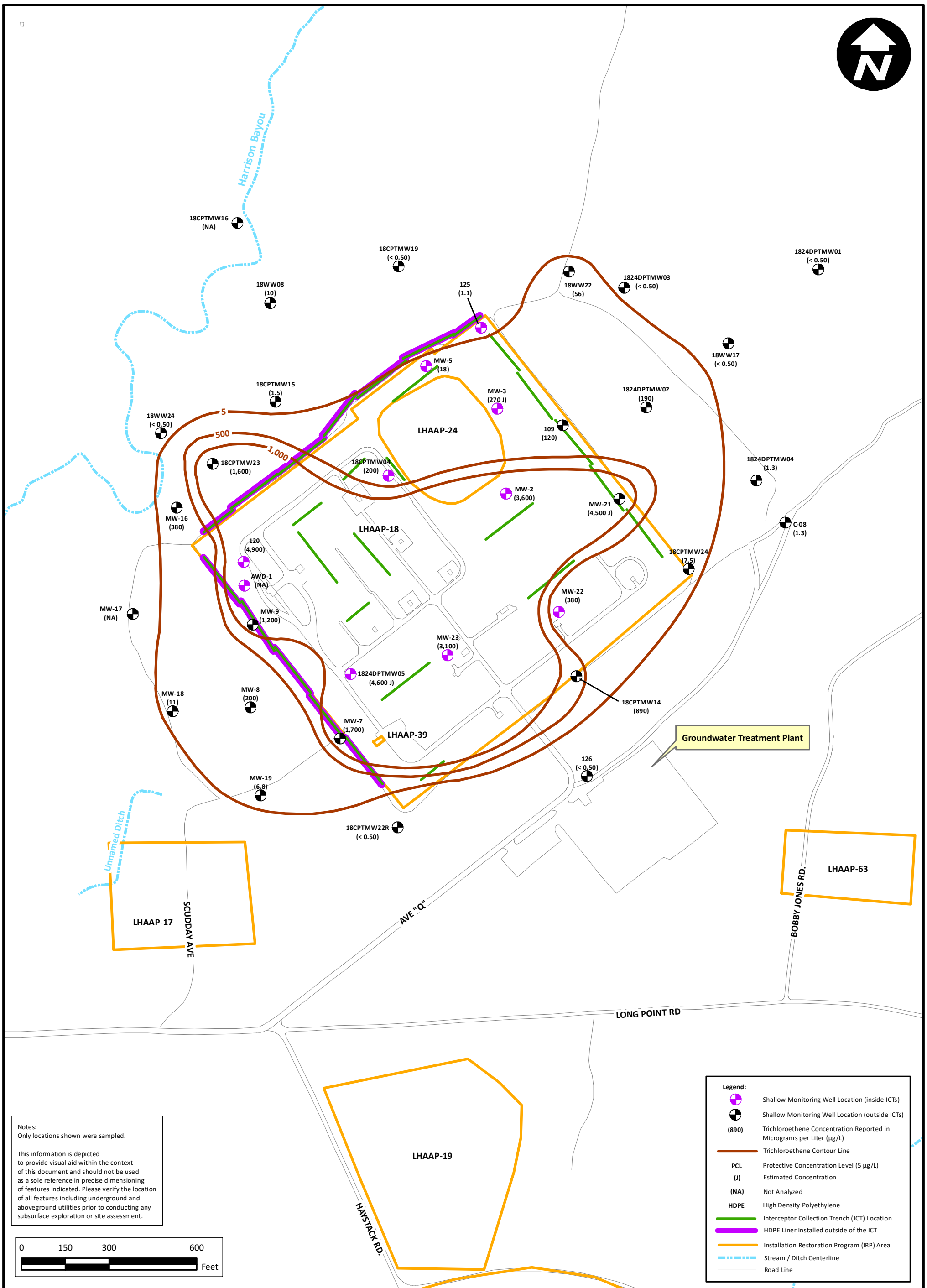
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/19/2022	MRM

Perchlorate Isopleth Contours in Wilcox Formation (December 2021)

Figure D-2



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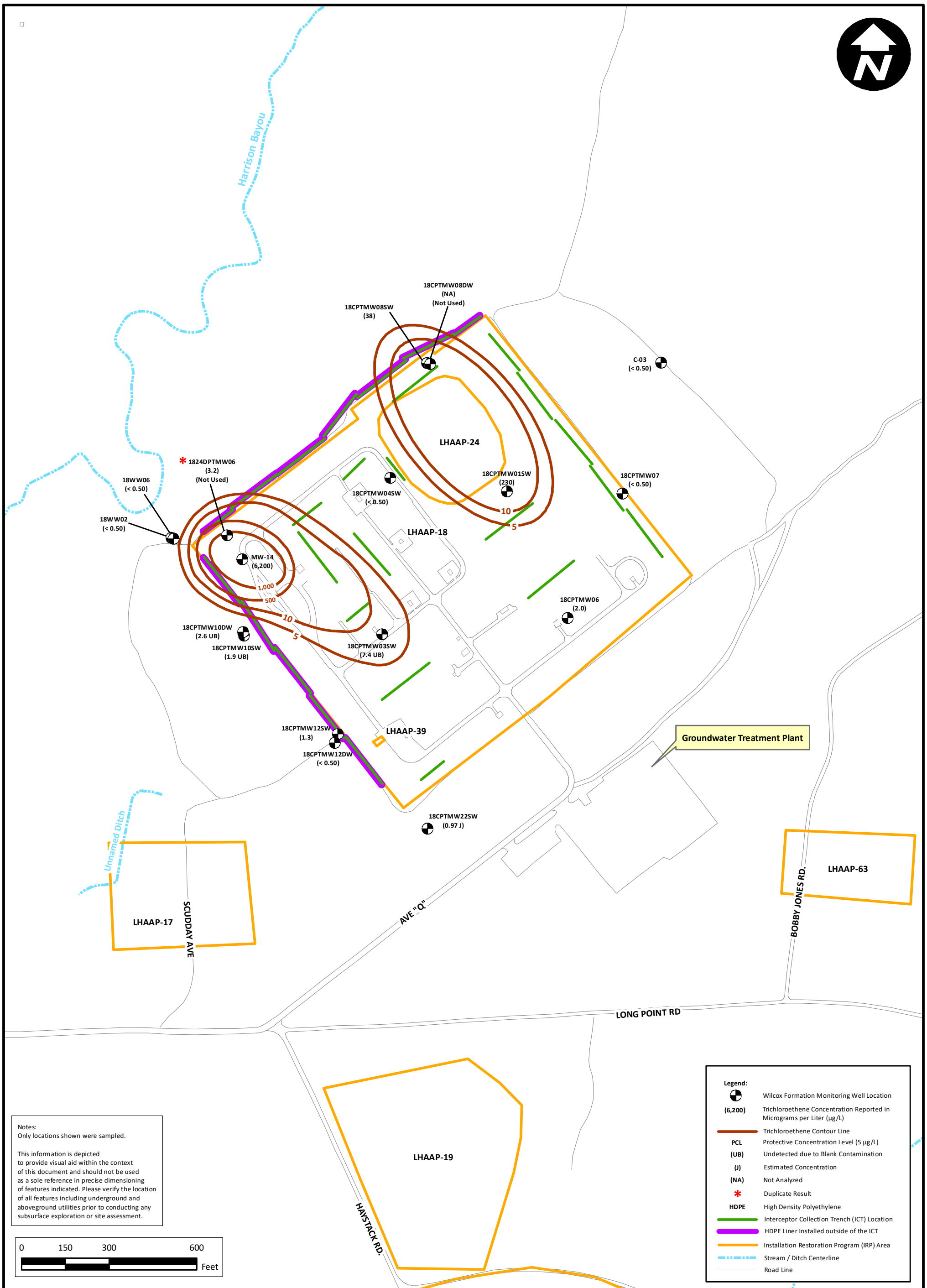
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/19/2022	MRM

Trichloroethene Isopleth Contours in Shallow Zone (December 2021)

Figure D-3



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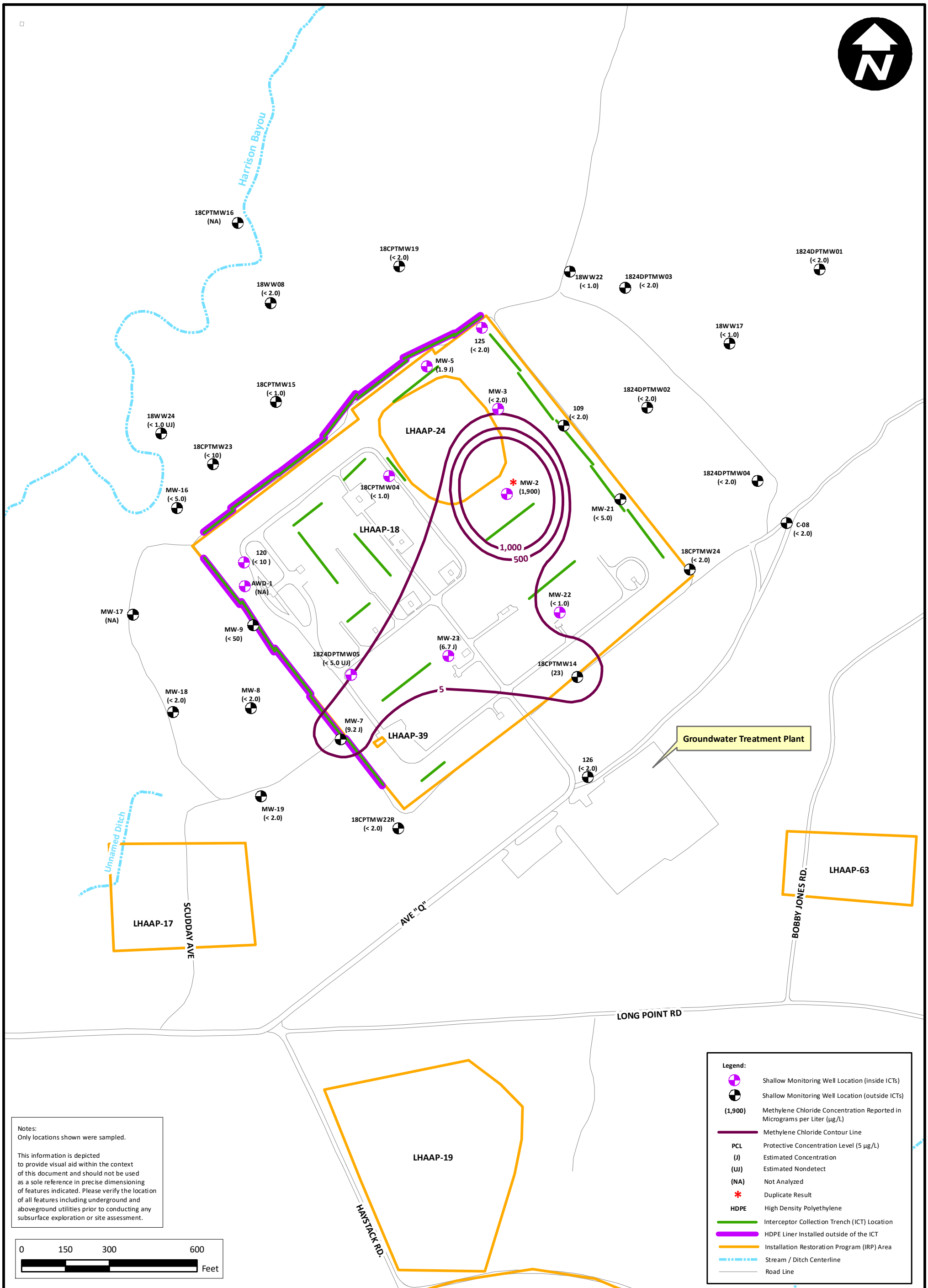
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/19/2022	MRM

Trichloroethene Isopleth Contours in Wilcox Formation (December 2021)

Figure D-4



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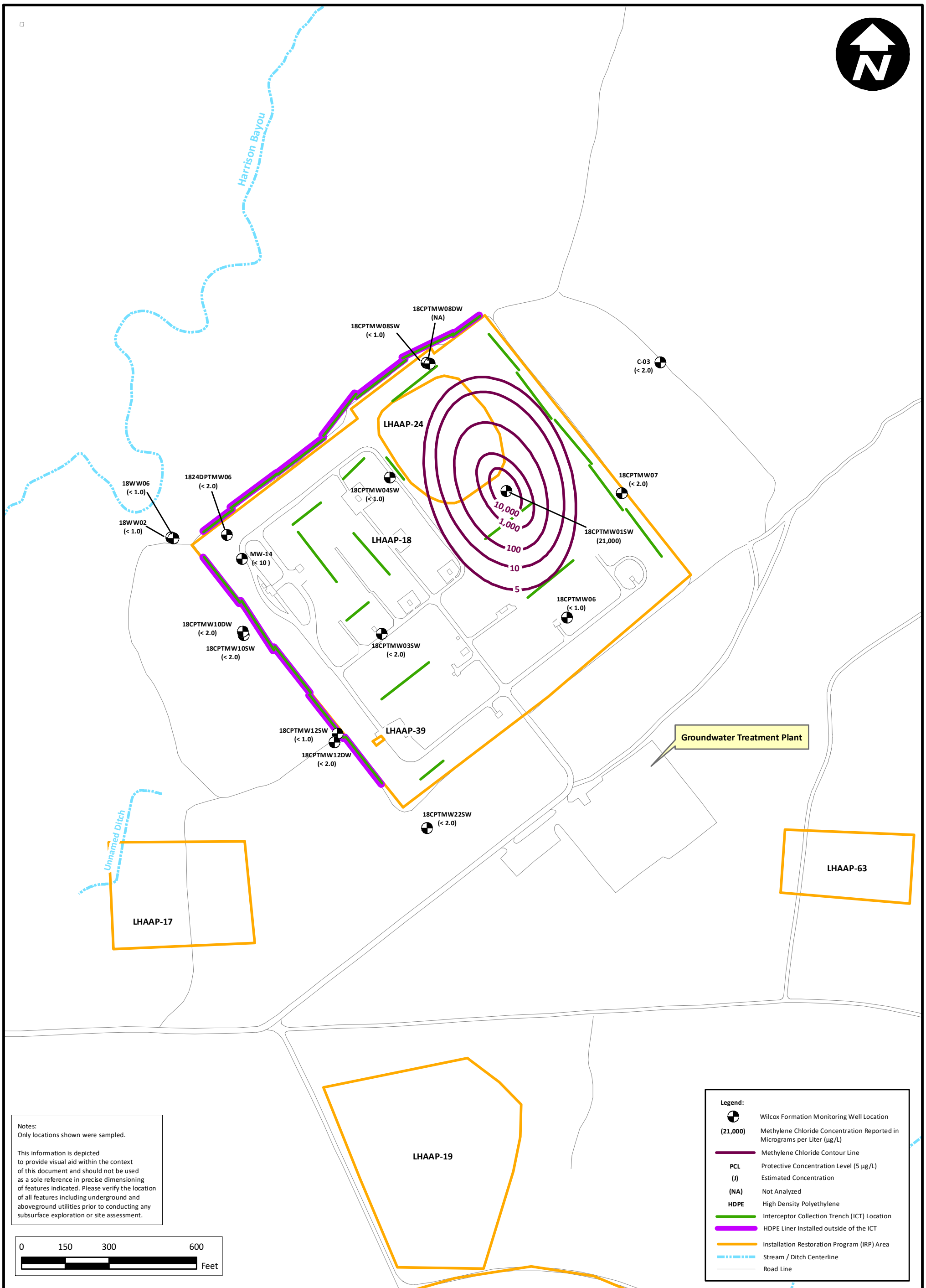
Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/19/2022	MRM

Methylene Chloride Isopleth Contours in Shallow Zone (December 2021)

Figure D-5



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Quarterly Evaluation Report 4nd Quarter (October – December) 2021
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	5/19/2022	MRM

Methylene Chloride Isopleth Contours in Wilcox Formation (December 2021)

Figure D-6

APPENDIX E
MONITORING WELL TREND CHARTS

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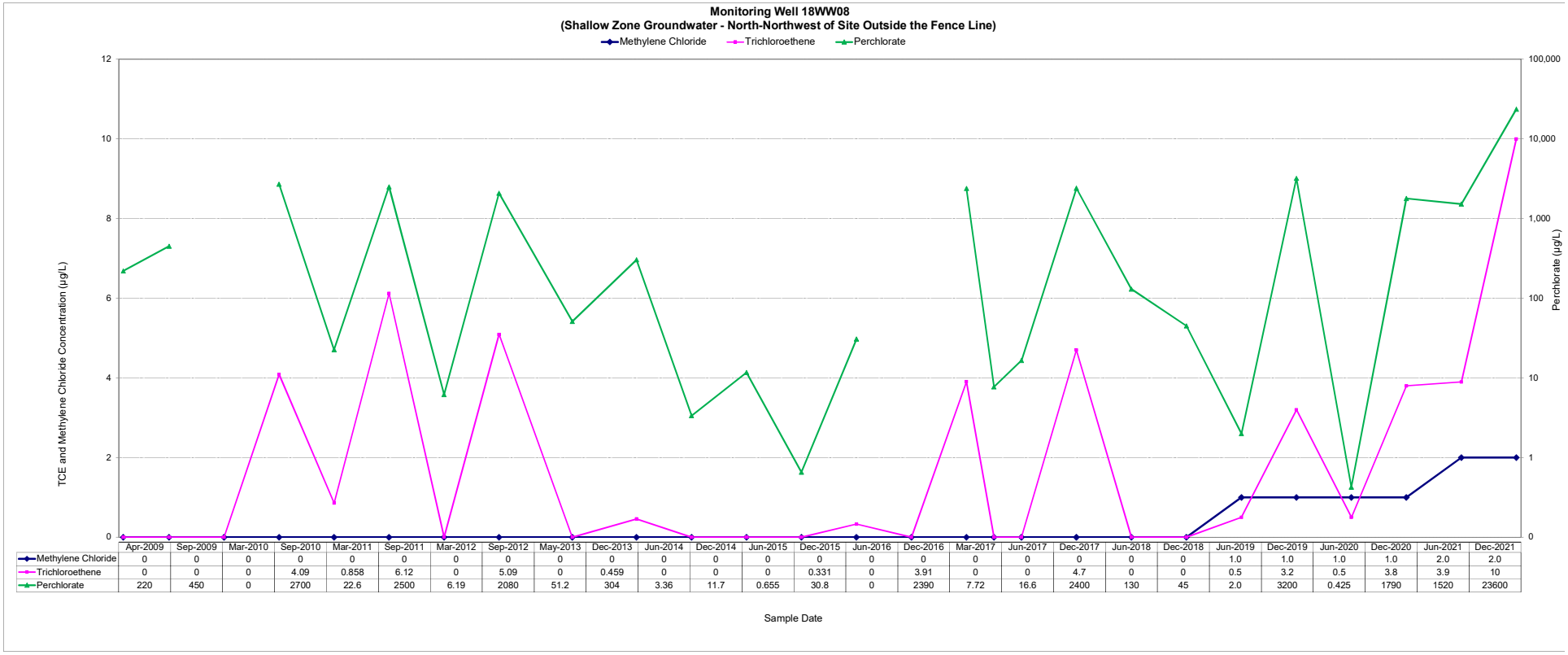
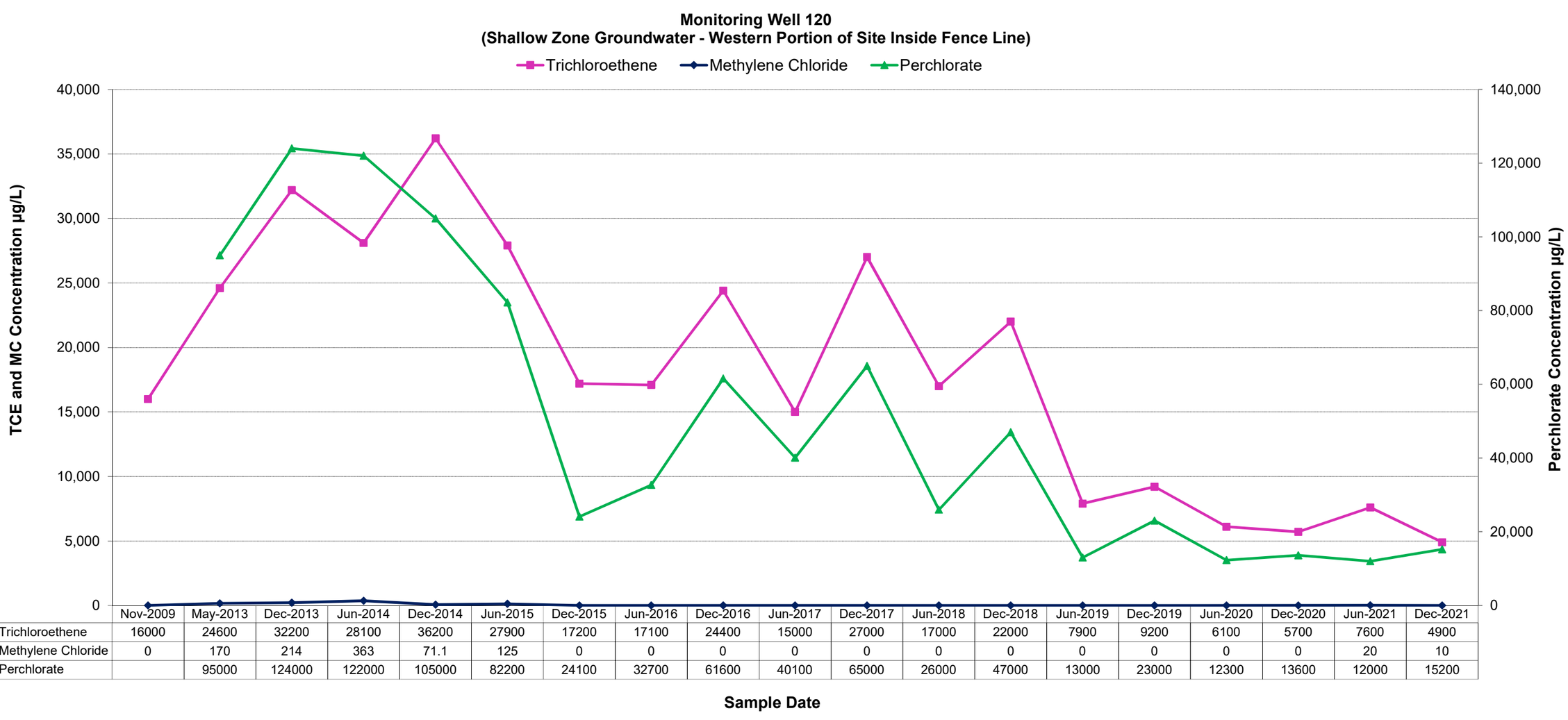


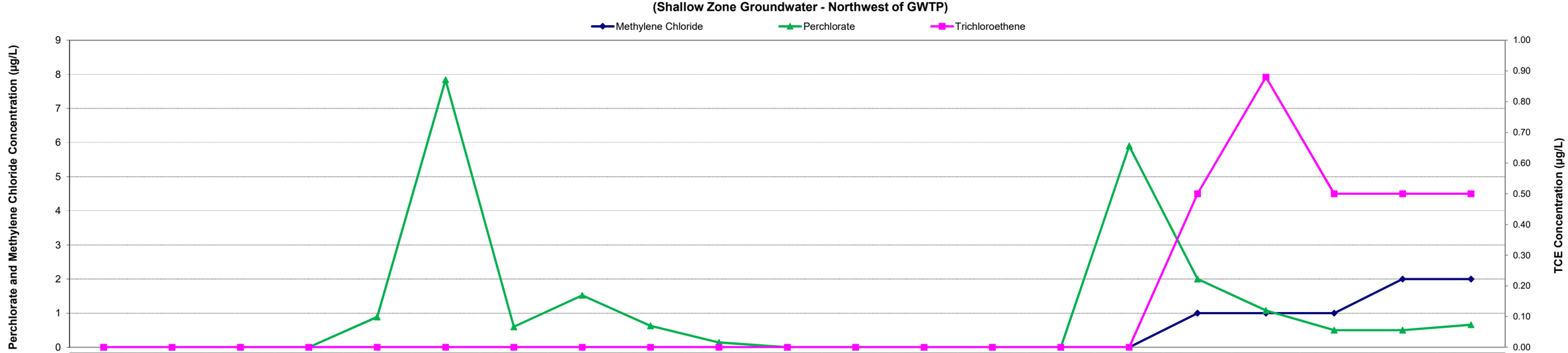
	Apr-2009	Sep-2009	Mar-2010	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Mar-2017	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	1.0	1.0	1.0	2.0	2.0
Trichloroethene	0	0	0	4.09	0.858	6.12	0	5.09	0	0.459	0	0	0	0.331	0	3.91	0	0	4.7	0	0	0.5	3.2	0.5	3.8	3.9	10
Perchlorate	220	450	0	2700	22.6	2500	6.19	2080	51.2	304	3.36	11.7	0.655	30.8	0	2390	7.72	16.6	2400	130	45	2.0	3200	0.425	1790	1520	23600

	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Trichloroethene	1490	765	1310	1160	1280	801	1190	755	1250	670	771	892	850	670	420	130	400	310	400	240	120
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2.0
Perchlorate	16700	11400	16200	50400	85300	25400	22100	3220	20600	1810	17500	265	19000	4300	3200	10000	1000	10500	4350	20400	21500

Sample Date



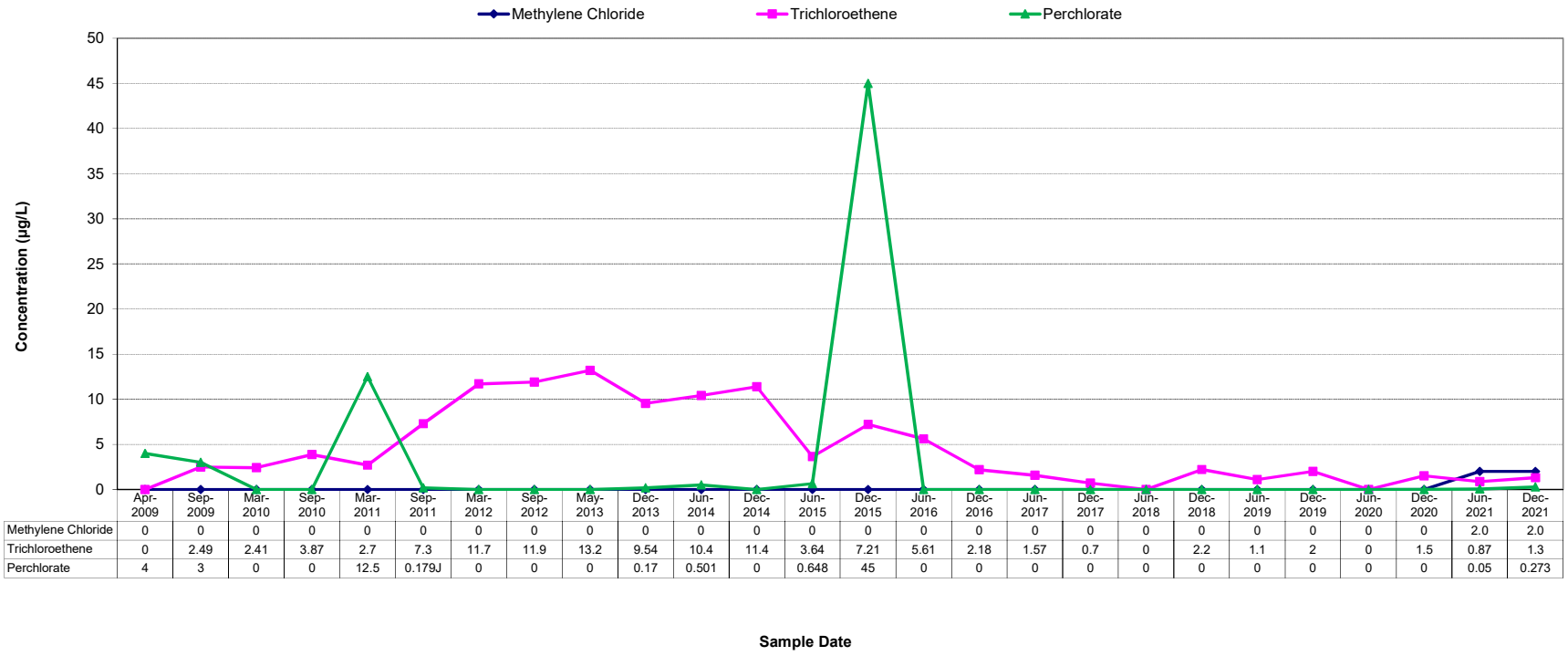
	Nov-2009	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Trichloroethene	16000	24600	32200	28100	36200	27900	17200	17100	24400	15000	27000	17000	22000	7900	9200	6100	5700	7600	4900
Methylene Chloride	0	170	214	363	71.1	125	0	0	0	0	0	0	0	0	0	0	0	20	10
Perchlorate		95000	124000	122000	105000	82200	24100	32700	61600	40100	65000	26000	47000	13000	23000	12300	13600	12000	15200



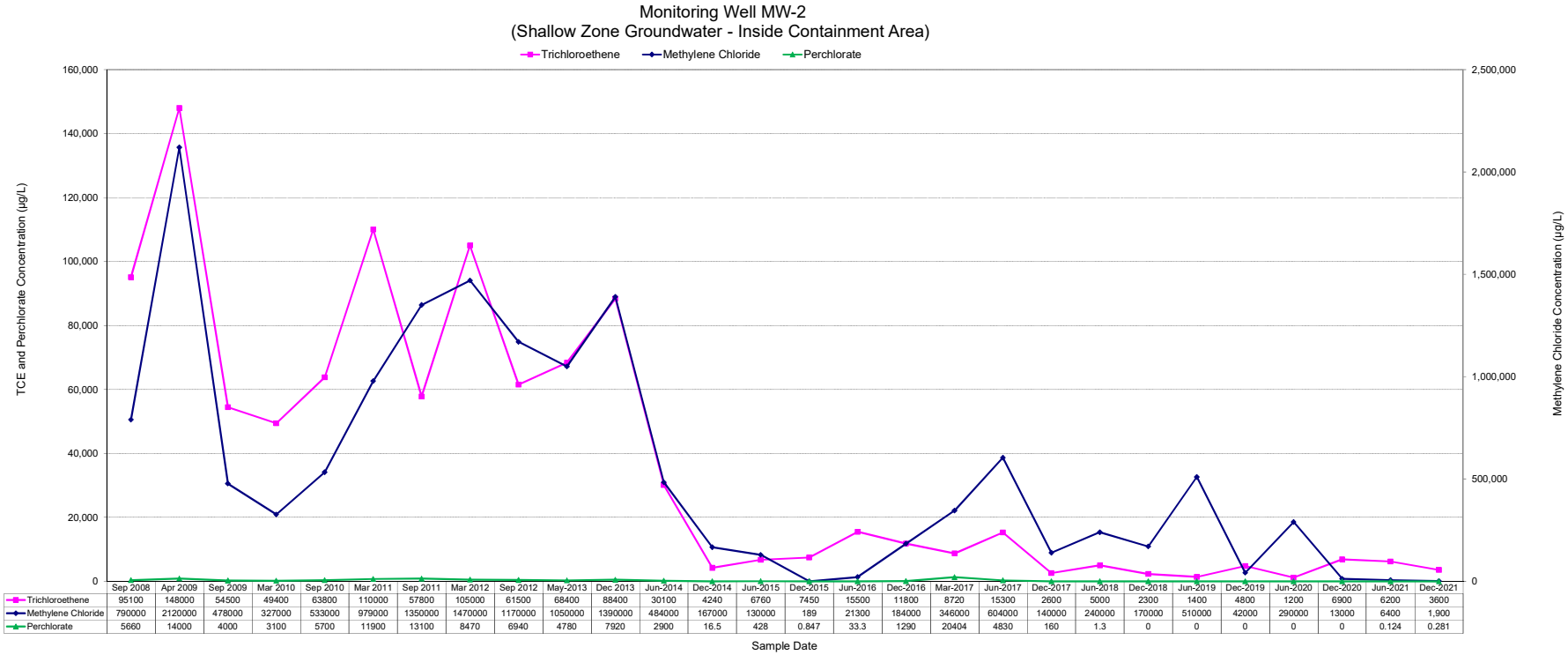
	Mar-2011	Sep-2011	Mar-2012	Sep-2012	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Mar-2017	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	1.0	1.0	2.0	2.0
Perchlorate	0	0	0	0	0.887	7.84	0.602	1.52	0.629	0.14	0	0	0	0	0	5.9	2.0	1.08	0.5	0.5	0.658
Trichloroethene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.88	0.5	0.5	0.5

Sample Date

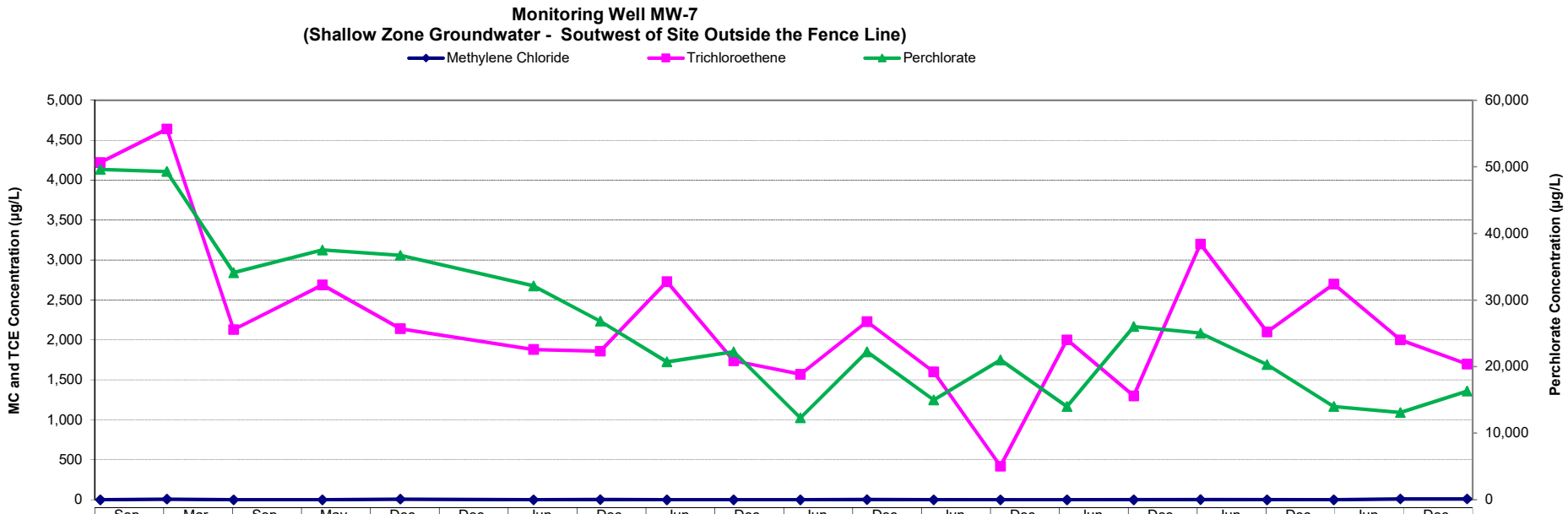
Monitoring Well C-08
(Shallow Zone Groundwater - East of Site Outside the Fence Line)



	Apr-2009	Sep-2009	Mar-2010	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.0	2.0
Trichloroethene	0	2.49	2.41	3.87	2.7	7.3	11.7	11.9	13.2	9.54	10.4	11.4	3.64	7.21	5.61	2.18	1.57	0.7	0	2.2	1.1	2	0	1.5	0.87	1.3
Perchlorate	4	3	0	0	12.5	0.179J	0	0	0	0.17	0.501	0	0.648	45	0	0	0	0	0	0	0	0	0	0	0.05	0.273

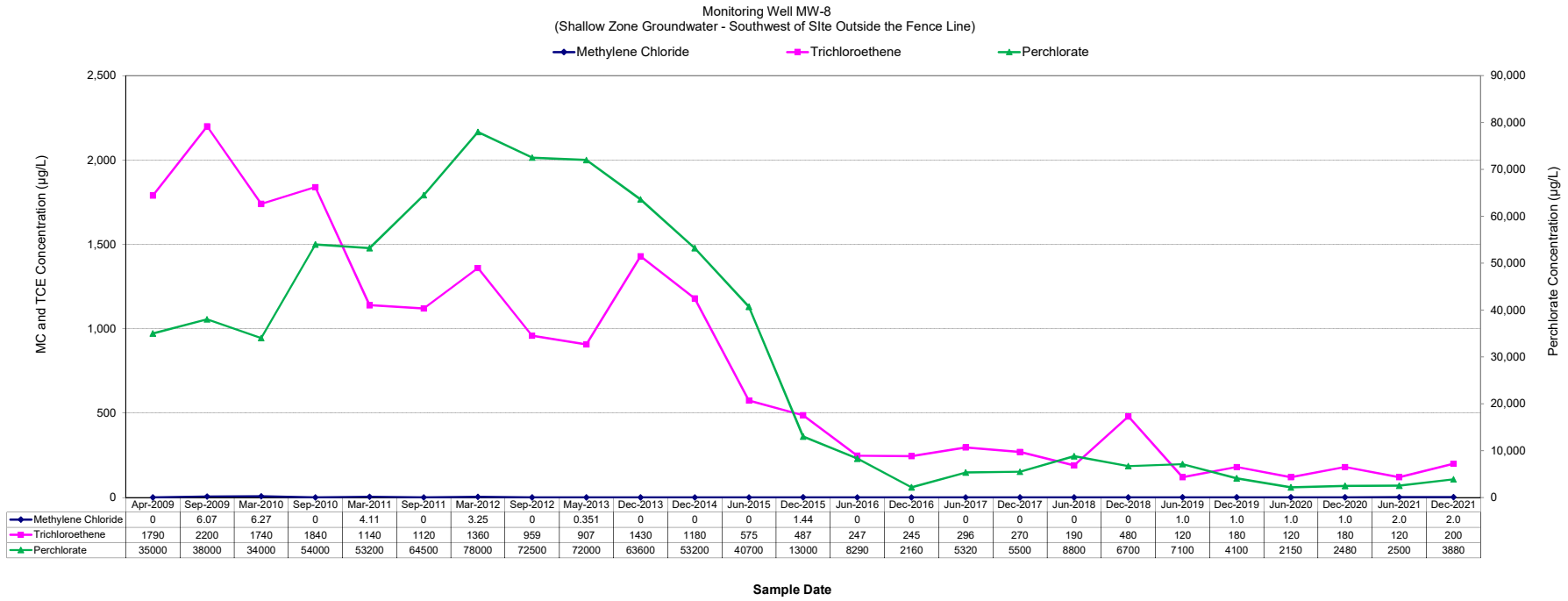


	Sep 2008	Apr 2009	Sep 2009	Mar 2010	Sep 2010	Mar 2011	Sep 2011	Mar 2012	Sep 2012	May-2013	Dec 2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Mar-2017	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Trichloroethene	95100	148000	54500	49400	63800	110000	57800	105000	61500	68400	88400	30100	4240	6760	7450	15500	11800	8720	15300	2600	5000	2300	1400	4800	1200	6900	6200	3600
Methylene Chloride	790000	2120000	478000	327000	533000	979000	1350000	1470000	1170000	1050000	1390000	484000	167000	130000	189	21300	184000	346000	604000	140000	240000	170000	510000	42000	290000	13000	6400	1,900
Perchlorate	5660	14000	4000	3100	5700	11900	13100	8470	6940	4780	7920	2900	16.5	428	0.847	33.3	1290	20404	4830	160	1.3	0	0	0	0	0	0.124	0.281

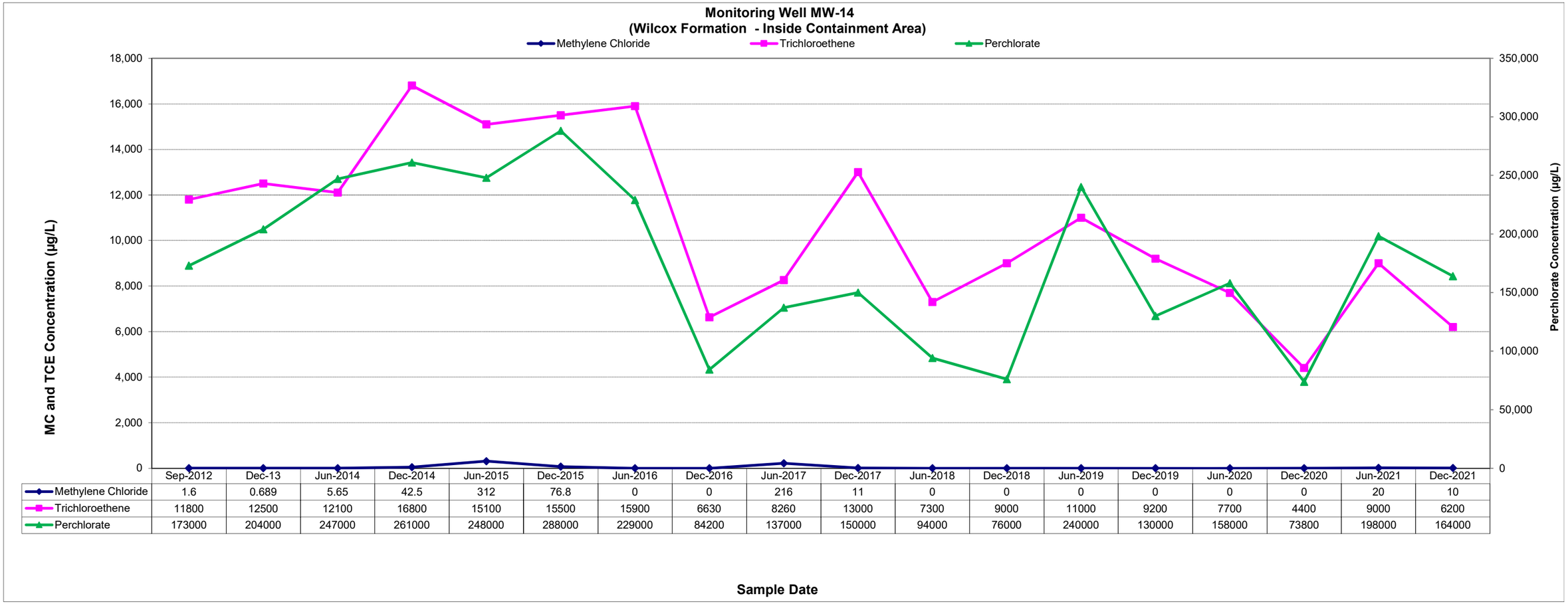


	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	7.75	0	0	7.81	0	0.352	0	0	0	0.314	0	0	0	0	1.0	0	0	10	9.2
Trichloroethene	4220	4640	2130	2690	2140	1880	1860	2730	1740	1570	2230	1600	420	2000	1300	3200	2100	2700	2000	1700
Perchlorate	49600	49300	34100	37500	36700	32100	26800	20700	22200	12300	22200	15000	21000	14000	26000	25000	20300	14000	13100	16300

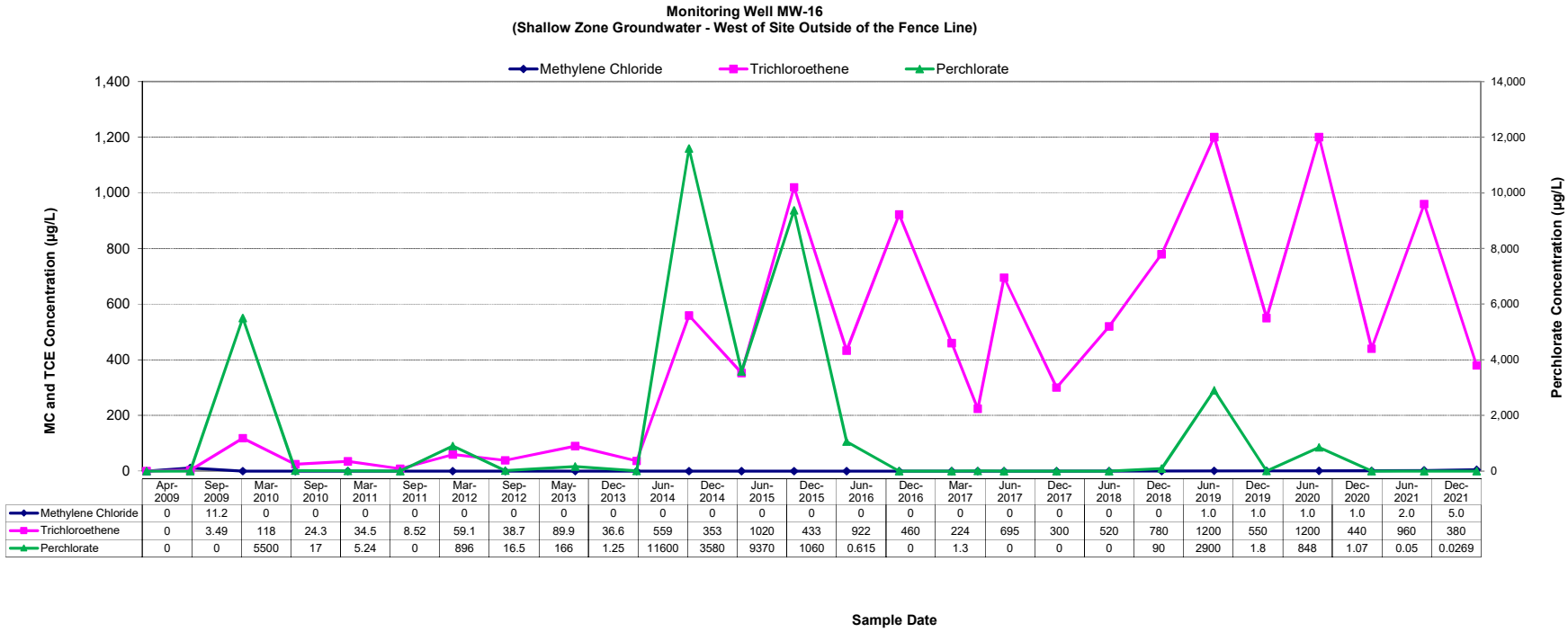
Sample Date



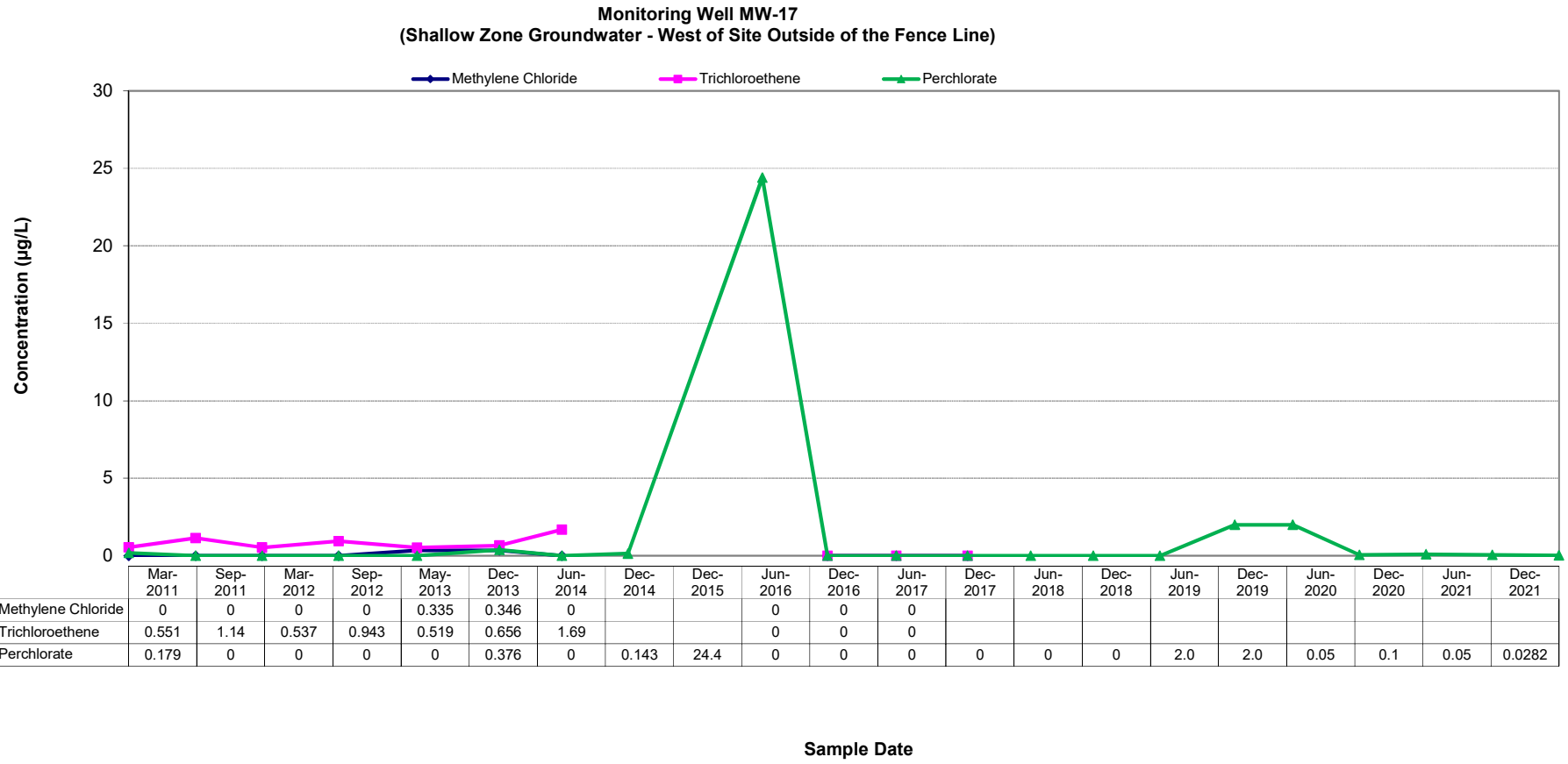
	Apr-2009	Sep-2009	Mar-2010	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	6.07	6.27	0	4.11	0	3.25	0	0.351	0	0	0	1.44	0	0	0	0	0	0	1.0	1.0	1.0	1.0	2.0	2.0
Trichloroethene	1790	2200	1740	1840	1140	1120	1360	959	907	1430	1180	575	487	247	245	296	270	190	480	120	180	120	180	120	200
Perchlorate	35000	38000	34000	54000	53200	64500	78000	72500	72000	63600	53200	40700	13000	8290	2160	5320	5500	8800	6700	7100	4100	2150	2480	2500	3880



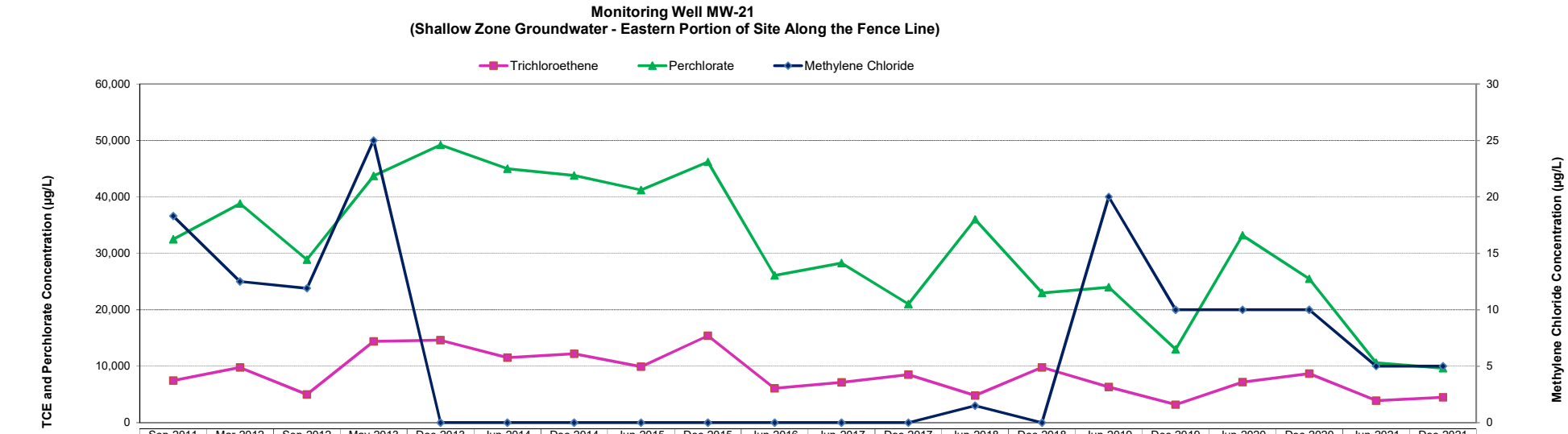
	Sep-2012	Dec-13	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	1.6	0.689	5.65	42.5	312	76.8	0	0	216	11	0	0	0	0	0	0	20	10
Trichloroethene	11800	12500	12100	16800	15100	15500	15900	6630	8260	13000	7300	9000	11000	9200	7700	4400	9000	6200
Perchlorate	173000	204000	247000	261000	248000	288000	229000	84200	137000	150000	94000	76000	240000	130000	158000	73800	198000	164000



	Apr-2009	Sep-2009	Mar-2010	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Mar-2017	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	11.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	1.0	1.0	1.0	2.0	5.0
Trichloroethene	0	3.49	118	24.3	34.5	8.52	59.1	38.7	89.9	36.6	559	353	1020	433	922	460	224	695	300	520	780	1200	550	1200	440	960	380
Perchlorate	0	0	5500	17	5.24	0	896	16.5	166	1.25	11600	3580	9370	1060	0.615	0	1.3	0	0	0	90	2900	1.8	848	1.07	0.05	0.0269

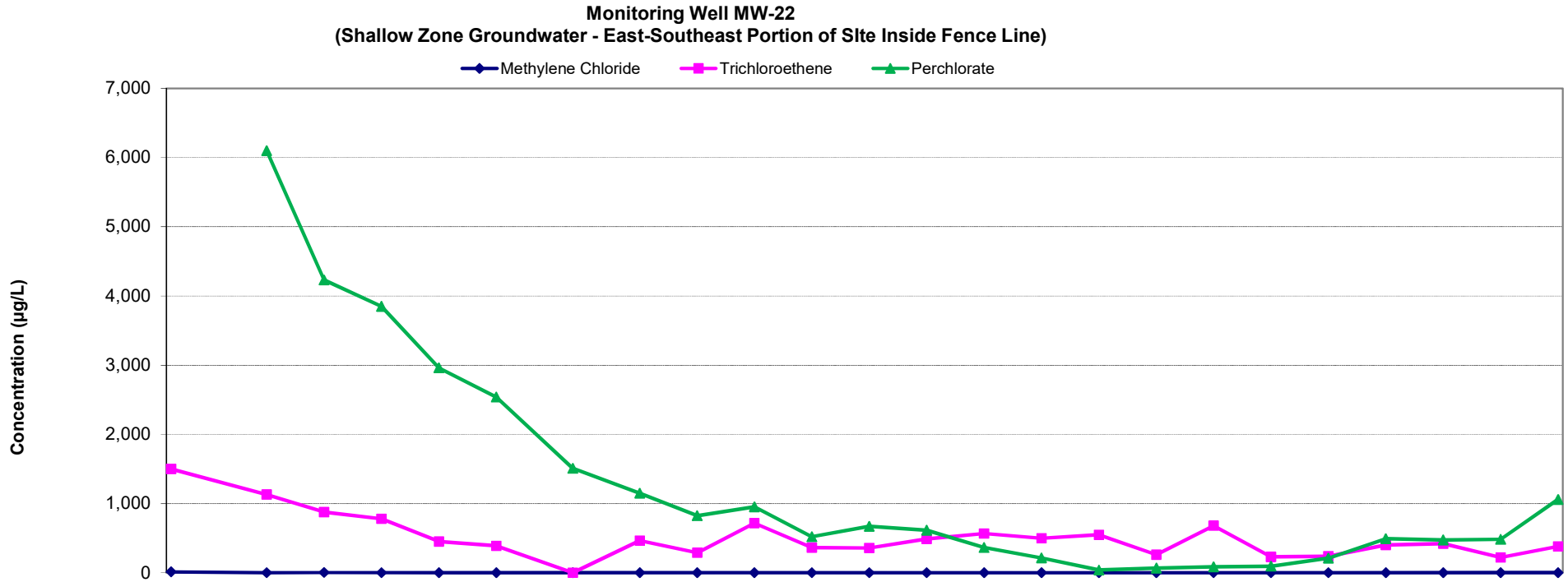


	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	0	0	0	0.335	0.346	0			0	0	0									
Trichloroethene	0.551	1.14	0.537	0.943	0.519	0.656	1.69			0	0	0									
Perchlorate	0.179	0	0	0	0	0.376	0	0.143	24.4	0	0	0	0	0	0	2.0	2.0	0.05	0.1	0.05	0.0282



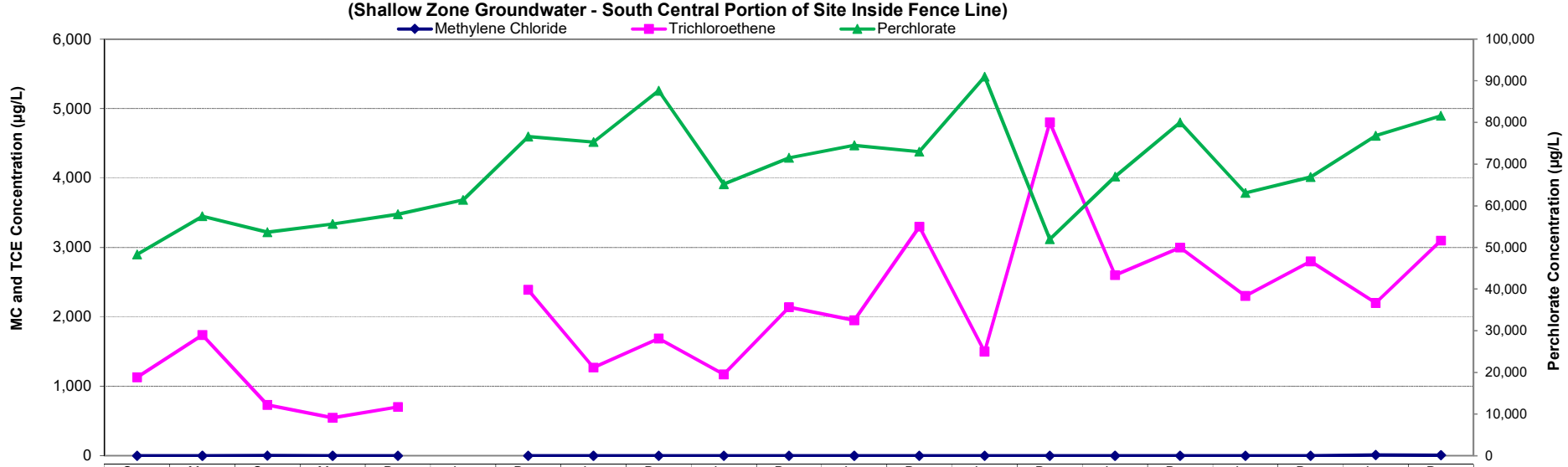
	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Trichloroethene	7470	9760	4980	14400	14600	11500	12200	9910	15400	6080	7140	8500	4800	9800	6300	3200	7200	8700	3900	4500
Perchlorate	32500	38800	28900	43700	49200	45000	43800	41200	46200	26100	28300	21000	36000	23000	24000	13000	33200	25500	10600	9660
Methylene Chloride	18.3J	12.5	11.9	25	0	0	0	0	0	0	0	0	1.5	0	20	10	10	10	5.0	5.0

Sample Date



	Nov-2009	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	12	0	3.04	0	0	0	0.531	0	0	0	0.601	0	0	0	0	0	0	0	0	0	0	0	2.0	1.0
Trichloroethene	1500	1130	877	779	450	388	0	463	288	719	364	359	488	566	500	550	260	680	230	240	400	420	220	380
Perchlorate		6100	4230	3850	2960	2540	1510	1150	824	953	519	671	615	363	214	40	66	84	95	210	493	474	484	1060

Sample Date



	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017	Jun-2018	Dec-2018	Jun-2019	Dec-2019	Jun-2020	Dec-2020	Jun-2021	Dec-2021
Methylene Chloride	0	0	1.34	0	0.338		0	0.492	0	0	0	0	0	0	0	0	0	0	0	10	6.7
Trichloroethene	1130	1740	731	547	703		2390	1270	1690	1170	2140	1950	3300	1500	4800	2600	3000	2300	2800	2200	3100
Perchlorate	48300	57500	53650	55600	58000	61400	76600	75300	87600	65200	71500	74500	73000	91000	52000	67000	80000	63100	66900	76800	81600

Sample Date

APPENDIX F
GWTP WATER SAMPLING LABORATORY ANALYTICAL RESULTS
(PROVIDED ELECTRONICALLY AS A SEPARATE FILE)

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APPENDIX G
QUALITY CONTROL SUMMARY REPORT

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QUARTERLY CONTROL SUMMARY REPORT
4th QUARTER (OCT-DEC) 2021
GROUNDWATER TREATMENT PLANT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

May 2022

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

Prepared By:

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Table 3: Completeness by Method

1 INTRODUCTION

Bhate Environmental Associates, Inc. (Bhate) reviewed 25 data packages from ALS Environmental, Houston, Texas. Groundwater samples were collected from October 20, 2021, through December 28, 2021, at the Groundwater Treatment Plant (GWTP) and December 6 through 20, 2021, at Site LHAAP 18/24 at Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. The date gaps at the GWTP were due to power outages. Data were reviewed for conformance to the requirements of the following guidance documents: [U.S. Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017) and the *Final Basewide Uniform Federal Policy* [UFP] – *Quality Assurance Project Plan* [QAPP] *Longhorn Army Ammunition Plant* which is in Appendix C of the *Final Installation-Wide Work Plan for Longhorn Army Ammunition Plant Karnack, Texas* (Bhate, May 2018).

1.1 Intended Use of Data

The objective of sampling at the GWTP is to monitor effluent streams to confirm compliance with discharge limits.

Analyses performed include:

- SW6850 – Perchlorate
- E350.3/SM4500 NH3 – Nitrogen, Ammonia
- E365.3/SM4500 P – Orthophosphate
- E415.1 – Total Organic Carbon
- SW8260C - Volatile Organic Compounds
- SW8270D SIM – 1,4-Dioxane
- SW6020A/7470A – Metals
- SW9056A – Chloride (Cl) and Sulfate (SO_4)
- SW7196A – Hexavalent Chromium
- E410.4 – Chemical Oxygen Demand
- E1664A – Oil and Grease
- TO-15 – Volatiles in Air

Table 1 lists the sample identification numbers (IDs) and their associated laboratory package.

Table 2 lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Times

Sample identification data were evaluated for agreement with the chain-of-custody (COC). All of the samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time with the following exceptions:

- Samples MW21_121321 and 18DPTMW05_121321 were analyzed outside hold time for the dilution analysis of trichloroethene (TCE). These results were considered estimated and flagged "J".

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

1.3.1 Continuing Calibration Verifications (CCV)

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and SVOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; perchlorate - 15%D; and volatiles in air - 30%D.

The CCV %D was outside control limits for:

- Acetone, bromomethane and chloromethane in samples MW7_120621, MW23_120621, MW5_120621, 18CPTMW08SW_120621, 18CPTMW12SW_120621 and 18CPTMW12DW_120621.
- 2,2-Dichloropropane in samples MW5_120621, 18CPTMW08SW_120621, 18CPTMW12SW_120621, 18CPTMW12DW_120621 and MW7_120621.
- 2,2-Dichloropropane, bromomethane, chloromethane and hexachlorobutadiene in samples 120_120721, MW14_120721, 1824DPTMW06_120721, 1824DPTMW06_120721_a, 18CPTMW22R_120721, 18CPTMW22SW_120721, MW19_120721, MW18_120721 and MW18_120721_a.
- Bromomethane, acetone and hexachlorobutadiene in samples 18CPTMW04SW-120821, 18CPTMW04-120821, MW22_120821, MW22_120821_a, 18CPTMW06_120821, 18ww06_120821, 18ww02-120821 and 18CPTMW15-120821.
- Bromomethane, carbon disulfide and hexachlorobutadiene in samples MW-2_120921, MW-2_120921_a, 18CPTMW01SW_120921, MW3_120921 and 18CPTMW14_120921.

All samples were qualified estimated non-detects "UJ".

1.4 Blanks

If the analyte result for an associated sample was less than 5X (10X for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5X the amount in the blank, no qualifier was applied.

1.4.1 Metals - SW6020

LHAAP 18/24 samples MW5_120621, 18CPTMW12SW_120621, MW3_120921, 18WW17_121521 and GWTP sample LH18/24-SP650_121421 reported aluminum <5x the blank concentration and both were flagged "UB" and considered artifacts of blank contamination.

1.4.2 Volatiles - SW8260

The trip blanks associated with samples 18WW10_120921, 18CPTMW03SW_121321, 18CPTMW10DW_121321, 18CPTMW10DW_121321_a and 18CPTMW10SW_1213121 reported a detection of trichloroethene (TCE). The sample results were <5x the blank concentration and flagged "UB".

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

1.5.1 Volatiles – SW8260

The surrogate 1,4-dichloroethane-d4 was below control limits in samples MW-2_120921 and 18CPTMW01SW_120921 for the 10x dilution analysis. The associated halogenated hydrocarbon compounds were considered estimated and flagged "J/UJ". The surrogate toluene-d8 was above limits for the 10x dilution of MW-2_120921_a. The detected aromatic hydrocarbon compounds were flagged estimated "J".

1.6 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

No LCS/LCSD recoveries were outside control limits.

1.7 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a

batched (unrelated) sample no qualification was made to the sample data. Otherwise, only the sample used for spiking requires qualification.

1.7.1 Volatiles - SW8260

The MS and/or MSD recoveries for 4-methyl-2-pentanone, 2-butanone, bromodichloromethane and trans-1,3-dichloropropene were below control limits for sample 18CPTMW04SW-120821. These non-detect compounds were qualified estimated "UJ". Multiple volatile compounds were outside MS and MSD recovery limits for spiked samples MW3_120921 and 18DPTMW05_121321. These compounds were flagged estimated "J/UJ" due to matrix interference. Finally, sample 18WW24_121521 reported the MS/MSD of 1,1-dichloroethane, methylene chloride and trans-1,2-dichloroethene below control limits. These compounds were flagged "UJ".

1.7.2 Metals - SW6020

Sample 18WW24_121521 reported the MS/MSD recoveries of nickel below control limits and this metal was qualified as estimated "J".

1.7.3 Perchlorate – 6850

Sample 18WW24_121521 reported the MS and MSD recoveries below control limits. The result was considered estimated and flagged "J".

1.8 Internal Standards

If the %R for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Precision

Precision is the measure of variability of individual sample measurements. Evaluation of laboratory and/or field duplicates for precision was done using the RPD. The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater and air matrices. Laboratory duplicate RPD limits were set at <25% for air matrices.

1.9.1 Laboratory Duplicate

The laboratory duplicate results were within control limits.

1.9.2 Field Duplicate

The RPD between sample and duplicate was outside control limits for the following:

- perchlorate; parent sample 1824DPTMW06_120721
- aluminum and zinc; parent sample MW22_120821
- vanadium; parent sample 18CPTMW10DW_121321

Both result from the parent and duplicate sample were flagged estimated "J".

2 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (Table 3). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample Identification	Lab Package	SW6850	E350.3	E365.3	E415.1	SW8270D SIM	SW8260C	SW6020A	SW9056A	SW7196A	E410.4	1664A	TO-15
GWTP Samples													
LH18/24-SP650_102021_BIX	HS21101165	X	X	X	X								
LH18/24-SP650_102021	HS21101182						X		X				
LH18/24-SP650_102521_AIX	E2101141	X											
LH18/24-SP650_110221_AIX	HS21110123	X	X	X	X								
LH18/24-SP650_110221	HS21110151						X		X				
LH18/24-SP650_110921_AIX	HS21110557	X	X	X	X								
LH18/24-SP140_110921	HS21110553	X						X		X			
LH18/24-SP650_110921_AIX	HS21110552	X				X	X	X		X			
LH18/24-SP650_112321_AIX	HS21111479	X	X	X	X								
LH18/24-SP650_120321_AIX	E2101253	X											
LH18/24-SP650_121421_AIX	HS21120849	X	X	X	X								
LH18/24-SP650_121421_AIX	HS21120888	X				X	X	X	X		X	X	
LH18/24-SP140_121421	HS21120895	X				X	X	X	X		X	X	
LH18/24-SP650_122121_AIX	HS21121302	X	X	X	X								
LH18/24-SP650_122821_AIX	HS21121521	X	X	X	X								
LH18/24-SP650_122821	HS21121523						X		X				
Air Samples													
LH18/24-Air-112221_Stripper	P2106266												X
LH18/24-Air-112221_Stripper_a	P2106266												X
LH18/24-Air-112221_GWTP	P2106266												X
LH18/24-Air-112221_Downwind_North	P2106266												X
LHAAP-18/24 Samples													
AWD1_120921	HS21120658	X				X		X					
1824DPTMW01_122021	HS21121254	X				X	X						
18CPTMW01SW_120921	HS21120658	X				X	X	X					
1824DPTMW02_122021	HS21121254	X				X	X						
1824DPTMW03_122021	HS21121254	X				X	X						
1824DPTMW03_122021_a	HS21121254	X				X	X						
18CPTMW03SW_121321	HS21120917	X				X	X	X					
18CPTMW04-120821	HS21120589	X				X	X						
18DPTMW04_121421	HS21120921	X				X	X						
18CPTMW04SW-120821	HS21120589	X				X	X	X					
18DPTMW05_121321	HS21120917	X				X	X						
18CPTMW06_120821	HS21120589	X				X	X						
1824DPTMW06_120721	HS21120475	X				X	X						
1824DPTMW06_120721_a	HS21120475	X				X	X						
18CPTMW07_121421	HS21120921	X				X	X						
18CPTMW08SW_120621	HS21120428	X				X	X						

Client Sample Identification	Lab Package	SW6850	E350.3	E365.3	E415.1	SW8270D SIM	SW8260C	SW6020A	SW9056A	SW7196A	E410.4	1664A	TO-15
18CPTMW08DW_120621	HS21120428	X				X							
18CPTMW10SW_121321	HS21120917	X				X	X						
18CPTMW10DW_121321	HS21120917	X					X	X					
18CPTMW10DW_121321_a	HS21120917	X					X	X					
18CPTMW12SW_120621	HS21120428	X				X	X	X					
18CPTMW12DW_120621	HS21120428	X				X	X	X					
18CPTMW14_120921	HS21120658	X				X	X	X					
18CPTMW15-120821	HS21120589	X				X	X						
18CPTMW16_121521	HS21121014	X				X							
18CPTMW19_121321	HS21120917	X				X	X						
18CPTMW22R_120721	HS21120475	X				X	X	X					
18CPTMW22SW_120721	HS21120475	X				X	X	X					
18CPTMW23_121521	HS21121014	X				X	X						
18CPTMW24_121421	HS21120921	X				X	X	X					
18ww02-120821	HS21120589	X				X	X	X					
18ww06_120821	HS21120589	X				X	X						
18ww08_121321	HS21120917	X				X	X						
18WW10_120921	HS21120658	X				X	X						
18WW17_121521	HS21121014	X					X	X					
18WW22_121521	HS21121014	X				X	X	X					
18WW24_121521	HS21121014	X					X	X					
CO3_122021	HS21121254	X				X	X						
CO8_121421	HS21120921	X				X	X	X					
MW-2_120921	HS21120658	X				X	X	X					
MW-2_120921_a	HS21120658	X				X	X	X					
MW3_120921	HS21120658	X					X	X					
MW5_120621	HS21120428	X				X	X	X					
MW7_120621	HS21120428	X				X	X						
MW8_122021	HS21121254	X				X	X						
MW9_121521	HS21121014	X				X	X	X					
MW14_120721	HS21120475	X				X	X	X					
MW16_121521	HS21121014	X				X	X						
MW17_120921	HS21120658	X				X							
MW18_120721	HS21120475	X					X						
MW18_120721-a	HS21120475	X					X						
MW19_120721	HS21120475	X					X	X					
MW21_121321	HS21120917	X				X	X	X					
MW22_120821	HS21120589	X					X	X					
MW22_120821_a	HS21120589	X					X	X					
MW23_120621	HS21120428	X					X						
109_121421	HS21120921	X				X	X						
120_120721	HS21120475	X				X	X						
125_121421	HS21120921	X					X	X					
126_121421	HS21120921	X				X	X	X					

Notes:
GWTP – Groundwater Treatment Plant
MW – Monitoring Well
SM – Standard Method
SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
E – U.S. Environmental Protection Agency Method
HS – Houston
AIX/BIX – After/Before Ion Exchange
a – duplicate sample

Table 2: Qualified Analytical Data

Client Sample Identification	Laboratory Package	Analyte Name	Data Validation Qualifier	Reason for Qualification
GWTP				
LH18/24-SP650_121421	HS21120888	Aluminum	0.00892 UB	MB
LHAAP-18/24				
MW5_120621	HS21120428	Acetone Bromomethane Chloromethane 2,2-Dichloropropane Aluminum	< 2.0 UJ < 1.0 UJ < 0.50 UJ < 0.50 UJ 0.00396 UB	CCV CCV CCV CCV MB
18CPTMW08SW_120621	HS21120428	Acetone Bromomethane Chloromethane 2,2-Dichloropropane	< 2.0 UJ < 1.0 UJ < 0.50 UJ < 0.50 UJ	CCV
18CPTMW12SW_120621	HS21120428	Acetone Bromomethane Chloromethane 2,2-Dichloropropane Aluminum	< 2.0 UJ < 1.0 UJ < 0.50 UJ < 0.50 UJ 0.0123 UB	CCV CCV CCV CCV MB
18CPTMW12DW_120621	HS21120428	Acetone Bromomethane Chloromethane 2,2-Dichloropropane	< 2.0 UJ < 1.0 UJ < 0.50 UJ < 0.50 UJ	CCV
MW7_120621	HS21120428	Acetone Bromomethane Chloromethane 2,2-Dichloropropane	< 10 UJ < 5.0 UJ < 2.5 UJ < 2.5 UJ	CCV
MW23_120621	HS21120428	Acetone Bromomethane Chloromethane	< 10 UJ < 5.0 UJ < 2.5 UJ	CCV
120_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 5.0 UJ < 10 UJ < 5.0 UJ < 10 UJ	CCV
MW14_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 5.0 UJ < 10 UJ < 5.0 UJ < 10 UJ	CCV
1824DPTMW06_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene Perchlorate	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ 1.14 J	CCV CCV CCV CCV FD RPD
1824DPTMW06_120721_a	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene Perchlorate	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ 0.828 J	CCV CCV CCV CCV FD RPD
18CPTMW22R_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ	CCV
18CPTMW22SW_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ	CCV

Client Sample Identification	Laboratory Package	Analyte Name	Data Validation Qualifier	Reason for Qualification
MW19_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ	CCV
MW18_120721	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ	CCV
MW18_120721_a	HS21120475	2,2-Dichloropropane Bromomethane Chloromethane Hexachlorobutadiene	< 0.50 UJ < 1.0 UJ < 0.50 UJ < 1.0 UJ	CCV
18CPTMW04SW-120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene 4-methyl-2-pentanone 2-Butanone Bromodichloromethane trans-1,3-Dichloropropene	< 2.0 UJ < 1.0 UJ < 1.0 UJ < 2.0 UJ < 1.0 UJ < 0.50 UJ < 0.50 UJ	CCV CCV CCV MSMSD < MS < MS < MS <<
18CPTMW04-120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene	< 2.0 UJ < 1.0 UJ < 1.0 UJ	CCV
MW22_120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene Aluminum Zinc	< 2.0 UJ < 1.0 UJ < 1.0 UJ 0.0378 J 0.00370 J	CCV CCV CCV FD RPD FD RPD
MW22_120821_a	HS21120589	Acetone Bromomethane Hexachlorobutadiene Aluminum Zinc	< 2.0 UJ < 1.0 UJ < 1.0 UJ 0.0220 J 0.00243 J	CCV CCV CCV FD RPD FD RPD
18CPTMW06_120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene	< 2.0 UJ < 1.0 UJ < 1.0 UJ	CCV
18WW06_120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene	< 2.0 UJ < 1.0 UJ < 1.0 UJ	CCV
18WW02-120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene	< 2.0 UJ < 1.0 UJ < 1.0 UJ	CCV
18CPTMW15-120821	HS21120589	Acetone Bromomethane Hexachlorobutadiene	< 2.0 UJ < 1.0 UJ < 1.0 UJ	CCV
MW-2_120921	HS21120658	Bromomethane Carbon Disulfide Hexachlorobutadiene 1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,2,3-Trichloropropane 1,2-Dibromo-3-chloropropane 1,2-Dibromoethane 1,2-Dichloroethane 1,2-Dichloropropane 1,3-Dichloropropane 2,2-Dichloropropane Bromochloromethane	< 10 UJ < 20 UJ < 10 UJ < 10 UJ < 5.0 UJ < 10 UJ < 10 UJ 18 J < 10 UJ < 10 UJ < 5.0 UJ < 5.0 UJ < 10 UJ < 10 UJ < 5.0 UJ < 5.0 UJ	CCV/Surr < CCV CCV Surr < Surr < Surr < Surr < Surr < Surr < Surr < Surr < Surr < Surr < Surr < Surr < Surr <<

Client Sample Identification	Laboratory Package	Analyte Name	Data Validation Qualifier	Reason for Qualification
		Bromodichloromethane	< 5.0 UJ	Surr <
		Chloroethane	< 10 UJ	Surr <
		Chloromethane	< 5.0 UJ	Surr <
		Dibromochloromethane	< 10 UJ	Surr <
		Dibromomethane	< 5.0 UJ	Surr <
		Dichlorodifluoromethane	< 10 UJ	Surr <
		Trichlorofluoromethane	< 10 UJ	Surr <
MW-2_120921_a	HS21120658	Bromomethane	< 10 UJ	CCV
		Carbon Disulfide	< 20 UJ	CCV
		Hexachlorobutadiene	< 10 UJ	CCV
		Toluene	9.4 J	Surr >
18CPTMW01SW_120921	HS21120658	Bromomethane	< 10 UJ	CCV/Surr <
		Carbon Disulfide	< 20 UJ	CCV
		Hexachlorobutadiene	< 10 UJ	CCV
		1,1,1,2-Tetrachloroethane	< 10 UJ	Surr <
		1,1,1-Trichloroethane	< 5.0 UJ	Surr <
		1,1,2,2-Tetrachloroethane	< 10 UJ	Surr <
		1,1,2-Trichloroethane	< 10 UJ	Surr <
		1,1-Dichloroethane	< 5.0 UJ	Surr <
		1,2,3-Trichloropropane	< 10 UJ	Surr <
		1,2-Dibromo-3-chloropropane	< 10 UJ	Surr <
		1,2-Dibromoethane	< 5.0 UJ	Surr <
		1,2-Dichloroethane	< 5.0 UJ	Surr <
		1,2-Dichloropropane	< 10 UJ	Surr <
		1,3-Dichloropropane	< 10 UJ	Surr <
		2,2-Dichloropropane	< 5.0 UJ	Surr <
		Bromochloromethane	20 J	Surr <
		Bromodichloromethane	< 5.0 UJ	Surr <
		Chloroethane	< 10 UJ	Surr <
		Chloromethane	< 5.0 UJ	Surr <
		Dibromochloromethane	< 10 UJ	Surr <
		Dibromomethane	< 5.0 UJ	Surr <
		Dichlorodifluoromethane	< 10 UJ	Surr <
		Trichlorofluoromethane	< 10 UJ	Surr <
MW3_120921	HS21120658	Bromomethane	< 1.0 UJ	CCV
		Carbon Disulfide	< 2.0 UJ	CCV
		Hexachlorobutadiene	< 1.0 UJ	CCV
		Aluminum	0.0118 UB	MB
		1,1,1,2-Tetrachloroethane	< 1.0 UJ	MS/MSD <
		1,1,1-Trichloroethane	< 0.50 UJ	MS/MSD <
		1,1,2,2-Tetrachloroethane	< 1.0 UJ	MS/MSD <
		1,1,2-Trichloroethane	< 1.0 UJ	MS/MSD <
		1,1-Dichloroethane	4.0 J	MS/MSD <
		1,1-Dichloropropene	< 1.0 UJ	MS/MSD <
		1,2,3-Trichloropropane	< 1.0 UJ	MS/MSD <
		1,2,4-Trimethylbenzene	< 1.0 UJ	MS/MSD <
		1,2-Dibromo-3-chloropropane	< 1.0 UJ	MS/MSD <
		1,2-Dibromoethane	< 0.50 UJ	MS/MSD <
		1,2-Dichlorobenzene	< 1.0 UJ	MS/MSD <
		1,2-Dichloroethane	< 0.50 UJ	MS/MSD <
		1,2-Dichloropropane	< 1.0 UJ	MS/MSD <
		1,3,5-Trimethylbenzene	< 1.0 UJ	MS/MSD <
		1,3-Dichlorobenzene	< 1.0 UJ	MS/MSD <
		1,3-Dichloropropane	< 1.0 UJ	MS/MSD <
		1,4-Dichlorobenzene	< 1.0 UJ	MS/MSD <
		2,2-Dichloropropane	< 0.50 UJ	MS/MSD <
		2-Butanone	< 1.0 UJ	MS/MSD <
		2-Chlorotoluene	< 1.0 UJ	MS/MSD <
		2-Hexanone	< 2.0 UJ	MS/MSD <
		4-Chlorotoluene	< 1.0 UJ	MS/MSD <

Client Sample Identification	Laboratory Package	Analyte Name	Data Validation Qualifier	Reason for Qualification
		4-Isopropyltoluene	< 1.0 UJ	MS/MSD <
		4-Methyl-2-pentanone	< 2.0 UJ	MS/MSD <
		Benzene	< 0.50 UJ	MS/MSD <
		Bromochloromethane	< 0.50 UJ	MS/MSD <
		Bromodichloromethane	< 0.50 UJ	MS/MSD <
		Bromoform	< 1.0 UJ	MS/MSD <
		Chlorobenzene	< 1.0 UJ	MS/MSD <
		Chloroform	1.00 J	MS/MSD <
		cis-1,2-Dichloroethene	55 J	MS/MSD <
		cis-1,3-Dichloropropene	< 0.50 UJ	MS/MSD <
		Dibromochloromethane	< 1.0 UJ	MS/MSD <
		Dibromomethane	< 0.50 UJ	MS/MSD <
		Naphthalene	< 1.0 UJ	MS/MSD <
		n-Butylbenzene	< 1.0 UJ	MS/MSD <
		n-Propylbenzene	< 1.0 UJ	MS/MSD <
		o-Xylene	< 1.0 UJ	MS/MSD <
		sec-Butylbenzene	< 1.0 UJ	MS/MSD <
		tert-Butylbenzene	< 1.0 UJ	MS/MSD <
		Toluene	< 0.50 UJ	MS/MSD <
		trans-1,2-Dichloroethene	2.6 J	MS/MSD <
		trans-1,3-Dichloropropene	< 0.50 UJ	MS/MSD <
		Trichloroethene	270 J	MS/MSD <
		Vinyl chloride	23 J	MS/MSD <
18WW10_120921	HS21120658	Trichloroethene	3.3 UB	TB
18CPTMW14_120921	HS21120658	Bromomethane	< 5.0 UJ	CCV
		Carbon Disulfide	< 10 UJ	
		Hexachlorobutadiene	< 5.0 UJ	
18DPTMW05_121321	HS21120917	Trichloroethene	4,600 J	HT/MS/MSD <
		1,1,1,2-Tetrachloroethane	< 5.0 UJ	MS/MSD <
		1,1,2,2-Tetrachloroethane	< 5.0 UJ	MS/MSD <
		1,1,2-Trichloroethane	< 5.0 UJ	MS/MSD <
		1,1-Dichloroethane	< 2.5 UJ	MS/MSD <
		1,1-Dichloropropene	< 5.0 UJ	MS/MSD <
		1,2,3-Trichlorobenzene	< 5.0 UJ	MS/MSD <
		1,2,3-Trichloropropane	< 5.0 UJ	MS/MSD <
		1,2,4-Trichlorobenzene	< 5.0 UJ	MS/MSD <
		1,2,4-Trimethylbenzene	< 5.0 UJ	MS/MSD <
		1,2-Dibromo-3-chloropropane	< 5.0 UJ	MS/MSD <
		1,2-Dibromoethane	< 2.5 UJ	MS/MSD <
		1,2-Dichlorobenzene	< 5.0 UJ	MS/MSD <
		1,2-Dichloroethane	71 J	MS/MSD <
		1,2-Dichloropropane	< 5.0 UJ	MS/MSD <
		1,3,5-Trimethylbenzene	< 5.0 UJ	MS/MSD <
		1,3-Dichlorobenzene	< 5.0 UJ	MS/MSD <
		1,3-Dichloropropane	< 5.0 UJ	MS/MSD <
		1,4-Dichlorobenzene	< 5.0 UJ	MS/MSD <
		2,2-Dichloropropane	< 2.5 UJ	MS/MSD <
		2-Chlorotoluene	< 5.0 UJ	MS/MSD <
		4-Chlorotoluene	< 5.0 UJ	MS/MSD <
		4-Isopropyltoluene	< 5.0 UJ	MS/MSD <
		Benzene	9.4 J	MS/MSD <
		Bromobenzene	< 5.0 UJ	MS/MSD <
		Bromochloromethane	< 2.5 UJ	MS/MSD <
		Bromodichloromethane	< 2.5 UJ	MS/MSD <
		Bromoform	< 5.0 UJ	MS/MSD <
		Carbon tetrachloride	14 J	MS/MSD <
		Chlorobenzene	< 5.0 UJ	MS/MSD <
		Chloroform	30 J	MS/MSD <
		cis-1,2-Dichloroethene	69 J	MS/MSD <
		cis-1,3-Dichloropropene	< 2.5 UJ	MS/MSD <

Client Sample Identification	Laboratory Package	Analyte Name	Data Validation Qualifier	Reason for Qualification
		Dibromochloromethane	< 5.0 UJ	MS/MSD <
		Dibromomethane	< 2.5 UJ	MS/MSD <
		Ethylbenzene	< 5.0 UJ	MS/MSD <
		Hexachlorobutadiene	< 5.0 UJ	MS/MSD <
		Isopropylbenzene	< 5.0 UJ	MS/MSD <
		m,p-Xylene	< 5.0 UJ	MS/MSD <
		Methylene chloride	< 5.0 UJ	MS/MSD <
		n-Butylbenzene	< 5.0 UJ	MS/MSD <
		n-Propylbenzene	< 5.0 UJ	MS/MSD <
		o-Xylene	< 5.0 UJ	MS/MSD <
		sec-Butylbenzene	< 5.0 UJ	MS/MSD <
		Styrene	< 5.0 UJ	MS/MSD <
		tert-Butylbenzene	< 5.0 UJ	MS/MSD <
		Tetrachloroethene	< 5.0 UJ	MS/MSD <
		Toluene	< 2.5 UJ	MS/MSD <
		trans-1,2-Dichloroethene	< 2.5 UJ	MS/MSD <
		trans-1,3-Dichloropropene	< 2.5 UJ	MS/MSD <
MW21_121321	HS21120917	Trichloroethene	4,500 J	HT
18CPTMW03SW_121321	HS21120917	Trichloroethene	7.4 UB	TB
18CPTMW10DW_121321	HS21120917	Trichloroethene	2.6 UB	TB
		Vanadium	0.00112 J	FD RPD
18CPTMW10DW_121321_a	HS21120917	Trichloroethene	2.3 UB	TB
		Vanadium	0.000822 J	FD RPD
18CPTMW10SW_121321	HS21120917	Trichloroethene	1.9 UB	TB
18WW17_121521	HS21121014	Aluminum	0.0105 UB	MB
18WW24_121521	HS21121014	Nickel	0.178 J	MS/MSD <
		1,1-Dichloroethane	< 0.50UJ	
		Methylene chloride	< 1.0 UJ	
		trans-1,2-Dichloroethene	< 0.50 UJ	
		Perchlorate	0.0729 J	

Notes:
J – Estimated: the analyte was positively identified; the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ – Estimated not detected; the analyte was not detected but considered estimated due to discrepancies in meeting quality control criteria and reported to the limit of detection.
UB – Considered an artifact of blank contamination
Surr >/< - Surrogate recovery above/below control limits
FD RPD – Field duplicate relative percent difference outside control limits
MB – Method Blank contamination
TB – trip blank contamination
CCV – Continuing calibration verification percent recovery outside control limits
MS/MSD < – Matrix spike/Matrix spike duplicate below control limits
HT – Hold time exceeded

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SW6850	0	100
E350.1	0	100
E365.2	0	100
E415.1	0	100
SW8270D	0	100
SW8260B	0	100
SW6020A	0	100
SW9056	0	100
SW7196A	0	100
E410.4	0	100
E1664	0	100
TO-15	0	100

APPENDIX H
AIR MONITORING ANALYTICAL LABORATORY REPORT

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2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

December 21, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Suite 129
Lakewood, CO 80228

RE: LHAAP GWTP / NW01312.0150

Dear Marcia:

Enclosed are the results of the samples submitted to our laboratory on November 30, 2021. For your reference, these analyses have been assigned our service request number P2106266.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 10:41 am, Dec 21, 2021

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Bhate Environmental Associates, Inc. Service Request No: P2106266
Project: LHAAP GWTP / NW01312.0150

CASE NARRATIVE

The samples were received intact under chain of custody on November 30, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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 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.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Bhate Environmental Associates, Inc. Service Request: P2106266
Project ID: LHAAP GWTP / NW01312.0150

Date Received: 11/30/2021
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
LH18/24-Air-112221_Stripper	P2106266-001	Air	11/22/2021	14:00	AS01331	-0.85	3.96	X
LH18/24-Air-112221_Stripper_a	P2106266-002	Air	11/22/2021	14:00	AC02108	-0.60	3.89	X
LH18/24-Air-112221_GWTP	P2106266-003	Air	11/22/2021	14:15	AC02473	0.17	3.88	X
LH18/24-Air-112221_Downwind_North	P2106266-004	Air	11/23/2021	06:30	AC02161	1.45	4.82	X

Columbia Analytical Services™
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Air - Chain of Custody Record & Analytical Service Request

Requested Turnaround Time In Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No. P210162066

Company Name & Address (Reporting Information): BHATE ENVIRONMENTAL, 445 UNION BLVD. STE., LAKEWOOD, CO.

Project Name: LHAAP - GWTP

Project Number: NW01312.0150

Project Manager: Kim Nemmers

P.O. # / Billing Information

Phone: 205-918-4000

Fax:

Email Address for Result Reporting: molive@bhate.com

Sampler (Print & Sign): Scott Bessinger

CAS Contact:

Analysis Method: TP-15

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code #- FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TP-15		Comments e.g. Actual Preservative or specific instructions
LHAAP-Air-112221_Stripper		11/22/21	1400	AS01331		-30	0	6L	X		
LHAAP-Air-112221_Stripper_a		11/22/21	1400	AC02108		-30	0	6L	X		
LHAAP-Air-112221_GWTP		11/22/21	1415	AC02473	FCR00549	-29	0	6L	X		
LHAAP-Air-112221_Downwind_North		11/23/21	0630	AC02161	FCR00096	-30	0	6L	X		

Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____

EDD required Yes / No
Type: _____

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Scott Bessinger	11/23/21	0700	[signature]	11/30/21	1000
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank Temperature ____°C

COC AIR REV 3-11

ALS Environmental
Sample Acceptance Check Form

Client: Bhate Environmental Associates, Inc. Work order: P2106266
Project: LHAAP GWTP / NW01312.0150
Sample(s) received on: 11/30/21 Date opened: 11/30/21 by: DENISE.POSADA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2106266-001.01	6.0 L Silonite Can					
P2106266-002.01	6.0 L Ambient Can					
P2106266-003.01	6.0 L Ambient Can					
P2106266-004.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Stripper** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-001

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes:
Container ID: AS01331

Initial Pressure (psig): -0.85 Final Pressure (psig): 3.96

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	18	ND	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	18	ND	3.6	
74-87-3	Chloromethane	ND	17	ND	8.3	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	18	ND	2.6	
75-01-4	Vinyl Chloride	ND	18	ND	6.9	
106-99-0	1,3-Butadiene	ND	18	ND	7.9	
74-83-9	Bromomethane	ND	17	ND	4.4	
75-00-3	Chloroethane	ND	17	ND	6.5	
64-17-5	Ethanol	ND	170	ND	90	
75-05-8	Acetonitrile	ND	34	ND	20	
107-02-8	Acrolein	ND	34	ND	15	
67-64-1	Acetone	ND	180	ND	74	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	18	ND	3.1	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	34	ND	14	
107-13-1	Acrylonitrile	ND	34	ND	16	
75-35-4	1,1-Dichloroethene	**19**	18	**4.8**	4.6	
75-09-2	Methylene Chloride	ND	18	ND	5.1	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	18	ND	5.7	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**400**	18	**53**	2.4	
75-15-0	Carbon Disulfide	ND	37	ND	12	
156-60-5	trans-1,2-Dichloroethene	ND	18	ND	4.5	
75-34-3	1,1-Dichloroethane	ND	18	ND	4.4	
1634-04-4	Methyl tert-Butyl Ether	ND	18	ND	5.0	
108-05-4	Vinyl Acetate	ND	170	ND	48	
78-93-3	2-Butanone (MEK)	ND	34	ND	11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Stripper** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-001

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes:
Container ID: AS01331

Initial Pressure (psig): -0.85 Final Pressure (psig): 3.96

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**890**	18	**230**	4.4	
141-78-6	Ethyl Acetate	ND	71	ND	20	
110-54-3	n-Hexane	ND	18	ND	5.1	
67-66-3	Chloroform	ND	18	ND	3.7	
109-99-9	Tetrahydrofuran (THF)	ND	34	ND	11	
107-06-2	1,2-Dichloroethane	**38**	18	**9.3**	4.4	
71-55-6	1,1,1-Trichloroethane	ND	18	ND	3.2	
71-43-2	Benzene	ND	17	ND	5.3	
56-23-5	Carbon Tetrachloride	ND	17	ND	2.7	
110-82-7	Cyclohexane	ND	37	ND	11	
78-87-5	1,2-Dichloropropane	ND	17	ND	3.7	
75-27-4	Bromodichloromethane	ND	18	ND	2.7	
79-01-6	Trichloroethene	**3,500**	18	**650**	3.3	
123-91-1	1,4-Dioxane	ND	18	ND	4.9	
80-62-6	Methyl Methacrylate	ND	37	ND	9.1	
142-82-5	n-Heptane	ND	18	ND	4.4	
10061-01-5	cis-1,3-Dichloropropene	ND	17	ND	3.7	
108-10-1	4-Methyl-2-pentanone	ND	37	ND	9.1	
10061-02-6	trans-1,3-Dichloropropene	ND	17	ND	3.8	
79-00-5	1,1,2-Trichloroethane	ND	18	ND	3.2	
108-88-3	Toluene	ND	18	ND	4.7	
591-78-6	2-Hexanone	ND	37	ND	9.1	
124-48-1	Dibromochloromethane	ND	18	ND	2.1	
106-93-4	1,2-Dibromoethane	ND	18	ND	2.3	
123-86-4	n-Butyl Acetate	ND	37	ND	7.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Stripper** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-001

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes:
Container ID: AS01331

Initial Pressure (psig): -0.85 Final Pressure (psig): 3.96

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	18	ND	3.8	
127-18-4	Tetrachloroethene	ND	18	ND	2.6	
108-90-7	Chlorobenzene	ND	18	ND	3.8	
100-41-4	Ethylbenzene	ND	18	ND	4.0	
179601-23-1	m,p-Xylenes	ND	37	ND	8.6	
75-25-2	Bromoform	ND	18	ND	1.7	
100-42-5	Styrene	ND	17	ND	4.0	
95-47-6	o-Xylene	ND	18	ND	4.0	
111-84-2	n-Nonane	ND	18	ND	3.3	
79-34-5	1,1,2,2-Tetrachloroethane	ND	18	ND	2.6	
98-82-8	Cumene	ND	18	ND	3.6	
80-56-8	alpha-Pinene	ND	18	ND	3.3	
103-65-1	n-Propylbenzene	ND	18	ND	3.6	
622-96-8	4-Ethyltoluene	ND	18	ND	3.6	
108-67-8	1,3,5-Trimethylbenzene	ND	18	ND	3.6	
95-63-6	1,2,4-Trimethylbenzene	ND	18	ND	3.6	
100-44-7	Benzyl Chloride	ND	37	ND	7.2	
541-73-1	1,3-Dichlorobenzene	ND	18	ND	2.9	
106-46-7	1,4-Dichlorobenzene	ND	18	ND	2.9	
95-50-1	1,2-Dichlorobenzene	ND	18	ND	3.0	
5989-27-5	d-Limonene	ND	17	ND	3.0	
96-12-8	1,2-Dibromo-3-chloropropane	ND	34	ND	3.5	
120-82-1	1,2,4-Trichlorobenzene	ND	37	ND	5.0	
91-20-3	Naphthalene	ND	18	ND	3.3	
87-68-3	Hexachlorobutadiene	ND	18	ND	1.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Stripper_a** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-002

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes: 0.020 Liter(s)
Container ID: AC02108

Initial Pressure (psig): -0.60 Final Pressure (psig): 3.89

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	17	ND	10	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	17	ND	3.5	
74-87-3	Chloromethane	ND	17	ND	8.2	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	18	ND	2.6	
75-01-4	Vinyl Chloride	ND	17	ND	6.7	
106-99-0	1,3-Butadiene	ND	17	ND	7.8	
74-83-9	Bromomethane	ND	17	ND	4.3	
75-00-3	Chloroethane	ND	17	ND	6.4	
64-17-5	Ethanol	ND	170	ND	88	
75-05-8	Acetonitrile	ND	33	ND	20	
107-02-8	Acrolein	ND	33	ND	14	
67-64-1	Acetone	ND	170	ND	72	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	17	ND	3.1	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	33	ND	13	
107-13-1	Acrylonitrile	ND	33	ND	15	
75-35-4	1,1-Dichloroethene	**22**	18	**5.6**	4.5	
75-09-2	Methylene Chloride	ND	17	ND	4.9	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	17	ND	5.6	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**460**	18	**60**	2.3	
75-15-0	Carbon Disulfide	ND	36	ND	12	
156-60-5	trans-1,2-Dichloroethene	ND	17	ND	4.4	
75-34-3	1,1-Dichloroethane	ND	17	ND	4.3	
1634-04-4	Methyl tert-Butyl Ether	ND	17	ND	4.9	
108-05-4	Vinyl Acetate	ND	170	ND	47	
78-93-3	2-Butanone (MEK)	ND	33	ND	11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Stripper_a** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-002

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes: 0.020 Liter(s)
Container ID: AC02108

Initial Pressure (psig): -0.60 Final Pressure (psig): 3.89

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**1,000**	17	**250**	4.3	
141-78-6	Ethyl Acetate	ND	69	ND	19	
110-54-3	n-Hexane	ND	17	ND	5.0	
67-66-3	Chloroform	ND	18	ND	3.7	
109-99-9	Tetrahydrofuran (THF)	ND	33	ND	11	
107-06-2	1,2-Dichloroethane	**42**	17	**10**	4.3	
71-55-6	1,1,1-Trichloroethane	ND	17	ND	3.1	
71-43-2	Benzene	ND	17	ND	5.2	
56-23-5	Carbon Tetrachloride	ND	17	ND	2.6	
110-82-7	Cyclohexane	ND	36	ND	11	
78-87-5	1,2-Dichloropropane	ND	17	ND	3.6	
75-27-4	Bromodichloromethane	ND	17	ND	2.6	
79-01-6	Trichloroethene	**4,300**	34	**810**	6.4	**D**
123-91-1	1,4-Dioxane	ND	17	ND	4.8	
80-62-6	Methyl Methacrylate	ND	36	ND	8.9	
142-82-5	n-Heptane	ND	17	ND	4.3	
10061-01-5	cis-1,3-Dichloropropene	ND	17	ND	3.6	
108-10-1	4-Methyl-2-pentanone	ND	36	ND	8.9	
10061-02-6	trans-1,3-Dichloropropene	ND	17	ND	3.7	
79-00-5	1,1,2-Trichloroethane	ND	17	ND	3.1	
108-88-3	Toluene	ND	17	ND	4.6	
591-78-6	2-Hexanone	ND	36	ND	8.9	
124-48-1	Dibromochloromethane	ND	17	ND	2.1	
106-93-4	1,2-Dibromoethane	ND	17	ND	2.2	
123-86-4	n-Butyl Acetate	ND	36	ND	7.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Stripper_a** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-002

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.040 Liter(s)
Test Notes: 0.020 Liter(s)
Container ID: AC02108

Initial Pressure (psig): -0.60 Final Pressure (psig): 3.89

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	17	ND	3.7	
127-18-4	Tetrachloroethene	ND	17	ND	2.5	
108-90-7	Chlorobenzene	ND	17	ND	3.7	
100-41-4	Ethylbenzene	ND	17	ND	4.0	
179601-23-1	m,p-Xylenes	ND	36	ND	8.4	
75-25-2	Bromoform	ND	17	ND	1.7	
100-42-5	Styrene	ND	17	ND	3.9	
95-47-6	o-Xylene	ND	17	ND	4.0	
111-84-2	n-Nonane	ND	17	ND	3.3	
79-34-5	1,1,2,2-Tetrachloroethane	ND	17	ND	2.5	
98-82-8	Cumene	ND	17	ND	3.5	
80-56-8	alpha-Pinene	ND	18	ND	3.2	
103-65-1	n-Propylbenzene	ND	17	ND	3.6	
622-96-8	4-Ethyltoluene	ND	17	ND	3.6	
108-67-8	1,3,5-Trimethylbenzene	ND	17	ND	3.5	
95-63-6	1,2,4-Trimethylbenzene	ND	17	ND	3.5	
100-44-7	Benzyl Chloride	ND	36	ND	7.0	
541-73-1	1,3-Dichlorobenzene	ND	17	ND	2.9	
106-46-7	1,4-Dichlorobenzene	ND	17	ND	2.9	
95-50-1	1,2-Dichlorobenzene	ND	17	ND	2.9	
5989-27-5	d-Limonene	ND	17	ND	3.0	
96-12-8	1,2-Dibromo-3-chloropropane	ND	33	ND	3.4	
120-82-1	1,2,4-Trichlorobenzene	ND	36	ND	4.9	
91-20-3	Naphthalene	ND	17	ND	3.3	
87-68-3	Hexachlorobutadiene	ND	17	ND	1.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_GWTP** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-003

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02473

Initial Pressure (psig): 0.17 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	**2.6**	0.65	**1.5**	0.38	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	0.66	**0.48**	0.13	
74-87-3	Chloromethane	ND	0.64	ND	0.31	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.68	ND	0.097	
75-01-4	Vinyl Chloride	ND	0.65	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.65	ND	0.29	
74-83-9	Bromomethane	ND	0.64	ND	0.16	
75-00-3	Chloroethane	ND	0.64	ND	0.24	
64-17-5	Ethanol	**12**	6.3	**6.3**	3.3	
75-05-8	Acetonitrile	ND	1.3	ND	0.74	
107-02-8	Acrolein	ND	1.3	ND	0.55	
67-64-1	Acetone	**13**	6.5	**5.3**	2.7	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.9**	0.65	**0.34**	0.12	
67-63-0	2-Propanol (Isopropyl Alcohol)	**7.7**	1.3	**3.1**	0.51	
107-13-1	Acrylonitrile	ND	1.3	ND	0.58	
75-35-4	1,1-Dichloroethene	ND	0.68	ND	0.17	
75-09-2	Methylene Chloride	ND	0.65	ND	0.19	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.66	ND	0.21	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**1.1**	0.68	**0.14**	0.088	
75-15-0	Carbon Disulfide	ND	1.4	ND	0.44	
156-60-5	trans-1,2-Dichloroethene	ND	0.66	ND	0.17	
75-34-3	1,1-Dichloroethane	ND	0.66	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.66	ND	0.18	
108-05-4	Vinyl Acetate	ND	6.3	ND	1.8	
78-93-3	2-Butanone (MEK)	**2.9**	1.3	**1.0**	0.42	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_GWTP** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-003

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02473

Initial Pressure (psig): 0.17 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.70**	0.65	**0.18**	0.16	
141-78-6	Ethyl Acetate	**3.1**	2.6	**0.87**	0.73	
110-54-3	n-Hexane	**5.7**	0.66	**1.6**	0.19	
67-66-3	Chloroform	ND	0.68	ND	0.14	
109-99-9	Tetrahydrofuran (THF)	**9.0**	1.3	**3.0**	0.42	
107-06-2	1,2-Dichloroethane	ND	0.66	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.65	ND	0.12	
71-43-2	Benzene	ND	0.63	ND	0.20	
56-23-5	Carbon Tetrachloride	ND	0.63	ND	0.099	
110-82-7	Cyclohexane	**1.5**	1.4	**0.44**	0.40	
78-87-5	1,2-Dichloropropane	ND	0.63	ND	0.14	
75-27-4	Bromodichloromethane	ND	0.66	ND	0.099	
79-01-6	Trichloroethene	**3.0**	0.65	**0.55**	0.12	
123-91-1	1,4-Dioxane	ND	0.65	ND	0.18	
80-62-6	Methyl Methacrylate	ND	1.4	ND	0.34	
142-82-5	n-Heptane	**0.83**	0.66	**0.20**	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.63	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	1.4	ND	0.34	
10061-02-6	trans-1,3-Dichloropropene	ND	0.64	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.65	ND	0.12	
108-88-3	Toluene	**2.0**	0.65	**0.52**	0.17	
591-78-6	2-Hexanone	ND	1.4	ND	0.34	
124-48-1	Dibromochloromethane	ND	0.66	ND	0.078	
106-93-4	1,2-Dibromoethane	ND	0.65	ND	0.085	
123-86-4	n-Butyl Acetate	ND	1.4	ND	0.29	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_GWTP** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-003

Test Code: EPA TO-15 Date Collected: 11/22/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02473

Initial Pressure (psig): 0.17 Final Pressure (psig): 3.88

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.66	ND	0.14	
127-18-4	Tetrachloroethene	ND	0.65	ND	0.096	
108-90-7	Chlorobenzene	ND	0.65	ND	0.14	
100-41-4	Ethylbenzene	ND	0.65	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.4	ND	0.32	
75-25-2	Bromoform	ND	0.65	ND	0.063	
100-42-5	Styrene	ND	0.63	ND	0.15	
95-47-6	o-Xylene	ND	0.65	ND	0.15	
111-84-2	n-Nonane	ND	0.65	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.65	ND	0.095	
98-82-8	Cumene	ND	0.65	ND	0.13	
80-56-8	alpha-Pinene	**2.2**	0.68	**0.40**	0.12	
103-65-1	n-Propylbenzene	ND	0.66	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.66	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.65	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.65	ND	0.13	
100-44-7	Benzyl Chloride	ND	1.4	ND	0.27	
541-73-1	1,3-Dichlorobenzene	ND	0.65	ND	0.11	
106-46-7	1,4-Dichlorobenzene	ND	0.65	ND	0.11	
95-50-1	1,2-Dichlorobenzene	ND	0.66	ND	0.11	
5989-27-5	d-Limonene	**1.0**	0.63	**0.19**	0.11	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.3	ND	0.13	
120-82-1	1,2,4-Trichlorobenzene	ND	1.4	ND	0.19	
91-20-3	Naphthalene	ND	0.65	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.65	ND	0.061	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Downwind_North** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-004

Test Code: EPA TO-15 Date Collected: 11/23/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02161

Initial Pressure (psig): 1.45 Final Pressure (psig): 4.82

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.63	ND	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	0.64	**0.47**	0.13	
74-87-3	Chloromethane	ND	0.62	ND	0.30	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.65	ND	0.094	
75-01-4	Vinyl Chloride	ND	0.63	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.63	ND	0.28	
74-83-9	Bromomethane	ND	0.62	ND	0.16	
75-00-3	Chloroethane	ND	0.62	ND	0.23	
64-17-5	Ethanol	**8.2**	6.1	**4.3**	3.2	
75-05-8	Acetonitrile	ND	1.2	ND	0.72	
107-02-8	Acrolein	ND	1.2	ND	0.53	
67-64-1	Acetone	**11**	6.3	**4.8**	2.6	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.6**	0.63	**0.28**	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	**4.6**	1.2	**1.9**	0.49	
107-13-1	Acrylonitrile	ND	1.2	ND	0.56	
75-35-4	1,1-Dichloroethene	ND	0.65	ND	0.16	
75-09-2	Methylene Chloride	ND	0.63	ND	0.18	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.64	ND	0.20	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**0.75**	0.65	**0.098**	0.085	
75-15-0	Carbon Disulfide	ND	1.3	ND	0.43	
156-60-5	trans-1,2-Dichloroethene	ND	0.64	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.64	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.64	ND	0.18	
108-05-4	Vinyl Acetate	ND	6.1	ND	1.7	
78-93-3	2-Butanone (MEK)	**2.3**	1.2	**0.78**	0.41	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Downwind_North** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-004

Test Code: EPA TO-15 Date Collected: 11/23/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02161

Initial Pressure (psig): 1.45 Final Pressure (psig): 4.82

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.63	ND	0.16	
141-78-6	Ethyl Acetate	ND	2.5	ND	0.71	
110-54-3	n-Hexane	**3.5**	0.64	**1.0**	0.18	
67-66-3	Chloroform	ND	0.65	ND	0.13	
109-99-9	Tetrahydrofuran (THF)	**5.5**	1.2	**1.9**	0.41	
107-06-2	1,2-Dichloroethane	ND	0.64	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.63	ND	0.12	
71-43-2	Benzene	ND	0.61	ND	0.19	
56-23-5	Carbon Tetrachloride	ND	0.61	ND	0.096	
110-82-7	Cyclohexane	ND	1.3	ND	0.39	
78-87-5	1,2-Dichloropropane	ND	0.61	ND	0.13	
75-27-4	Bromodichloromethane	ND	0.64	ND	0.096	
79-01-6	Trichloroethene	ND	0.63	ND	0.12	
123-91-1	1,4-Dioxane	ND	0.63	ND	0.17	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.33	
142-82-5	n-Heptane	ND	0.64	ND	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.61	ND	0.13	
108-10-1	4-Methyl-2-pentanone	ND	1.3	ND	0.32	
10061-02-6	trans-1,3-Dichloropropene	ND	0.62	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.63	ND	0.12	
108-88-3	Toluene	**1.0**	0.63	**0.27**	0.17	
591-78-6	2-Hexanone	ND	1.3	ND	0.33	
124-48-1	Dibromochloromethane	ND	0.64	ND	0.075	
106-93-4	1,2-Dibromoethane	ND	0.63	ND	0.082	
123-86-4	n-Butyl Acetate	ND	1.3	ND	0.28	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-Air-112221_Downwind_North** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P2106266-004

Test Code: EPA TO-15 Date Collected: 11/23/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 11/30/21
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02161

Initial Pressure (psig): 1.45 Final Pressure (psig): 4.82

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.64	ND	0.14	
127-18-4	Tetrachloroethene	ND	0.63	ND	0.093	
108-90-7	Chlorobenzene	ND	0.63	ND	0.14	
100-41-4	Ethylbenzene	ND	0.63	ND	0.14	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.31	
75-25-2	Bromoform	ND	0.63	ND	0.061	
100-42-5	Styrene	ND	0.61	ND	0.14	
95-47-6	o-Xylene	ND	0.63	ND	0.14	
111-84-2	n-Nonane	ND	0.63	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.63	ND	0.092	
98-82-8	Cumene	ND	0.63	ND	0.13	
80-56-8	alpha-Pinene	**5.2**	0.65	**0.93**	0.12	
103-65-1	n-Propylbenzene	ND	0.64	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.64	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.63	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.63	ND	0.13	
100-44-7	Benzyl Chloride	ND	1.3	ND	0.26	
541-73-1	1,3-Dichlorobenzene	ND	0.63	ND	0.10	
106-46-7	1,4-Dichlorobenzene	ND	0.63	ND	0.10	
95-50-1	1,2-Dichlorobenzene	ND	0.64	ND	0.11	
5989-27-5	d-Limonene	**3.6**	0.61	**0.64**	0.11	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.2	ND	0.13	
120-82-1	1,2,4-Trichlorobenzene	ND	1.3	ND	0.18	
91-20-3	Naphthalene	ND	0.63	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.63	ND	0.059	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P211208-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.52	ND	0.30	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.53	ND	0.11	
74-87-3	Chloromethane	ND	0.51	ND	0.25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.54	ND	0.077	
75-01-4	Vinyl Chloride	ND	0.52	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.52	ND	0.24	
74-83-9	Bromomethane	ND	0.51	ND	0.13	
75-00-3	Chloroethane	ND	0.51	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	1.0	ND	0.60	
107-02-8	Acrolein	ND	1.0	ND	0.44	
67-64-1	Acetone	ND	5.2	ND	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.52	ND	0.093	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1.0	ND	0.41	
107-13-1	Acrylonitrile	ND	1.0	ND	0.46	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-09-2	Methylene Chloride	ND	0.52	ND	0.15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.53	ND	0.17	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.54	ND	0.070	
75-15-0	Carbon Disulfide	ND	1.1	ND	0.35	
156-60-5	trans-1,2-Dichloroethene	ND	0.53	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.53	ND	0.13	
1634-04-4	Methyl tert-Butyl Ether	ND	0.53	ND	0.15	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	1.0	ND	0.34	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P211208-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.52	ND	0.13	
141-78-6	Ethyl Acetate	ND	2.1	ND	0.58	
110-54-3	n-Hexane	ND	0.53	ND	0.15	
67-66-3	Chloroform	ND	0.54	ND	0.11	
109-99-9	Tetrahydrofuran (THF)	ND	1.0	ND	0.34	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.52	ND	0.095	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.1	ND	0.32	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.53	ND	0.079	
79-01-6	Trichloroethene	ND	0.52	ND	0.097	
123-91-1	1,4-Dioxane	ND	0.52	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.1	ND	0.27	
142-82-5	n-Heptane	ND	0.53	ND	0.13	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	1.1	ND	0.27	
10061-02-6	trans-1,3-Dichloropropene	ND	0.51	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.52	ND	0.095	
108-88-3	Toluene	ND	0.52	ND	0.14	
591-78-6	2-Hexanone	ND	1.1	ND	0.27	
124-48-1	Dibromochloromethane	ND	0.53	ND	0.062	
106-93-4	1,2-Dibromoethane	ND	0.52	ND	0.068	
123-86-4	n-Butyl Acetate	ND	1.1	ND	0.23	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P211208-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.53	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.52	ND	0.077	
108-90-7	Chlorobenzene	ND	0.52	ND	0.11	
100-41-4	Ethylbenzene	ND	0.52	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.1	ND	0.25	
75-25-2	Bromoform	ND	0.52	ND	0.050	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.52	ND	0.12	
111-84-2	n-Nonane	ND	0.52	ND	0.099	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.52	ND	0.076	
98-82-8	Cumene	ND	0.52	ND	0.11	
80-56-8	alpha-Pinene	ND	0.54	ND	0.097	
103-65-1	n-Propylbenzene	ND	0.53	ND	0.11	
622-96-8	4-Ethyltoluene	ND	0.53	ND	0.11	
108-67-8	1,3,5-Trimethylbenzene	ND	0.52	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	ND	0.52	ND	0.11	
100-44-7	Benzyl Chloride	ND	1.1	ND	0.21	
541-73-1	1,3-Dichlorobenzene	ND	0.52	ND	0.087	
106-46-7	1,4-Dichlorobenzene	ND	0.52	ND	0.087	
95-50-1	1,2-Dichlorobenzene	ND	0.53	ND	0.088	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	ND	0.10	
120-82-1	1,2,4-Trichlorobenzene	ND	1.1	ND	0.15	
91-20-3	Naphthalene	ND	0.52	ND	0.099	
87-68-3	Hexachlorobutadiene	ND	0.52	ND	0.049	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Bhate Environmental Associates, Inc.**
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Project ID: P2106266

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 11/22 - 11/23/21
Analyst: Simon Cao Date(s) Received: 11/30/21
Sample Type: 6.0 L Silonite Canister(s) / 6.0 L Summa Canister(s) Date(s) Analyzed: 12/8/21
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P211208-MB	**121**	**94**	**79**	70-130	
Lab Control Sample	P211208-LCS	**119**	**90**	**77**	70-130	
Duplicate Lab Control Sample	P211208-DLCS	**119**	**91**	**77**	70-130	
LH18/24-Air-112221_Stripper	P2106266-001	**122**	**91**	**81**	70-130	
LH18/24-Air-112221_Stripper_a	P2106266-002	**122**	**90**	**81**	70-130	
LH18/24-Air-112221_GWTP	P2106266-003	**124**	**89**	**83**	70-130	
LH18/24-Air-112221_Downwind_North	P2106266-004	**124**	**89**	**83**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P211208-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	206	152	148	**74**	**72**	56-128	3	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	208	196	192	**94**	**92**	71-112	2	25	
74-87-3	Chloromethane	206	169	165	**82**	**80**	53-126	2	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	208	184	183	**88**	**88**	62-121	0	25	
75-01-4	Vinyl Chloride	208	176	177	**85**	**85**	63-123	0	25	
106-99-0	1,3-Butadiene	206	189	188	**92**	**91**	63-135	1	25	
74-83-9	Bromomethane	206	170	165	**83**	**80**	71-112	4	25	
75-00-3	Chloroethane	206	166	162	**81**	**79**	66-117	3	25	
64-17-5	Ethanol	832	667	661	**80**	**79**	57-117	1	25	
75-05-8	Acetonitrile	202	144	143	**71**	**71**	59-131	0	25	
107-02-8	Acrolein	416	342	336	**82**	**81**	71-123	1	25	
67-64-1	Acetone	1,020	796	790	**78**	**77**	60-117	1	25	
75-69-4	Trichlorofluoromethane (CFC 11)	202	189	185	**94**	**92**	71-114	2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	400	374	371	**94**	**93**	61-124	1	25	
107-13-1	Acrylonitrile	402	328	324	**82**	**81**	65-130	1	25	
75-35-4	1,1-Dichloroethene	210	176	174	**84**	**83**	74-114	1	25	
75-09-2	Methylene Chloride	208	171	169	**82**	**81**	75-112	1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	204	147	149	**72**	**73**	57-127	1	25	
76-13-1	Trichlorotrifluoroethane (CFC 113)	216	179	177	**83**	**82**	73-114	1	25	
75-15-0	Carbon Disulfide	414	347	343	**84**	**83**	70-113	1	25	
156-60-5	trans-1,2-Dichloroethene	208	186	184	**89**	**88**	76-119	1	25	
75-34-3	1,1-Dichloroethane	214	188	186	**88**	**87**	70-114	1	25	
1634-04-4	Methyl tert-Butyl Ether	206	208	204	**101**	**99**	72-118	2	25	
108-05-4	Vinyl Acetate	942	879	867	**93**	**92**	56-137	1	25	
78-93-3	2-Butanone (MEK)	408	361	357	**88**	**88**	74-121	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P211208-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	206	181	180	**88**	**87**	73-117	1	25	
141-78-6	Ethyl Acetate	580	487	481	**84**	**83**	59-161	1	25	
110-54-3	n-Hexane	208	171	169	**82**	**81**	55-130	1	25	
67-66-3	Chloroform	210	197	194	**94**	**92**	71-114	2	25	
109-99-9	Tetrahydrofuran (THF)	404	362	357	**90**	**88**	73-114	2	25	
107-06-2	1,2-Dichloroethane	210	211	208	**100**	**99**	71-119	1	25	
71-55-6	1,1,1-Trichloroethane	208	196	195	**94**	**94**	73-119	0	25	
71-43-2	Benzene	208	174	173	**84**	**83**	72-113	1	25	
56-23-5	Carbon Tetrachloride	202	181	179	**90**	**89**	67-123	1	25	
110-82-7	Cyclohexane	412	332	328	**81**	**80**	70-119	1	25	
78-87-5	1,2-Dichloropropane	206	168	168	**82**	**82**	70-118	0	25	
75-27-4	Bromodichloromethane	208	203	201	**98**	**97**	74-119	1	25	
79-01-6	Trichloroethene	204	179	177	**88**	**87**	74-115	1	25	
123-91-1	1,4-Dioxane	206	190	189	**92**	**92**	77-124	0	25	
80-62-6	Methyl Methacrylate	410	389	389	**95**	**95**	78-126	0	25	
142-82-5	n-Heptane	206	176	177	**85**	**86**	70-119	1	25	
10061-01-5	cis-1,3-Dichloropropene	208	201	201	**97**	**97**	81-126	0	25	
108-10-1	4-Methyl-2-pentanone	412	373	373	**91**	**91**	73-129	0	25	
10061-02-6	trans-1,3-Dichloropropene	200	204	204	**102**	**102**	80-127	0	25	
79-00-5	1,1,2-Trichloroethane	208	172	172	**83**	**83**	78-117	0	25	
108-88-3	Toluene	206	160	162	**78**	**79**	70-118	1	25	
591-78-6	2-Hexanone	406	360	367	**89**	**90**	74-132	1	25	
124-48-1	Dibromochloromethane	210	165	167	**79**	**80**	69-137	1	25	
106-93-4	1,2-Dibromoethane	208	162	164	**78**	**79**	76-128	1	25	
123-86-4	n-Butyl Acetate	406	359	365	**88**	**90**	75-134	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150** ALS Sample ID: P211208-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
111-65-9	n-Octane	208	162	163	**78**	**78**	68-120	0	25	
127-18-4	Tetrachloroethene	212	160	162	**75**	**76**	63-130	1	25	
108-90-7	Chlorobenzene	206	161	162	**78**	**79**	70-118	1	25	
100-41-4	Ethylbenzene	206	170	172	**83**	**83**	71-123	0	25	
179601-23-1	m,p-Xylenes	416	350	355	**84**	**85**	67-127	1	25	
75-25-2	Bromoform	210	164	165	**78**	**79**	65-149	1	25	
100-42-5	Styrene	202	177	179	**88**	**89**	76-132	1	25	
95-47-6	o-Xylene	208	176	179	**85**	**86**	69-124	1	25	
111-84-2	n-Nonane	208	165	167	**79**	**80**	64-127	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	208	161	163	**77**	**78**	69-128	1	25	
98-82-8	Cumene	206	167	169	**81**	**82**	69-125	1	25	
80-56-8	alpha-Pinene	210	201	203	**96**	**97**	68-129	1	25	
103-65-1	n-Propylbenzene	208	171	173	**82**	**83**	70-127	1	25	
622-96-8	4-Ethyltoluene	208	175	177	**84**	**85**	69-127	1	25	
108-67-8	1,3,5-Trimethylbenzene	208	178	179	**86**	**86**	66-129	0	25	
95-63-6	1,2,4-Trimethylbenzene	206	184	185	**89**	**90**	63-142	1	25	
100-44-7	Benzyl Chloride	416	420	430	**101**	**103**	73-145	2	25	
541-73-1	1,3-Dichlorobenzene	208	170	172	**82**	**83**	67-136	1	25	
106-46-7	1,4-Dichlorobenzene	210	170	173	**81**	**82**	63-134	1	25	
95-50-1	1,2-Dichlorobenzene	210	167	169	**80**	**80**	64-139	0	25	
5989-27-5	d-Limonene	206	221	225	**107**	**109**	63-137	2	25	
96-12-8	1,2-Dibromo-3-chloropropane	404	327	333	**81**	**82**	72-145	1	25	
120-82-1	1,2,4-Trichlorobenzene	420	374	381	**89**	**91**	62-154	2	25	
91-20-3	Naphthalene	210	217	222	**103**	**106**	62-156	3	25	
87-68-3	Hexachlorobutadiene	212	150	153	**71**	**72**	55-142	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 12082104.D
Analyst: Simon Cao Date Analyzed: 12/8/21
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 00:45
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P211208-LCS	12082105.D	01:15
Duplicate Lab Control Sample	P211208-DLCS	12082106.D	01:45
LH18/24-Air-112221_Stripper	P2106266-001	12082113.D	09:35
LH18/24-Air-112221_Stripper_a	P2106266-002	12082114.D	10:05
LH18/24-Air-112221_GWTP	P2106266-003	12082115.D	10:36
LH18/24-Air-112221_Downwind_North	P2106266-004	12082116.D	11:07
LH18/24-Air-112221_Stripper_a (Dilution)	P2106266-002	12082118.D	12:09

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.** ALS Project ID: P2106266
Client Project ID: **LHAAP GWTP / NW01312.0150**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 12082102.D
Analyst: Simon Cao Date Analyzed: 12/7/21
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 23:44
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	146489		7.13		633133		8.49		149339		12.46	
	Upper Limit	205085		7.46		886386		8.82		209075		12.79	
	Lower Limit	87893		6.80		379880		8.16		89603		12.13	
	Client Sample ID												
01	Method Blank	132849		7.11		577083		8.48		133569		12.45	
02	Lab Control Sample	136859		7.14		585191		8.50		140851		12.46	
03	Duplicate Lab Control Sample	138673		7.14		592045		8.50		140280		12.46	
04	LH18/24-Air-112221_Stripper	115416		7.11		487231		8.48		116807		12.45	
05	LH18/24-Air-112221_Stripper_a	111877		7.11		472648		8.48		113802		12.45	
06	LH18/24-Air-112221_GWTP	109216		7.11		469683		8.48		114184		12.45	
07	LH18/24-Air-112221_Downwind_North	106466		7.11		454775		8.48		111475		12.45	
08	LH18/24-Air-112221_Stripper_a (Dilution)	105542		7.11		449565		8.48		110413		12.46	
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits.

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082113.D Vial: 5
Acq On : 8 Dec 2021 9:35 Operator: SC
Sample : P2106266-001 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:20:21 2021 12/8/21
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	115416	12.500 ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	487231	12.500 ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.45	54	116807	12.500 ng	-0.01

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.65	65	272389	15.227 ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.84%		
57) Toluene-d8 (SS2)	10.64	98	586528	11.393 ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.12%		
73) Bromofluorobenzene (SS3)	13.89	174	134883	10.164 ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.28%		

Target Compounds

						Qvalue
2) Propene	4.07	42	1153	N.D.		
3) Dichlorodifluoromethan...	4.08	85	115	N.D.		
4) Chloromethane	4.28	50	619	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	4.44	62	5086	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	4.90	45	6307	N.D.		
11) Acetonitrile	5.05	41	468	N.D.		
12) Acrolein	5.13	56	58	N.D.		
13) Acetone	5.21	58	18248	1.683 ng	#	63
14) Trichlorofluoromethane	5.30	101	1415	N.D.		
15) 2-Propanol (Isopropanol)	5.34	45	18624	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	5.70	96	6512	0.564 ng	#	84
18) 2-Methyl-2-Propanol (t...	5.76	59	129	N.D.		
19) Methylene Chloride	5.75	84	1833	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	5.90	151	127648	11.965 ng		96
22) Carbon Disulfide	6.01	76	442	N.D.		
23) trans-1,2-Dichloroethene	6.33	61	1643	N.D.		
24) 1,1-Dichloroethane	6.46	63	3623	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	6.70	72	4763	0.574 ng		100
28) cis-1,2-Dichloroethene	7.00	61	511717	26.432 ng		93
29) Diisopropyl Ether	7.19	87	483	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D. d		
31) n-Hexane	7.12	57	3769	N.D.		
32) Chloroform	7.19	83	6806	N.D.		
34) Tetrahydrofuran (THF)	7.49	72	2484	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	7.73	62	21454	1.112 ng		96
38) 1,1,1-Trichloroethane	7.94	97	385	N.D.		
39) Isopropyl Acetate	8.48	61	21138	No Calib	#	
40) 1-Butanol	8.13	56	526	No Calib	#	
41) Benzene	8.27	78	2246	N.D.		
42) Carbon Tetrachloride	8.39	117	2851	N.D.		
43) Cyclohexane	8.49	84	1422	N.D.		
44) tert-Amyl Methyl Ether	8.48	73	8364	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D. d		
46) Bromodichloromethane	0.00	83	0	N.D. d		
47) Trichloroethene	9.09	130	1309539	102.944 ng		99
48) 1,4-Dioxane	9.06	88	543	N.D.		
49) 2,2,4-Trimethylpentane...	9.12	57	788	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D. d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082113.D Vial: 5
Acq On : 8 Dec 2021 9:35 Operator: SC
Sample : P2106266-001 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:20:21 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

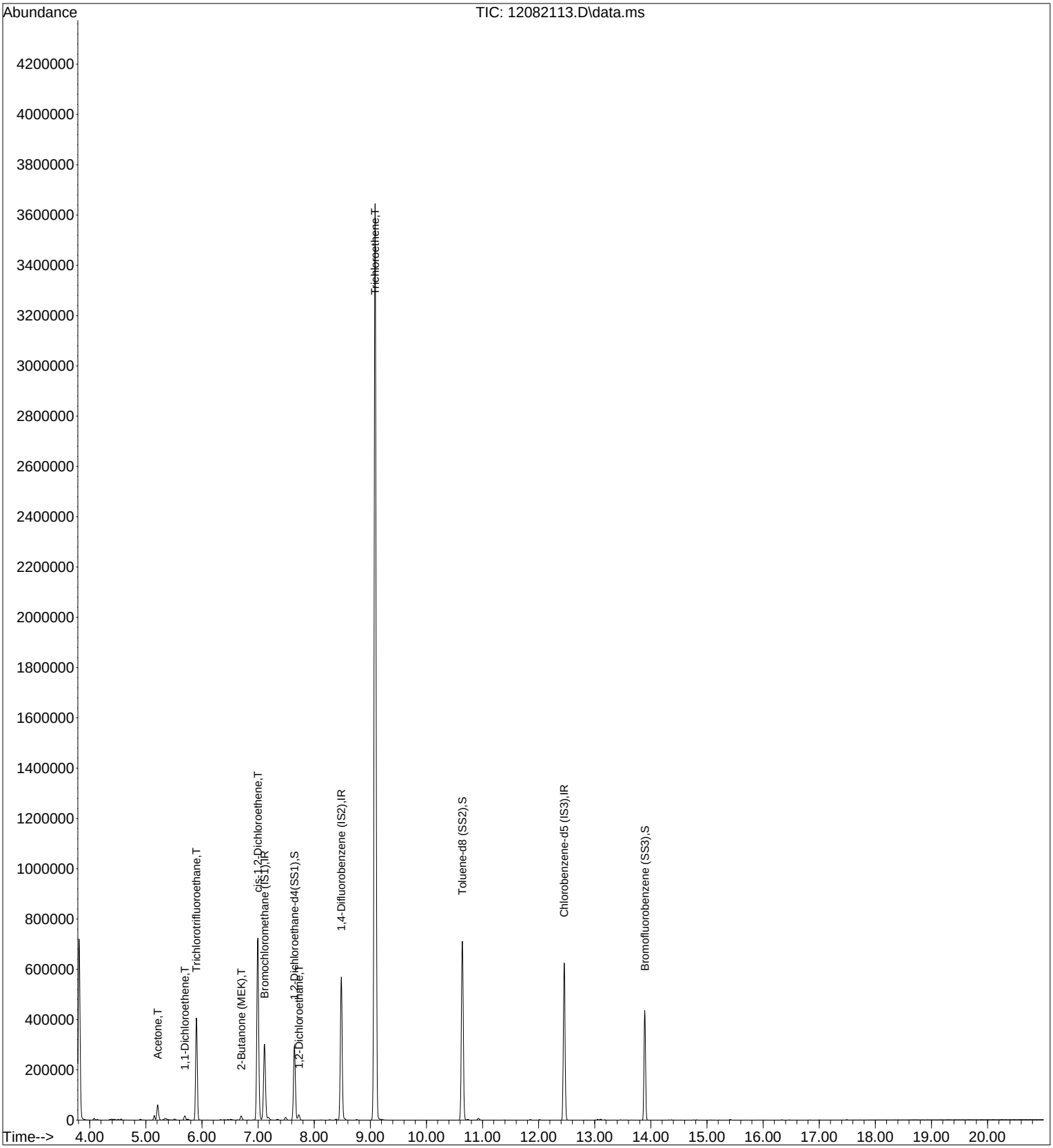
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.30	71	112	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	10.45	97	112	N.D.	
58) Toluene	10.74	91	3142	N.D.	
59) 2-Hexanone	10.92	43	7887	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	11.40	43	291	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	11.86	166	959	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	12.86	91	611	N.D.	
67) m- & p-Xylenes	13.00	91	1171	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	13.36	104	122	N.D.	
70) o-Xylene	13.47	91	723	N.D.	
71) n-Nonane	13.66	43	701	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	0.00	105	0	N.D.	
75) alpha-Pinene	14.41	93	378	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	13.89	118	678	No Calib	#
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	15.12	105	368	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	14.37	105	475	No Calib	#
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	58	0	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	17.50	128	296	N.D.	
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	13.17	55	843	No Calib	#
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082113.D Vial: 5
Acq On : 8 Dec 2021 9:35 Operator: SC
Sample : P2106266-001 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:20:21 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



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Response via : Initial Calibration
DataAcq Meth:TO15.M

12/8/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	115416	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	487231	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.45	54	116807	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	7.65	65	272389	15.227	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.84%			
57) Toluene-d8 (SS2)	10.64	98	586528	11.393	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.12%			
73) Bromofluorobenzene (SS3)	13.89	174	134883	10.164	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.28%			

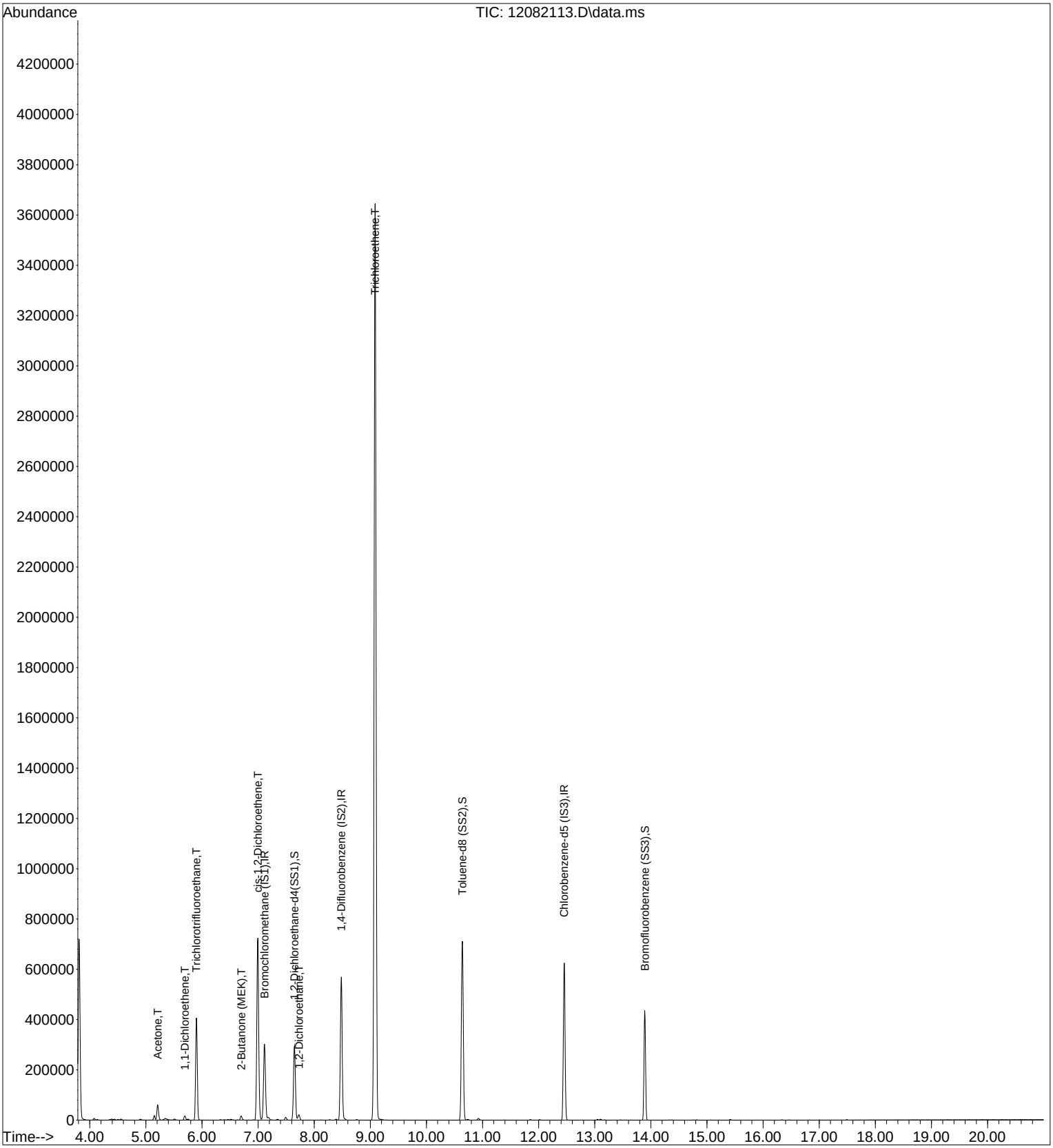
Target Compounds						Qvalue
13) Acetone	5.21	58	18248	1.683	ng #	63
17) 1,1-Dichloroethene	5.70	96	6512	0.564	ng #	84
21) Trichlorotrifluoroethane	5.90	151	127648	11.965	ng	96
27) 2-Butanone (MEK)	6.70	72	4763	0.574	ng	100
28) cis-1,2-Dichloroethene	7.00	61	511717	26.432	ng	93
36) 1,2-Dichloroethane	7.73	62	21454	1.112	ng	96
47) Trichloroethene	9.09	130	1309539	102.944	ng	99

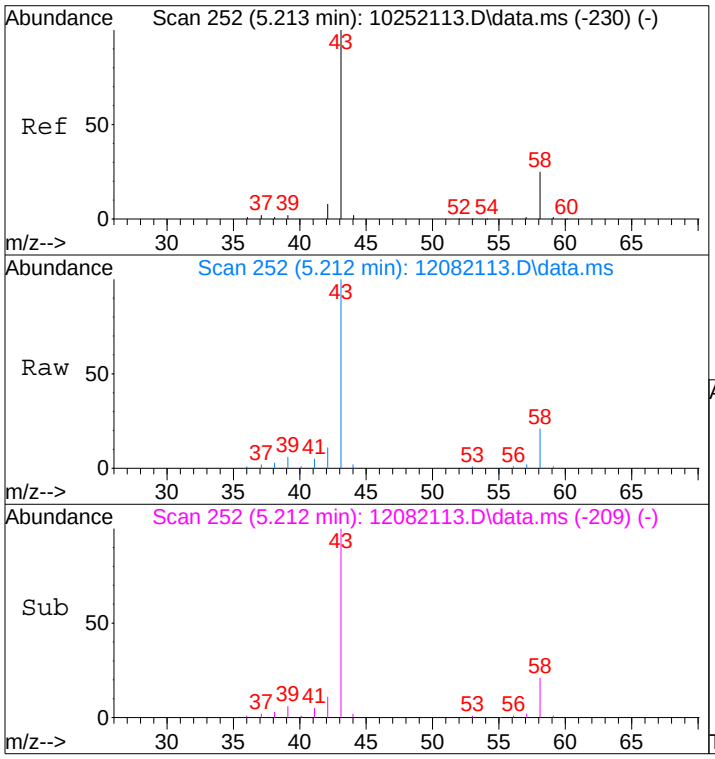
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082113.D Vial: 5
Acq On : 8 Dec 2021 9:35 Operator: SC
Sample : P2106266-001 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:20:21 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

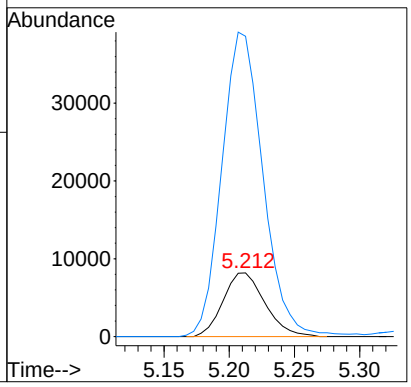


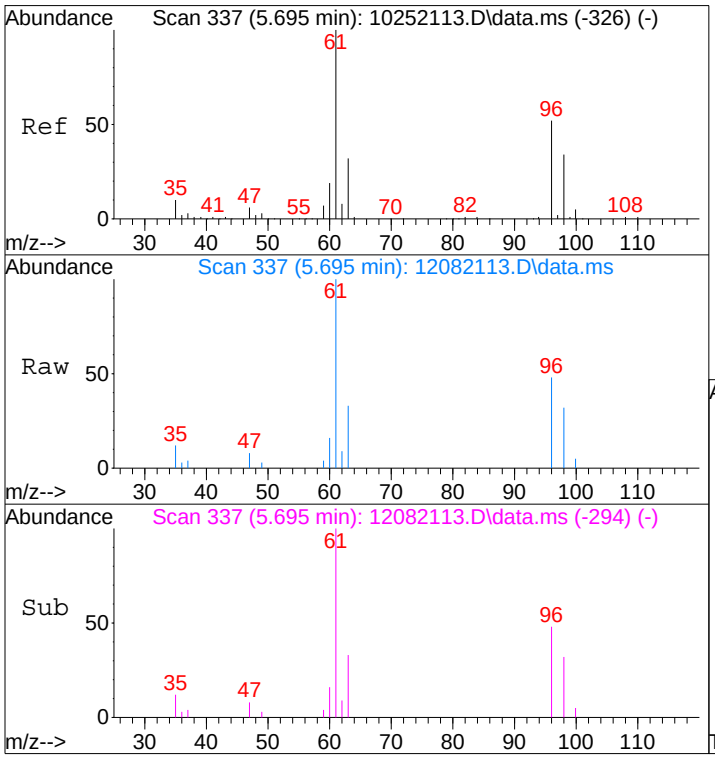


#13
Acetone
Concen: 1.68 ng
RT: 5.21 min Scan# 252
Delta R.T. -0.006 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion: 58 Resp: 18248

Ion	Ratio	Lower	Upper
58	100		
43	471.8	355.6	415.6#

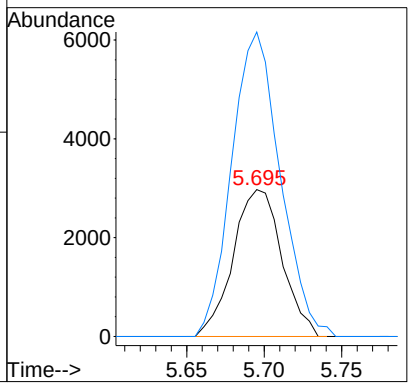


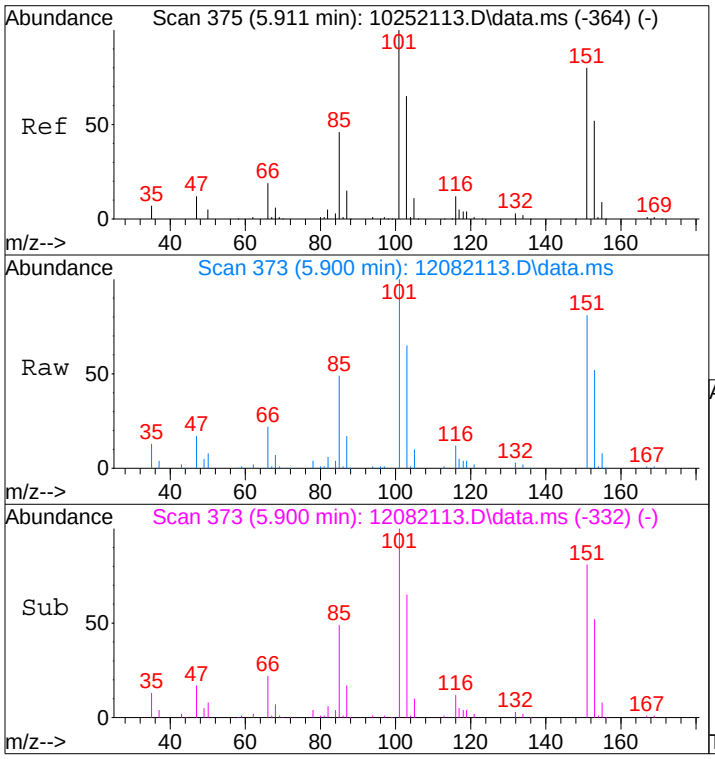


#17
1,1-Dichloroethene
Concen: 0.56 ng
RT: 5.70 min Scan# 337
Delta R.T. -0.006 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion: 96 Resp: 6512

Ion	Ratio	Lower	Upper
96	100		
61	206.4	163.8	203.8#

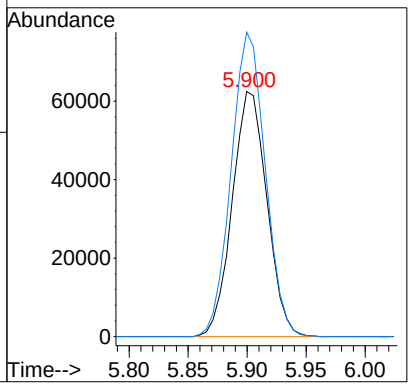


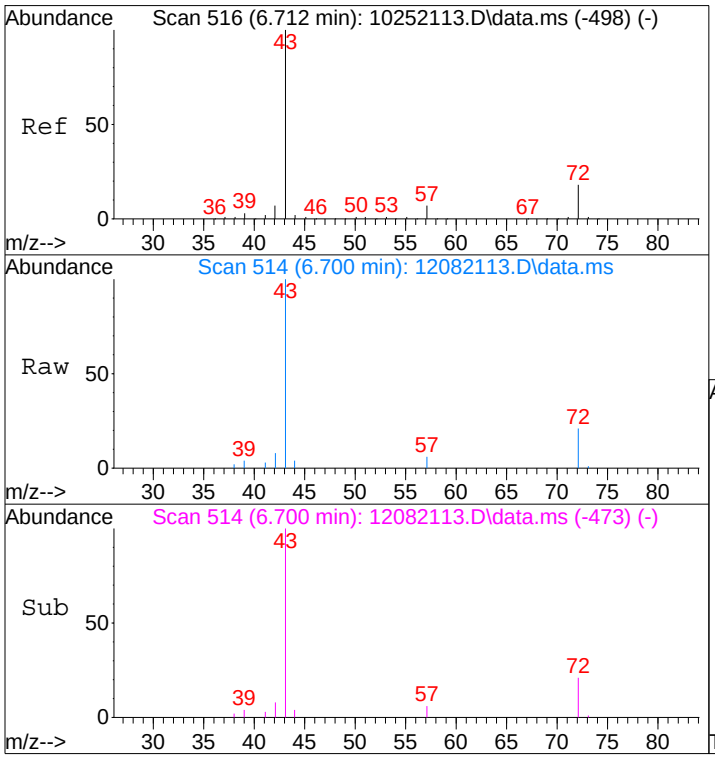


#21
Trichlorotrifluoroethane
Concen: 11.96 ng
RT: 5.90 min Scan# 373
Delta R.T. -0.017 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion:151 Resp: 127648

Ion	Ratio	Lower	Upper
151	100		
101	122.5	98.6	138.6

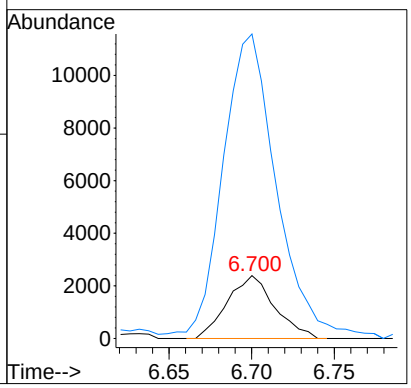


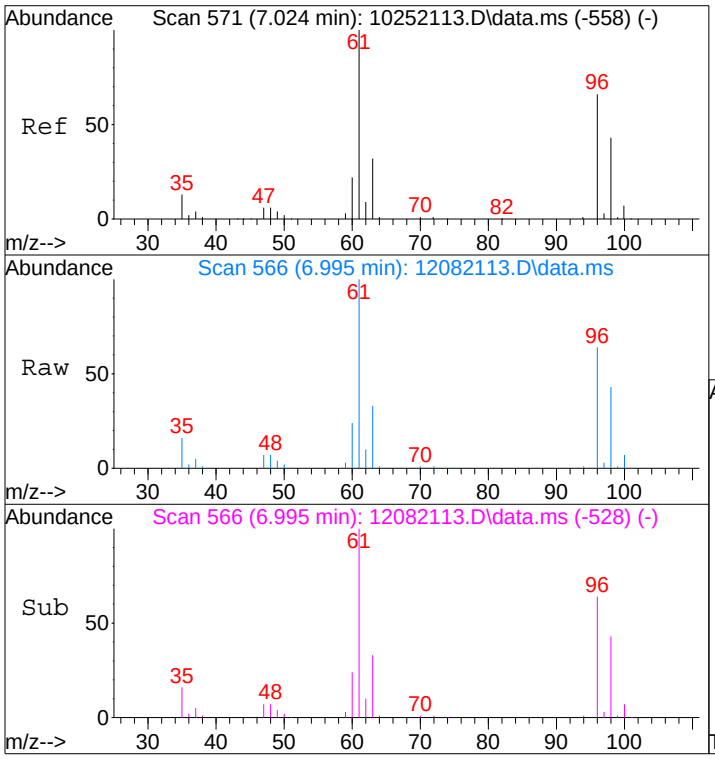


#27
2-Butanone (MEK)
Concen: 0.57 ng
RT: 6.70 min Scan# 514
Delta R.T. -0.017 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion: 72 Resp: 4763

Ion	Ratio	Lower	Upper
72	100		
43	549.5	528.8	568.8

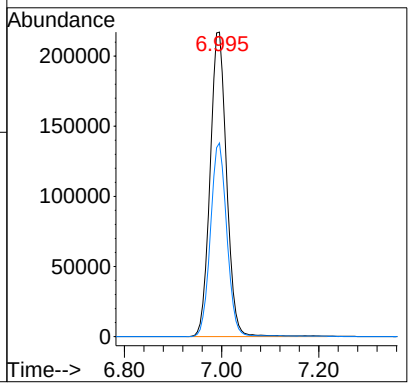


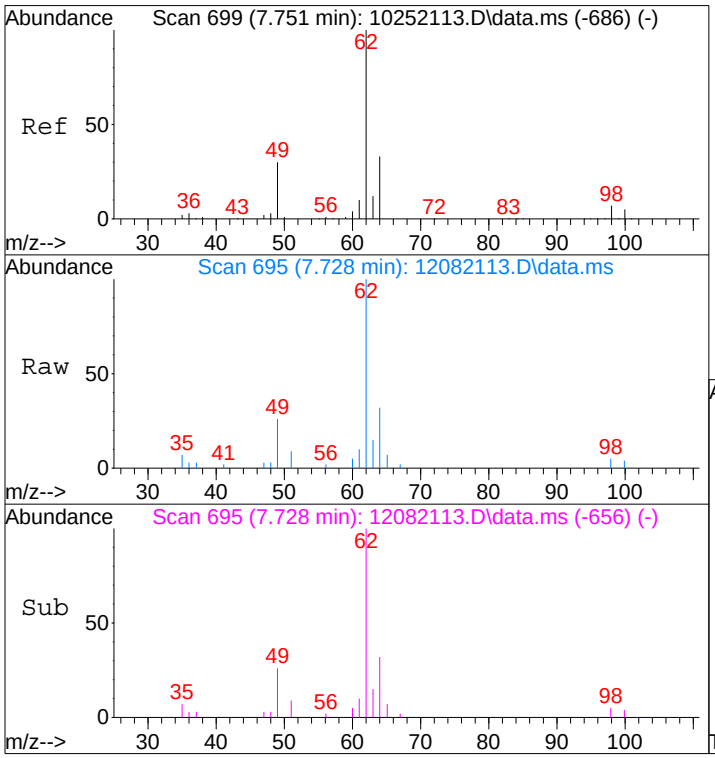


#28
cis-1,2-Dichloroethene
Concen: 26.43 ng
RT: 7.00 min Scan# 566
Delta R.T. -0.034 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion: 61 Resp: 511717

Ion	Ratio	Lower	Upper
61	100		
96	63.5	49.3	89.3

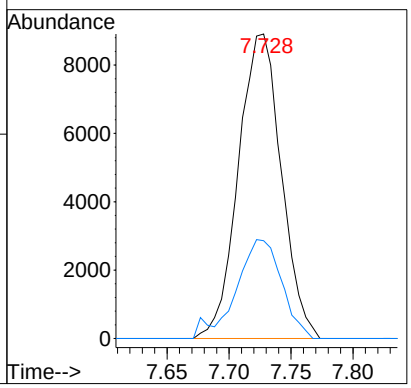


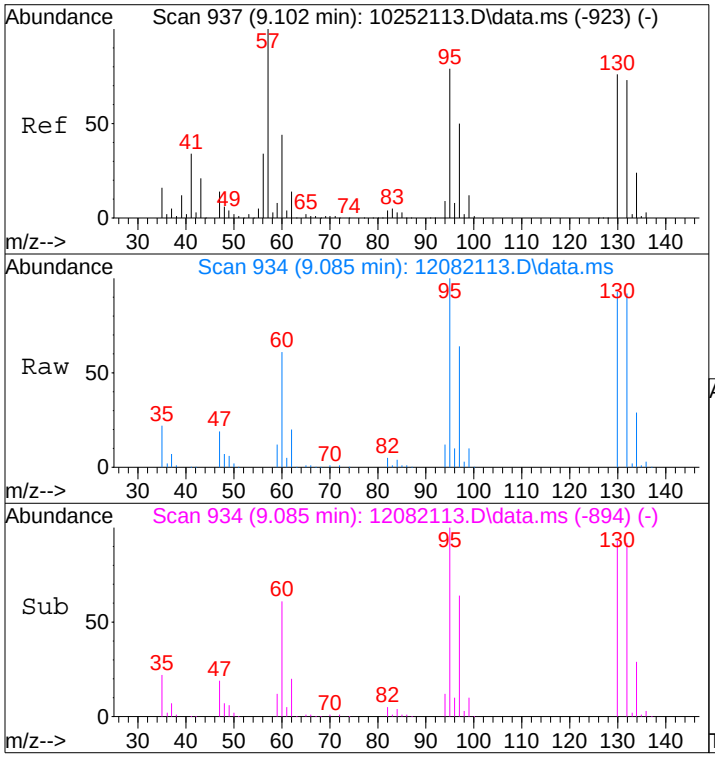


#36
1,2-Dichloroethane
Concen: 1.11 ng
RT: 7.73 min Scan# 695
Delta R.T. -0.029 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion: 62 Resp: 21454

Ion	Ratio	Lower	Upper
62	100		
64	34.5	12.4	52.4

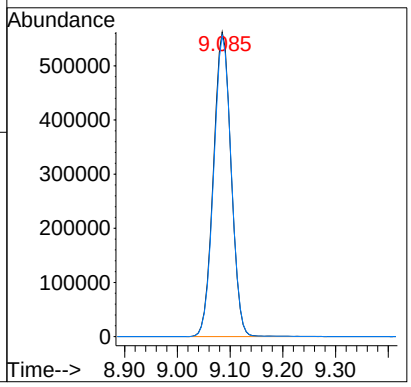




#47
Trichloroethene
Concen: 102.94 ng
RT: 9.09 min Scan# 934
Delta R.T. -0.023 min
Lab File: 12082113.D
Acq: 8 Dec 2021 9:35

Tgt Ion:130 Resp: 1309539

Ion	Ratio	Lower	Upper
130	100		
132	98.4	77.4	117.4



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082114.D Vial: 6
Acq On : 8 Dec 2021 10:05 Operator: SC
Sample : P2106266-002 (40mL) Inst : MS09
Misc : S34-10072101

12/8/21

Quant Time: Dec 08 10:29:39 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	111877	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	472648	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.45	54	113802	12.500	ng	-0.01

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.65	65	264879	15.275	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.24%			
57) Toluene-d8 (SS2)	10.64	98	567204	11.308	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.48%			
73) Bromofluorobenzene (SS3)	13.89	174	131588	10.177	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.44%			

Target Compounds

							Qvalue
2) Propene	4.08	42	780	N.D.			
3) Dichlorodifluoromethan...	4.08	85	118	N.D.			
4) Chloromethane	4.26	50	681	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	4.43	62	5869	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	4.96	45	52	N.D.			
11) Acetonitrile	5.06	41	135	N.D.			
12) Acrolein	5.13	56	108	N.D.			
13) Acetone	5.21	58	11114	1.058	ng	#	79
14) Trichlorofluoromethane	5.30	101	1063	N.D.			
15) 2-Propanol (Isopropanol)	5.36	45	3060	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	5.69	96	7534	0.674	ng	#	83
18) 2-Methyl-2-Propanol (t...	5.76	59	105	N.D.			
19) Methylene Chloride	5.75	84	2198	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	5.90	151	144996	14.020	ng		96
22) Carbon Disulfide	6.01	76	6541	N.D.			
23) trans-1,2-Dichloroethene	6.33	61	1601	N.D.			
24) 1,1-Dichloroethane	6.46	63	4108	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	6.70	72	2142	N.D.			
28) cis-1,2-Dichloroethene	6.99	61	570899	30.421	ng		94
29) Diisopropyl Ether	7.18	87	585	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D. d			
31) n-Hexane	7.12	57	646	N.D.			
32) Chloroform	7.18	83	7681	N.D.			
34) Tetrahydrofuran (THF)	7.50	72	919	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	7.72	62	23896	1.278	ng		99
38) 1,1,1-Trichloroethane	7.94	97	489	N.D.			
39) Isopropyl Acetate	8.48	61	20024	No Calib		#	
40) 1-Butanol	8.13	56	503	No Calib		#	
41) Benzene	8.27	78	2167	N.D.			
42) Carbon Tetrachloride	8.39	117	2945	N.D.			
43) Cyclohexane	8.49	84	771	N.D.			
44) tert-Amyl Methyl Ether	8.48	73	7743	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D. d			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	9.09	130	1500191	121.570	ng		99
48) 1,4-Dioxane	9.06	88	684	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082114.D Vial: 6
Acq On : 8 Dec 2021 10:05 Operator: SC
Sample : P2106266-002 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:29:39 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

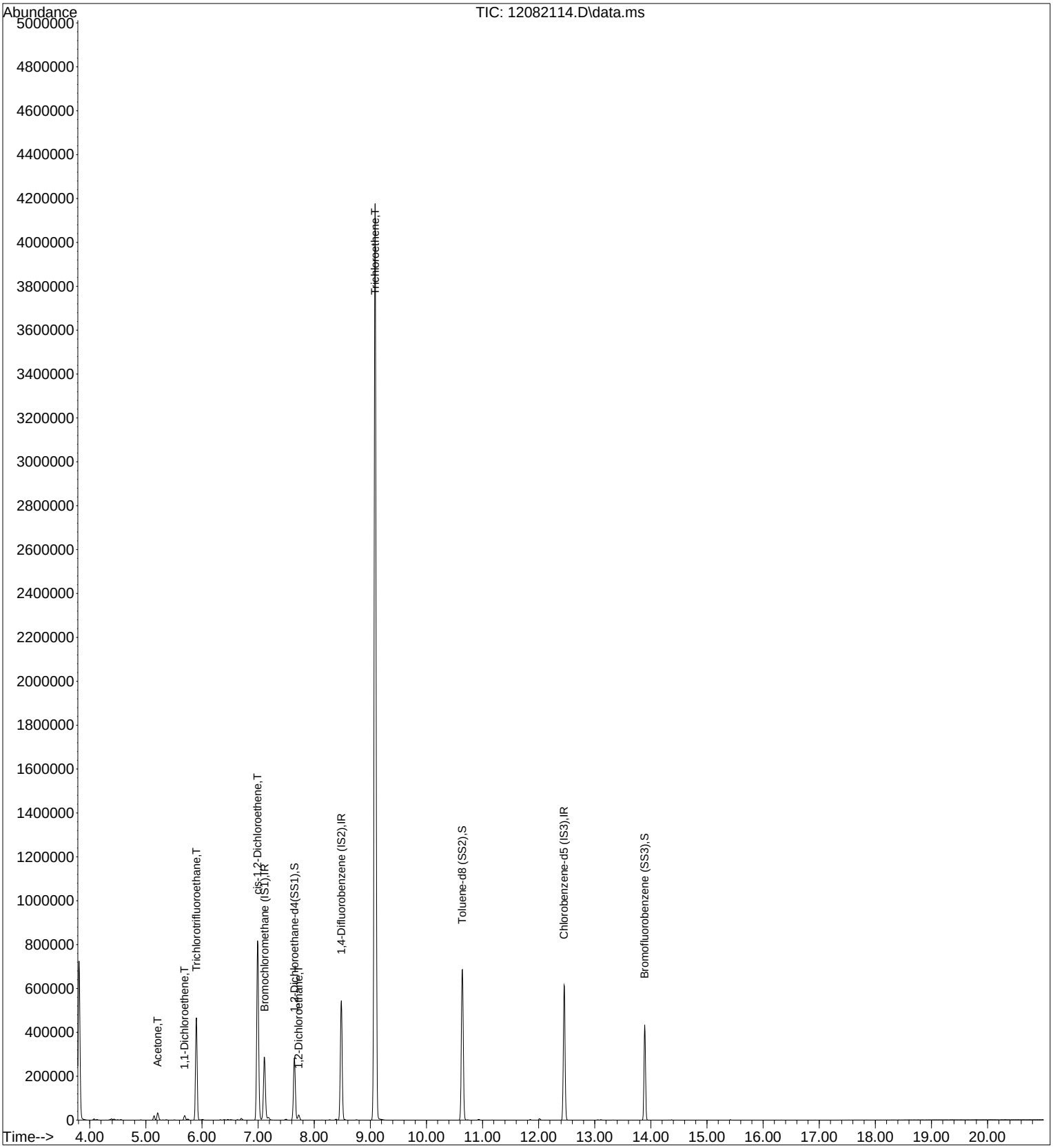
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	10.44	97	114	N.D.	
58) Toluene	10.73	91	1730	N.D.	
59) 2-Hexanone	10.93	43	4453	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	11.85	166	1195	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	12.85	91	141	N.D.	
67) m- & p-Xylenes	13.01	91	600	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	13.46	91	473	N.D.	
71) n-Nonane	13.64	43	284	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	0.00	105	0	N.D.	
75) alpha-Pinene	14.40	93	119	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	13.89	118	617	No Calib	#
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	15.13	105	132	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	14.37	105	410	No Calib	#
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	58	0	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	0.00	128	0	N.D.	
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082114.D Vial: 6
Acq On : 8 Dec 2021 10:05 Operator: SC
Sample : P2106266-002 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:29:39 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082114.D Vial: 6
Acq On : 8 Dec 2021 10:05 Operator: SC
Sample : P2106266-002 (40mL) Inst : MS09
Misc : S34-10072101

12/8/21

Quant Time: Dec 08 10:29:39 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	111877	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	472648	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.45	54	113802	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	7.65	65	264879	15.275	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.24%			
57) Toluene-d8 (SS2)	10.64	98	567204	11.308	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.48%			
73) Bromofluorobenzene (SS3)	13.89	174	131588	10.177	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.44%			

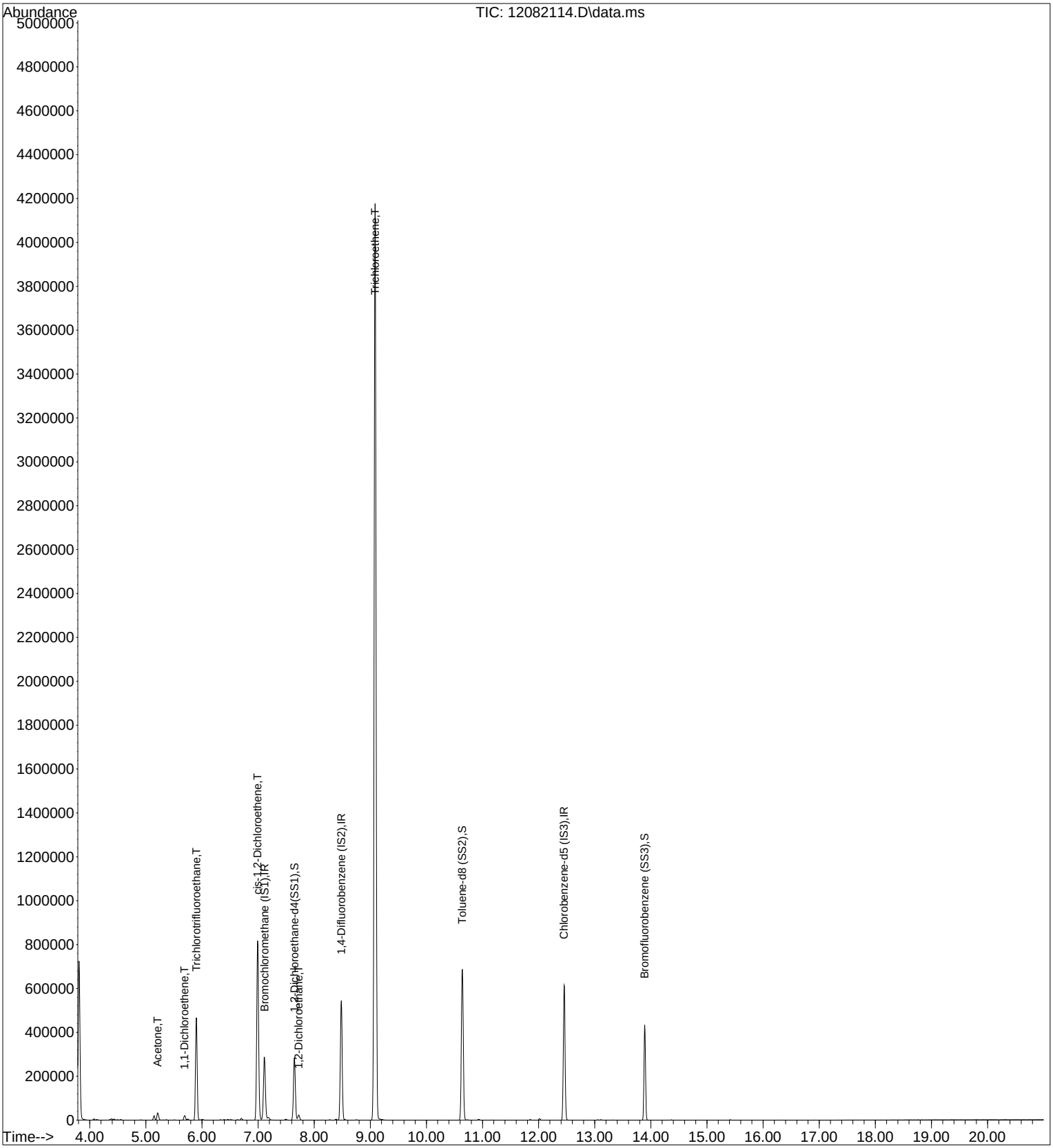
Target Compounds							Qvalue
13) Acetone	5.21	58	11114	1.058	ng	#	79
17) 1,1-Dichloroethene	5.69	96	7534	0.674	ng	#	83
21) Trichlorotrifluoroethane	5.90	151	144996	14.020	ng		96
28) cis-1,2-Dichloroethene	6.99	61	570899	30.421	ng		94
36) 1,2-Dichloroethane	7.72	62	23896	1.278	ng		99
47) Trichloroethene	9.09	130	1500191	121.570	ng		99

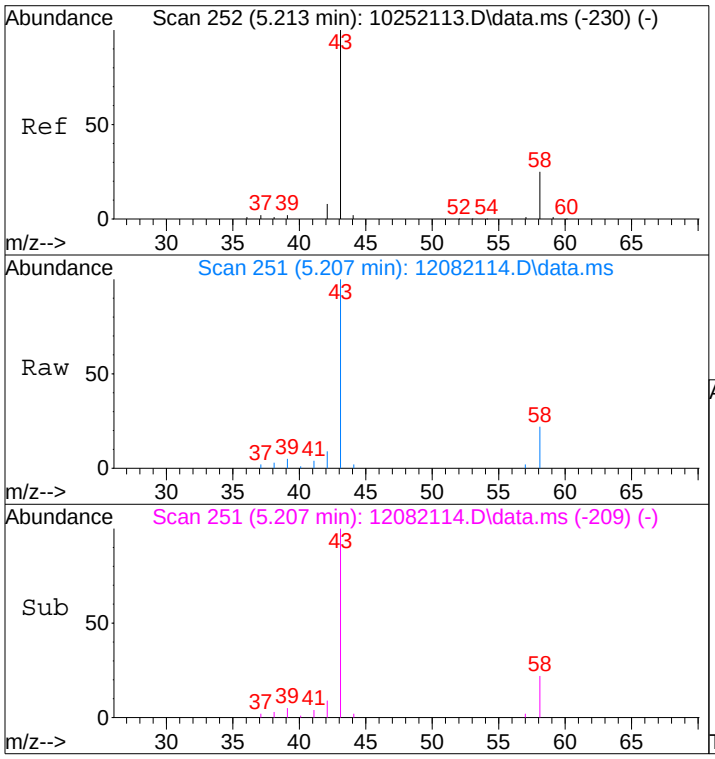
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082114.D Vial: 6
Acq On : 8 Dec 2021 10:05 Operator: SC
Sample : P2106266-002 (40mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 10:29:39 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

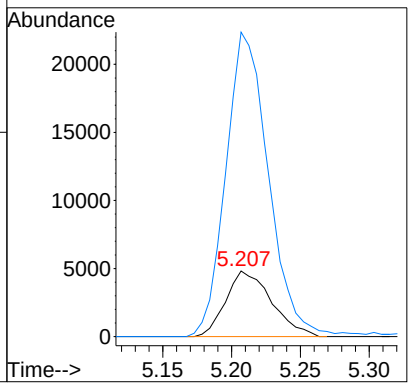


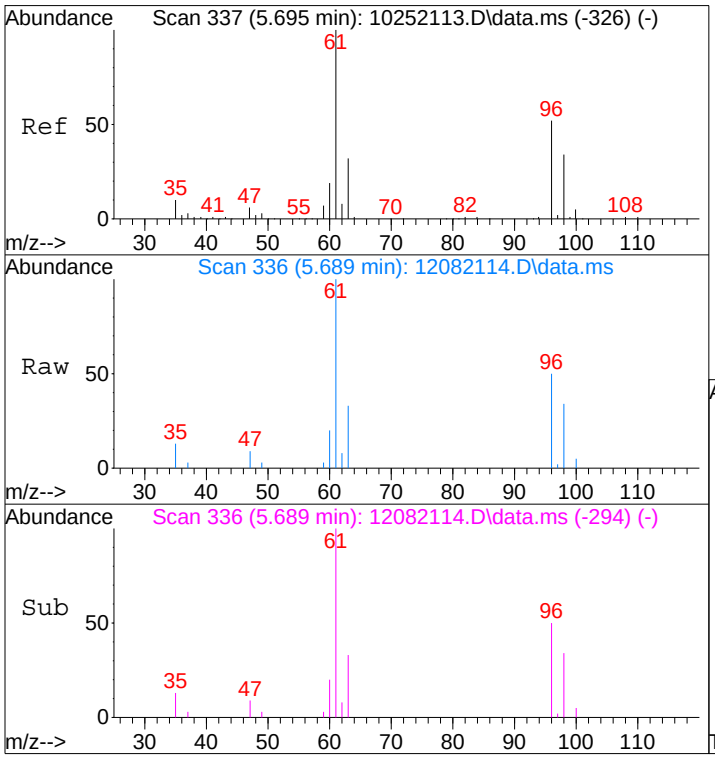


#13
Acetone
Concen: 1.06 ng
RT: 5.21 min Scan# 251
Delta R.T. -0.011 min
Lab File: 12082114.D
Acq: 8 Dec 2021 10:05

Tgt Ion: 58 Resp: 11114

Ion	Ratio	Lower	Upper
58	100		
43	434.5	355.6	415.6#

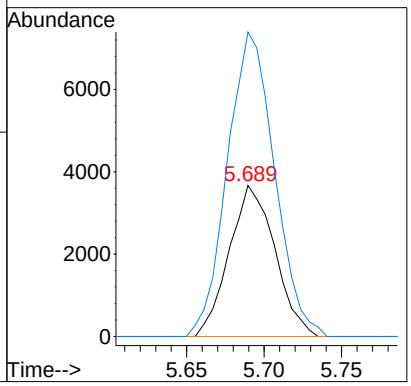


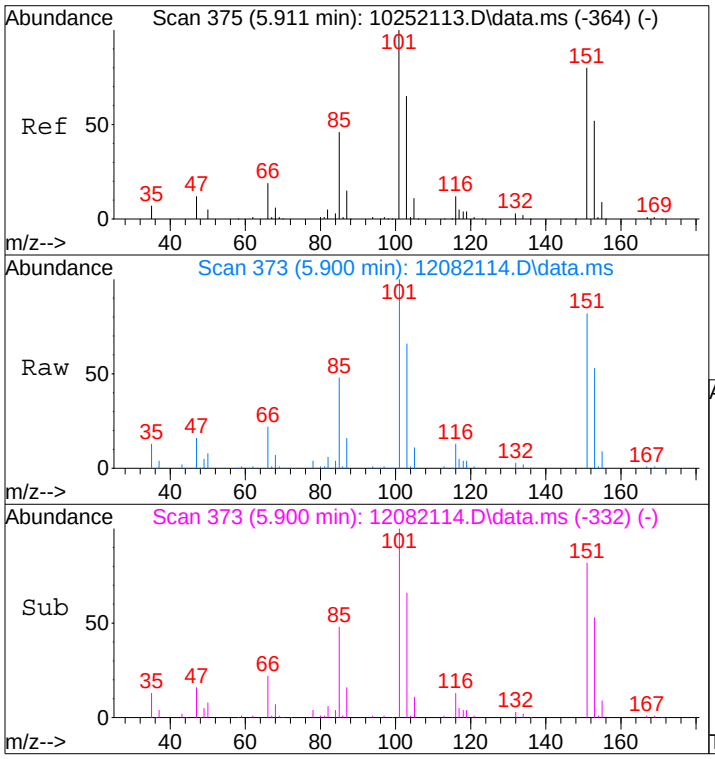


#17
1,1-Dichloroethene
Concen: 0.67 ng
RT: 5.69 min Scan# 336
Delta R.T. -0.011 min
Lab File: 12082114.D
Acq: 8 Dec 2021 10:05

Tgt Ion: 96 Resp: 7534

Ion	Ratio	Lower	Upper
96	100		
61	208.2	163.8	203.8#

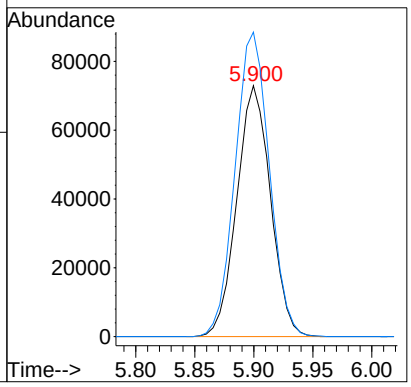


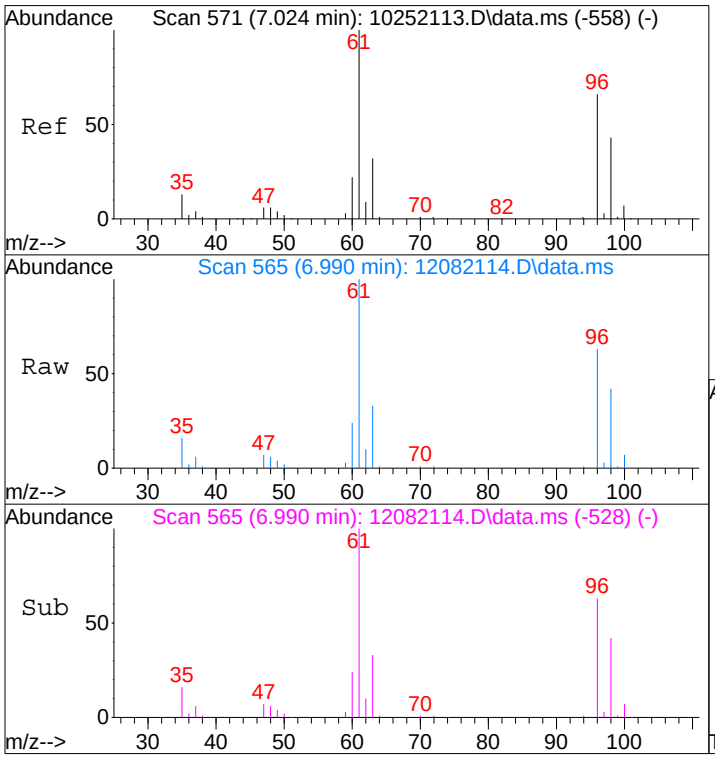


#21
Trichlorotrifluoroethane
Concen: 14.02 ng
RT: 5.90 min Scan# 373
Delta R.T. -0.017 min
Lab File: 12082114.D
Acq: 8 Dec 2021 10:05

Tgt Ion:151 Resp: 144996

Ion	Ratio	Lower	Upper
151	100		
101	123.3	98.6	138.6

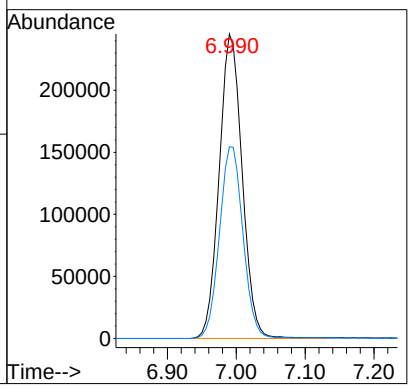


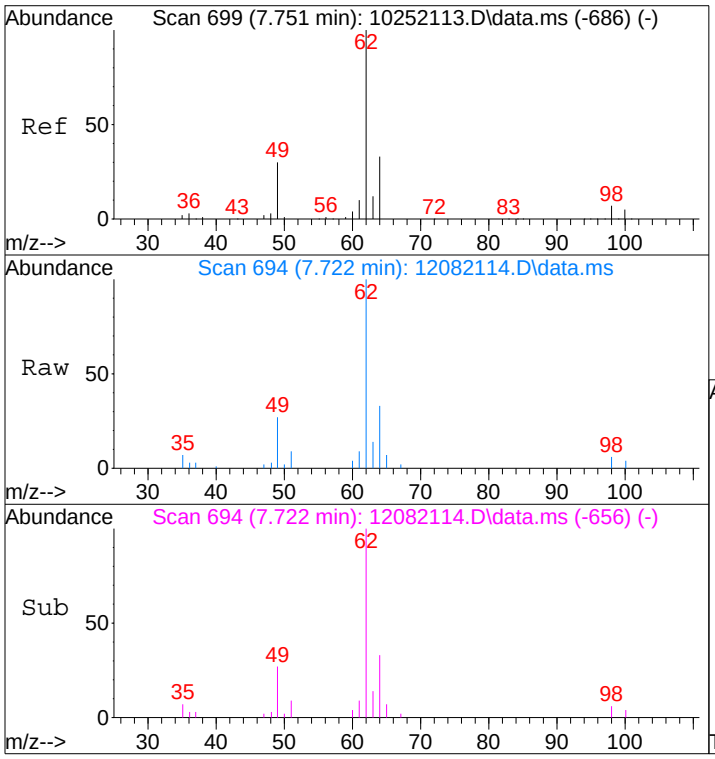


#28
cis-1,2-Dichloroethene
Concen: 30.42 ng
RT: 6.99 min Scan# 565
Delta R.T. -0.040 min
Lab File: 12082114.D
Acq: 8 Dec 2021 10:05

Tgt Ion: 61 Resp: 570899

Ion	Ratio	Lower	Upper
61	100		
96	64.2	49.3	89.3

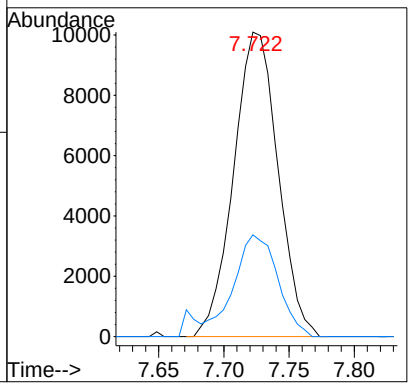


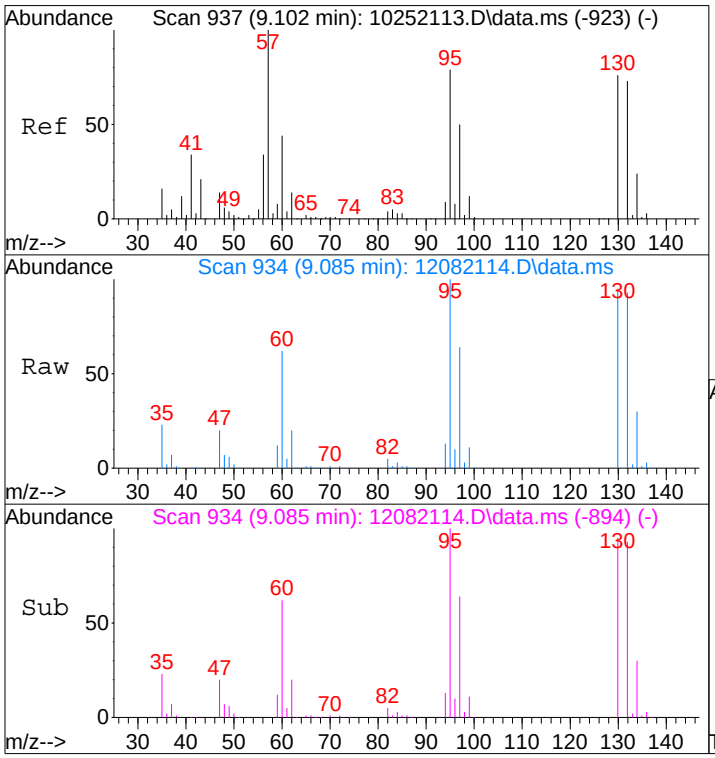


#36
1,2-Dichloroethane
Concen: 1.28 ng
RT: 7.72 min Scan# 694
Delta R.T. -0.034 min
Lab File: 12082114.D
Acq: 8 Dec 2021 10:05

Tgt Ion: 62 Resp: 23896

Ion	Ratio	Lower	Upper
62	100		
64	33.2	12.4	52.4

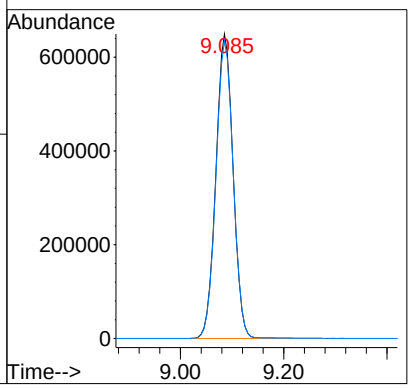




#47
Trichloroethene
Concen: 121.57 ng
RT: 9.09 min Scan# 934
Delta R.T. -0.023 min
Lab File: 12082114.D
Acq: 8 Dec 2021 10:05

Tgt Ion:130 Resp: 1500191

Ion	Ratio	Lower	Upper
130	100		
132	98.2	77.4	117.4



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082118.D Vial: 6
Acq On : 8 Dec 2021 12:09 Operator: SC
Sample : P2106266-002Dil (20mL) Inst : MS09
Misc : S34-10072101

12/8/21

Quant Time: Dec 08 13:53:02 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	105542	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	449565	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.46	54	110413	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	255455	15.616	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.96%			
57) Toluene-d8 (SS2)	10.64	98	539128	11.079	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.64%			
73) Bromofluorobenzene (SS3)	13.89	174	130736	10.422	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.36%			

Target Compounds

							Qvalue
2) Propene	4.08	42	393	N.D.			
3) Dichlorodifluoromethan...	4.13	85	990	N.D.			
4) Chloromethane	4.27	50	244	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	4.44	62	2639	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	4.92	45	1237	N.D.			
11) Acetonitrile	5.21	41	969	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	5.21	58	5641	0.569	ng	#	75
14) Trichlorofluoromethane	5.31	101	439	N.D.			
15) 2-Propanol (Isopropanol)	5.37	45	1379	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	5.70	96	3922	N.D.			
18) 2-Methyl-2-Propanol (t...	5.69	59	53	N.D.			
19) Methylene Chloride	5.75	84	1107	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	5.91	151	75441	7.733	ng		99
22) Carbon Disulfide	6.01	76	3118	N.D.			
23) trans-1,2-Dichloroethene	6.33	61	667	N.D.			
24) 1,1-Dichloroethane	6.46	63	2036	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	6.71	72	1074	N.D.			
28) cis-1,2-Dichloroethene	6.99	61	293197	16.561	ng		93
29) Diisopropyl Ether	7.19	87	237	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.	d		
31) n-Hexane	7.13	57	334	N.D.			
32) Chloroform	7.19	83	3806	N.D.			
34) Tetrahydrofuran (THF)	7.50	72	376	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	7.72	62	12364	0.701	ng		98
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	8.48	61	19526	No Calib		#	
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	8.28	78	1292	N.D.			
42) Carbon Tetrachloride	8.39	117	1586	N.D.			
43) Cyclohexane	8.47	84	329	N.D.			
44) tert-Amyl Methyl Ether	8.48	73	7546	N.D.			
45) 1,2-Dichloropropane	9.08	63	3561	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	9.09	130	769673	65.574	ng		99
48) 1,4-Dioxane	9.06	88	193	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	9.09	100	1718	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082118.D Vial: 6
Acq On : 8 Dec 2021 12:09 Operator: SC
Sample : P2106266-002Dil (20mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 13:53:02 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

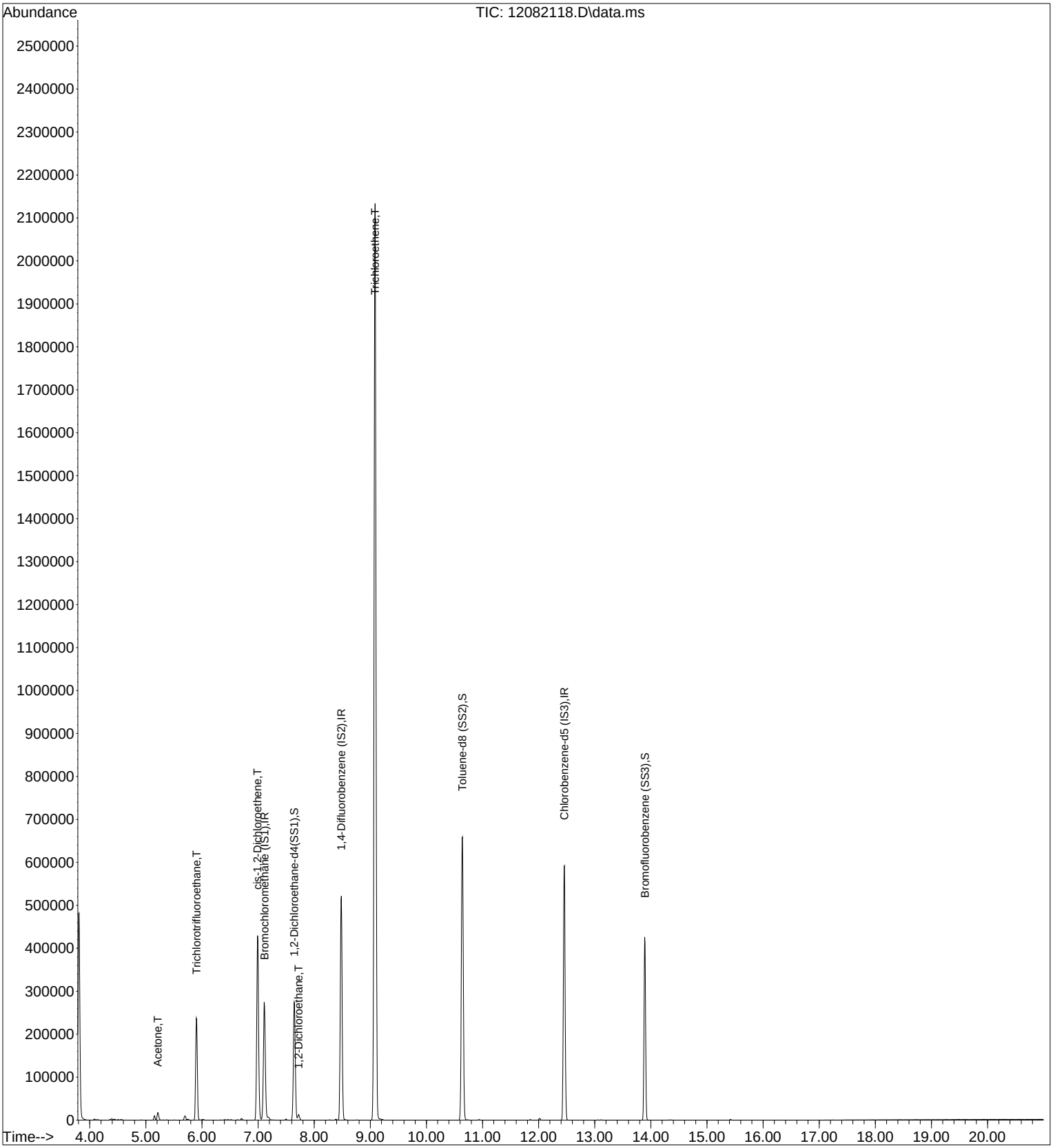
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	10.74	91	937	N.D.	
59) 2-Hexanone	10.93	43	2130	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	11.86	166	520	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	13.00	91	164	N.D.	
67) m- & p-Xylenes	13.00	91	164	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	0.00	91	0	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	0.00	105	0	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	13.89	118	588	No Calib #	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	14.37	105	269	No Calib #	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	58	0	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	0.00	128	0	N.D.	
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082118.D Vial: 6
Acq On : 8 Dec 2021 12:09 Operator: SC
Sample : P2106266-002Dil (20mL) Inst : MS09
Misc : S34-10072101

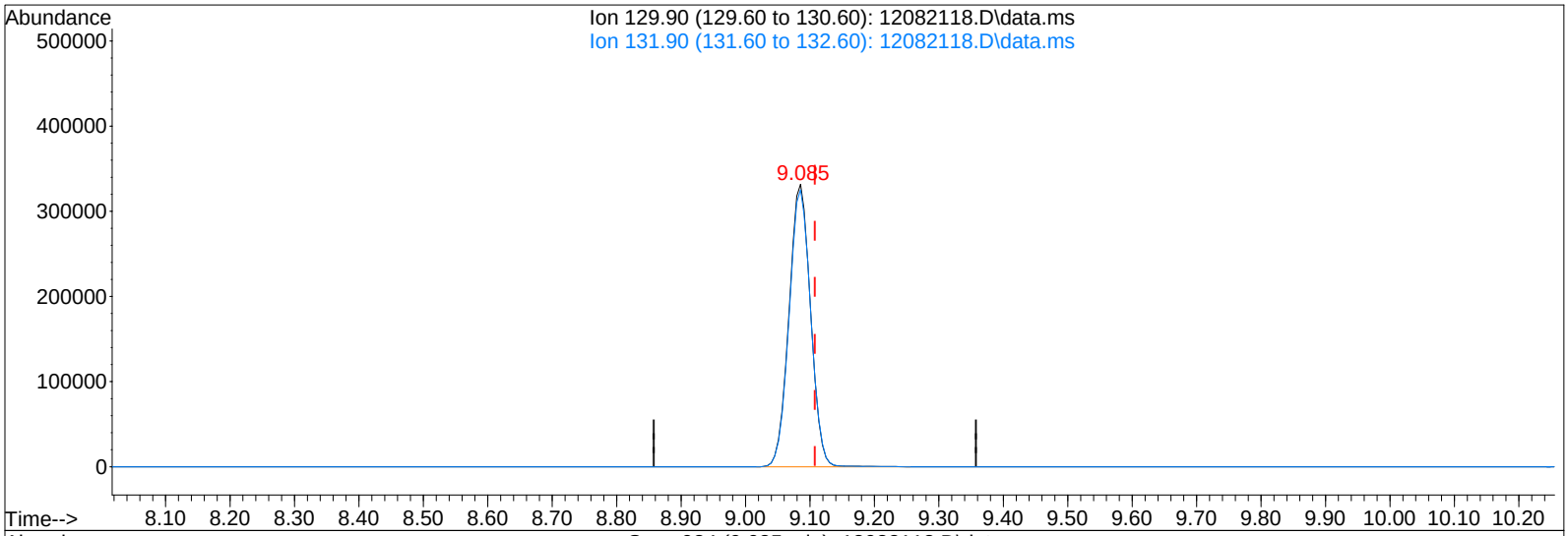
Quant Time: Dec 08 13:53:02 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

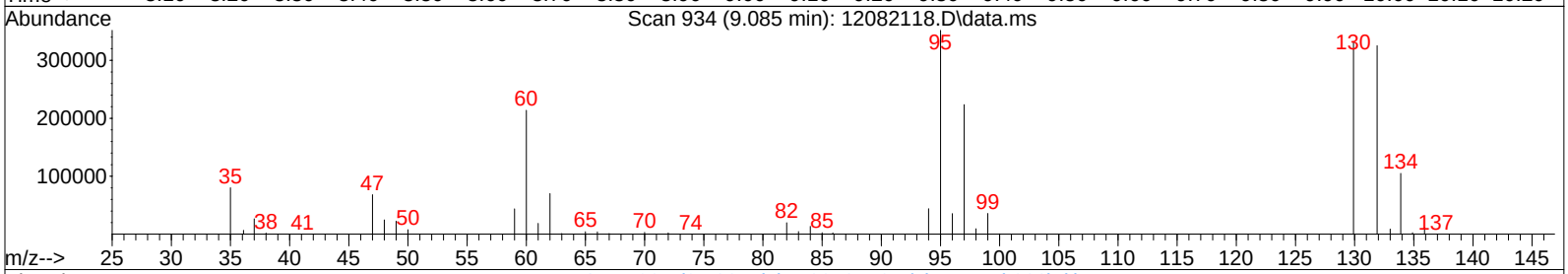


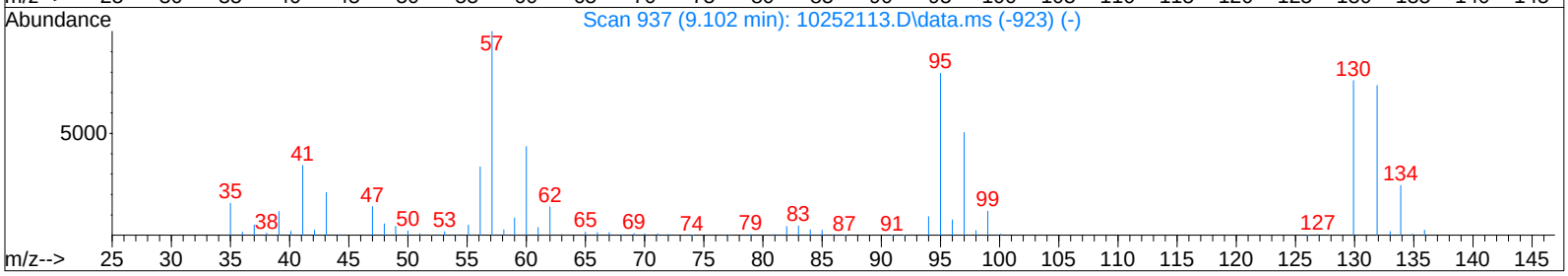
Quantitation Report (Qedit)

Data File : I:\MS09\Data\2021 12\08\12082118.D Vial: 6
Acq On : 8 Dec 2021 12:09 Operator: SC
Sample : P2106266-002Dil (20mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 13:53:02 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 12082118.D\data.ms

(47) Trichloroethene (T)

9.085min (-0.023) 65.57ng

response 769673

Ion	Exp%	Act%
129.90	100	100
131.90	97.40	97.96
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

01115433

Data File : I:\MS09\Data\2021 12\08\12082115.D Vial: 7
Acq On : 8 Dec 2021 10:36 Operator: SC
Sample : P2106266-003 (1000mL) Inst : MS09
Misc : S34-10072101

12/8/21

Quant Time: Dec 08 11:07:08 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	109216	12.500 ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	469683	12.500 ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.45	54	114184	12.500 ng	-0.01

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	261351	15.439 ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 123.52%		
57) Toluene-d8 (SS2)	10.64	98	562696	11.181 ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.44%		
73) Bromofluorobenzene (SS3)	13.89	174	134585	10.374 ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 82.96%		

Target Compounds

						Qvalue
2) Propene	4.03	42	41370	2.057 ng	#	54
3) Dichlorodifluoromethan...	4.11	85	45293	1.883 ng		100
4) Chloromethane	4.25	50	4812	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.33	135	725	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	4.54	54	209	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	4.91	45	129208	9.568 ng		96
11) Acetonitrile	5.04	41	7276	N.D.		
12) Acrolein	5.11	56	1440	N.D.		
13) Acetone	5.18	58	103343	10.075 ng	#	44
14) Trichlorofluoromethane	5.29	101	35188	1.522 ng		100
15) 2-Propanol (Isopropanol)	5.34	45	253846	6.142 ng		99
16) Acrylonitrile	5.50	53	1645	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	5.71	59	1209	N.D.		
19) Methylene Chloride	5.75	84	3028	N.D.		
20) 3-Chloro-1-propene (Al...	5.77	41	1543	N.D.		
21) Trichlorotrifluoroethane	5.90	151	8893	0.881 ng		99
22) Carbon Disulfide	6.00	76	3301	N.D.		
23) trans-1,2-Dichloroethene	6.33	61	4280	N.D.		
24) 1,1-Dichloroethane	6.51	63	231	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D. d		
27) 2-Butanone (MEK)	6.68	72	18468	2.353 ng		97
28) cis-1,2-Dichloroethene	7.00	61	10277	0.561 ng		94
29) Diisopropyl Ether	7.12	87	902	N.D.		
30) Ethyl Acetate	7.07	61	11728	2.494 ng		83
31) n-Hexane	7.12	57	104217	4.527 ng		99
32) Chloroform	7.19	83	1734	N.D.		
34) Tetrahydrofuran (THF)	7.47	72	53116	7.166 ng	#	84
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	7.72	62	2822	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	8.48	61	20345	No Calib	#	
40) 1-Butanol	8.09	56	8800	No Calib	#	
41) Benzene	8.27	78	20282	N.D.		
42) Carbon Tetrachloride	8.38	117	6078	N.D.		
43) Cyclohexane	8.49	84	22619	1.208 ng	#	51
44) tert-Amyl Methyl Ether	8.48	73	7695	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	9.05	83	307	N.D.		
47) Trichloroethene	9.08	130	29073	2.371 ng		98
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	0.00	100	0	N.D. d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082115.D Vial: 7
Acq On : 8 Dec 2021 10:36 Operator: SC
Sample : P2106266-003 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:07:08 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

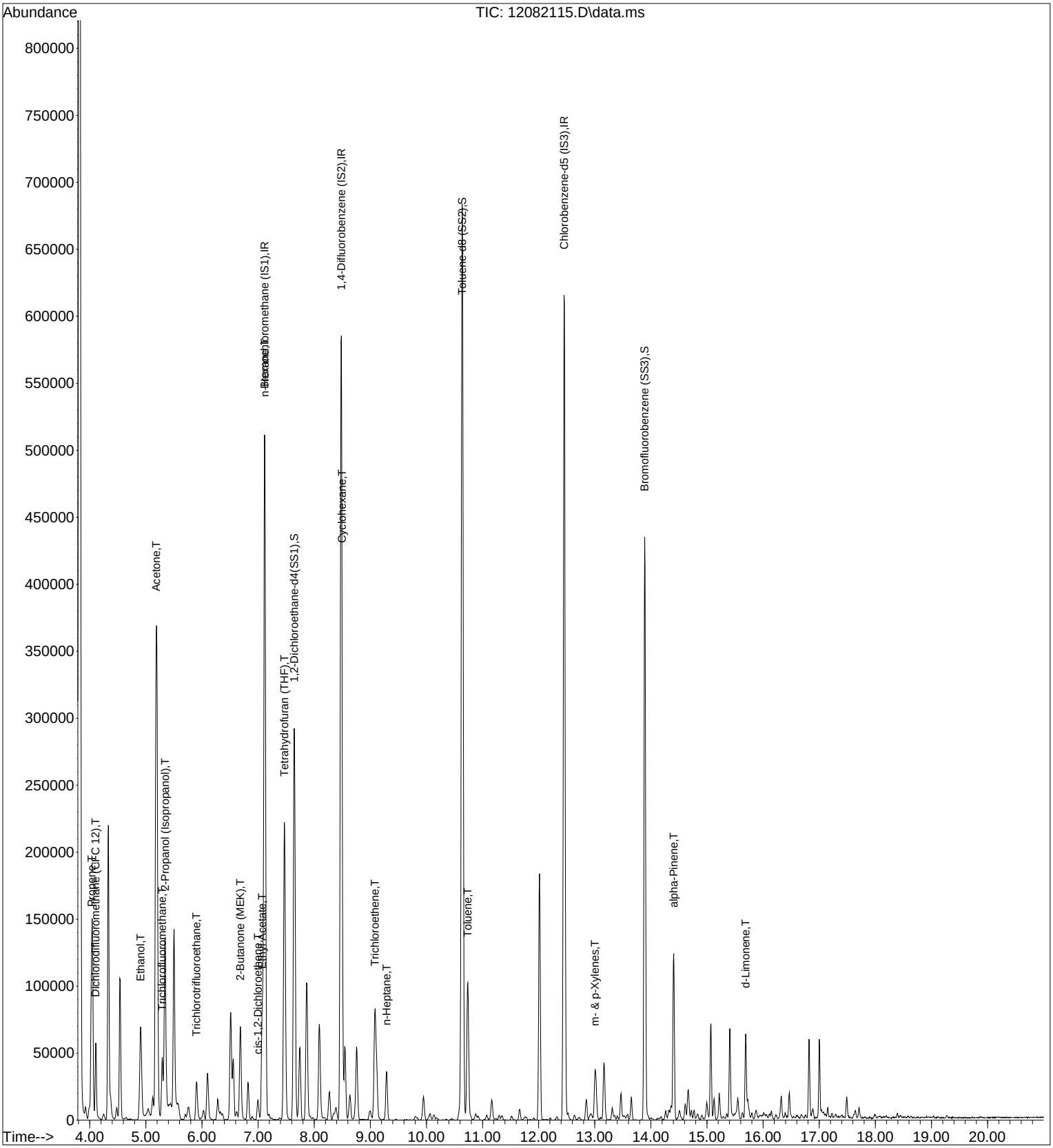
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.29	71	8003	0.665 ng	100
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	9.81	58	770	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	10.74	91	84905	1.574 ng	98
59) 2-Hexanone	10.92	43	1949	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	11.52	43	3210	N.D.	
63) n-Octane	11.66	57	1500	N.D.	
64) Tetrachloroethene	11.86	166	275	N.D.	
65) Chlorobenzene	12.53	112	270	N.D.	
66) Ethylbenzene	12.85	91	11193	N.D.	
67) m- & p-Xylenes	13.00	91	28183	0.594 ng	94
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	13.36	104	1878	N.D.	
70) o-Xylene	13.46	91	10229	N.D.	
71) n-Nonane	13.65	43	7321	N.D.	
72) 1,1,2,2-Tetrachloroethane	13.51	83	466	N.D.	
74) Cumene	14.03	105	841	N.D.	
75) alpha-Pinene	14.41	93	47720	1.784 ng	91
76) n-Propylbenzene	14.51	91	2464	N.D.	
77) 3-Ethyltoluene	14.03	105	841	No Calib #	
78) 4-Ethyltoluene	14.65	105	2698	N.D.	
79) 1,3,5-Trimethylbenzene	14.73	105	2290	N.D.	
80) alpha-Methylstyrene	13.89	118	494	No Calib #	
81) 2-Ethyltoluene	14.65	105	2698	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	7522	N.D.	
83) n-Decane	14.41	58	120	No Calib #	
84) Benzyl Chloride	15.36	91	950	N.D.	
85) 1,3-Dichlorobenzene	15.34	146	701	N.D.	
86) 1,4-Dichlorobenzene	15.34	146	701	N.D.	
87) sec-Butylbenzene	15.39	105	471	N.D.	
88) 4-Isopropyltoluene (p-...	15.55	119	5854	N.D.	
89) 1,2,3-Trimethylbenzene	14.40	105	5721	No Calib #	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	15.69	68	13916	0.835 ng #	62
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	15.22	58	116	No Calib #	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	17.49	128	618	N.D.	
96) n-Dodecane	15.75	57	2995	No Calib #	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	13.03	55	890	No Calib #	
99) tert-Butylbenzene	15.12	119	845	N.D.	
100) n-Butylbenzene	15.96	91	1128	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082115.D Vial: 7
Acq On : 8 Dec 2021 10:36 Operator: SC
Sample : P2106266-003 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:07:08 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

01115436

Data File : I:\MS09\Data\2021 12\08\12082115.D Vial: 7
Acq On : 8 Dec 2021 10:36 Operator: SC
Sample : P2106266-003 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:07:08 2021 12/8/21
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	109216	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	469683	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.45	54	114184	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	7.64	65	261351	15.439	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 123.52%			
57) Toluene-d8 (SS2)	10.64	98	562696	11.181	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.44%			
73) Bromofluorobenzene (SS3)	13.89	174	134585	10.374	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 82.96%			

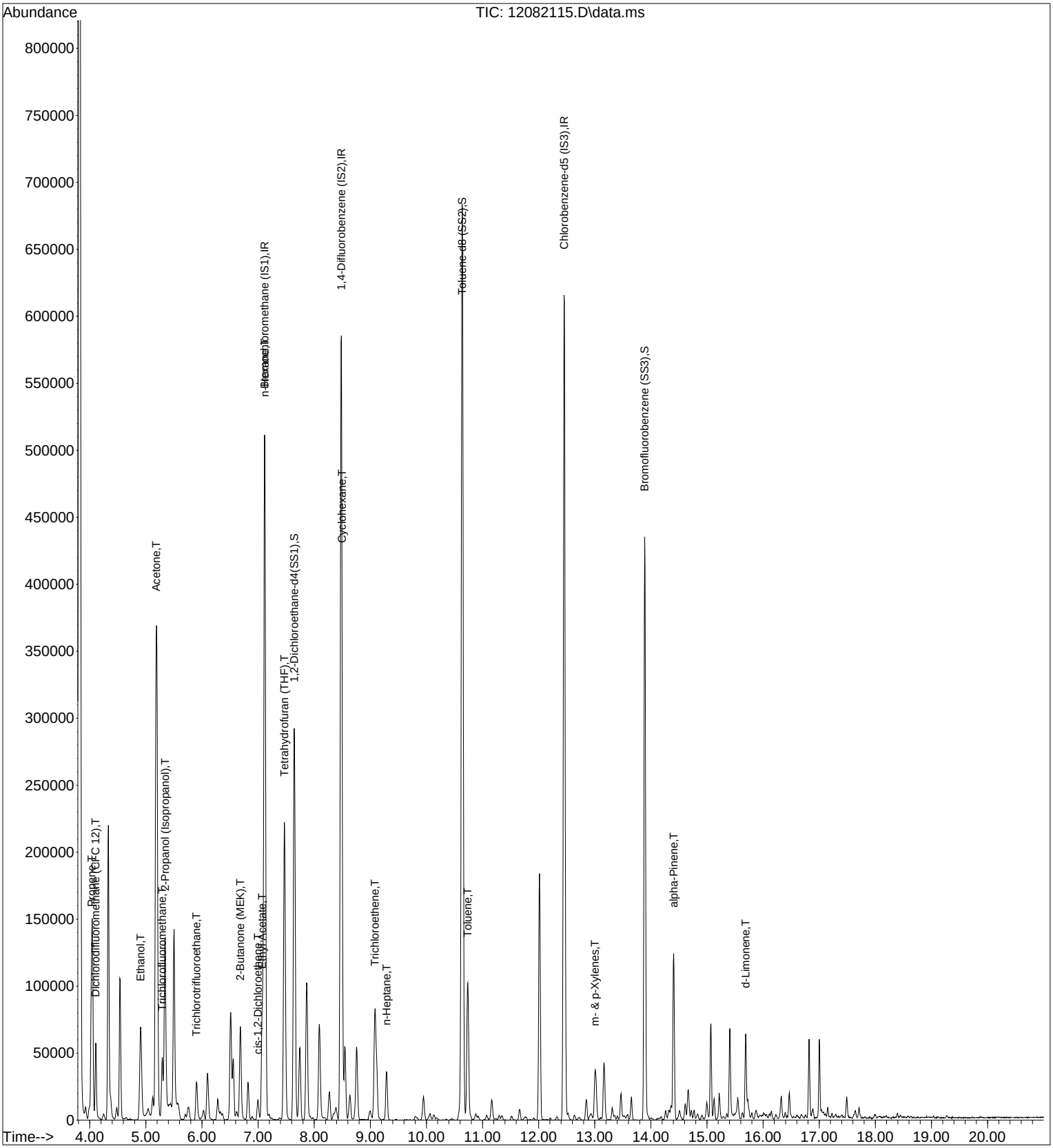
Target Compounds							Qvalue
2) Propene	4.03	42	41370	2.057	ng	#	54
3) Dichlorodifluoromethan...	4.11	85	45293	1.883	ng		100
10) Ethanol	4.91	45	129208	9.568	ng		96
13) Acetone	5.18	58	103343	10.075	ng	#	44
14) Trichlorofluoromethane	5.29	101	35188	1.522	ng		100
15) 2-Propanol (Isopropanol)	5.34	45	253846	6.142	ng		99
21) Trichlorotrifluoroethane	5.90	151	8893	0.881	ng		99
27) 2-Butanone (MEK)	6.68	72	18468	2.353	ng		97
28) cis-1,2-Dichloroethene	7.00	61	10277	0.561	ng		94
30) Ethyl Acetate	7.07	61	11728	2.494	ng		83
31) n-Hexane	7.12	57	104217	4.527	ng		99
34) Tetrahydrofuran (THF)	7.47	72	53116	7.166	ng	#	84
43) Cyclohexane	8.49	84	22619	1.208	ng	#	51
47) Trichloroethene	9.08	130	29073	2.371	ng		98
51) n-Heptane	9.29	71	8003	0.665	ng		100
58) Toluene	10.74	91	84905	1.574	ng		98
67) m- & p-Xylenes	13.00	91	28183	0.594	ng		94
75) alpha-Pinene	14.41	93	47720	1.784	ng		91
91) d-Limonene	15.69	68	13916	0.835	ng	#	62

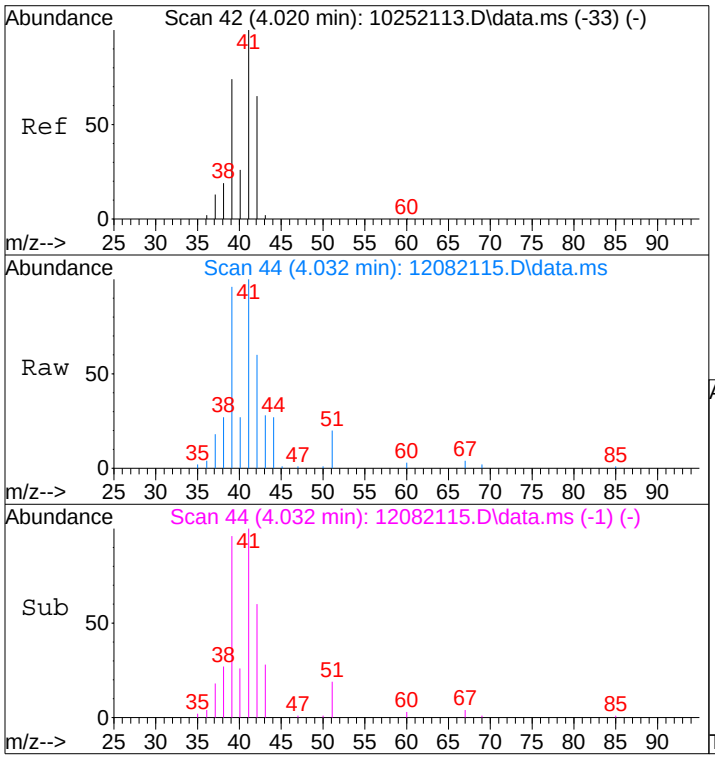
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082115.D Vial: 7
Acq On : 8 Dec 2021 10:36 Operator: SC
Sample : P2106266-003 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:07:08 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

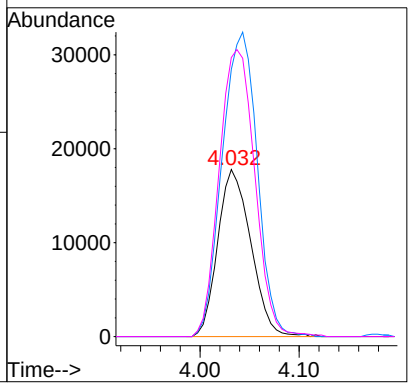


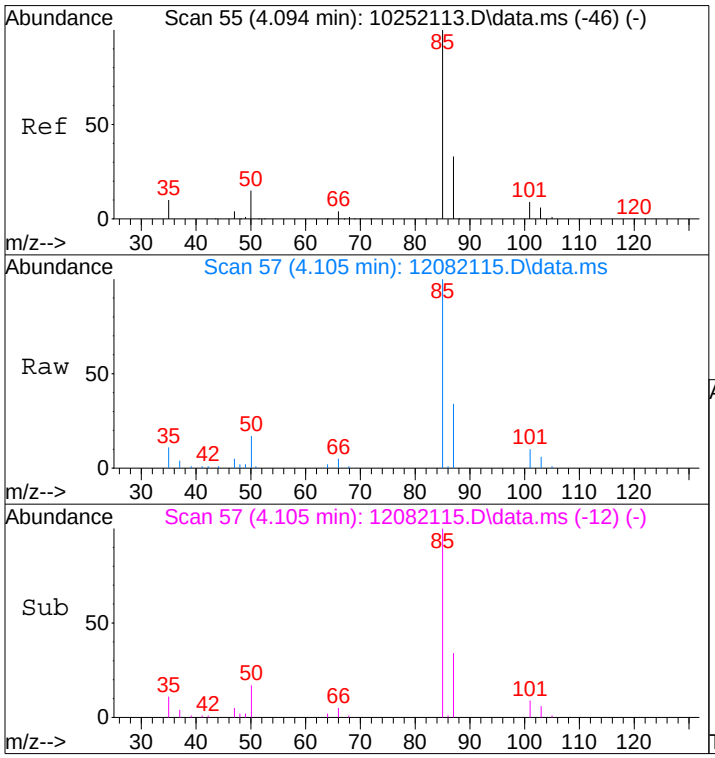


#2
Propene
Concen: 2.06 ng
RT: 4.03 min Scan# 44
Delta R.T. 0.006 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 42 Resp: 41370

Ion	Ratio	Lower	Upper
42	100		
39	193.1	94.2	134.2#
41	184.8	132.7	172.7#

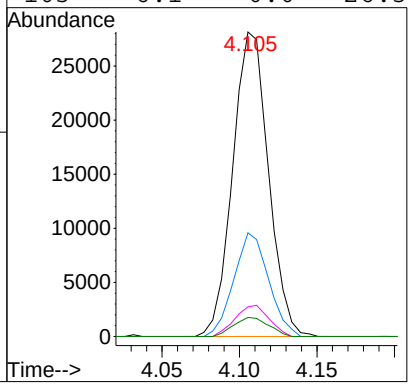


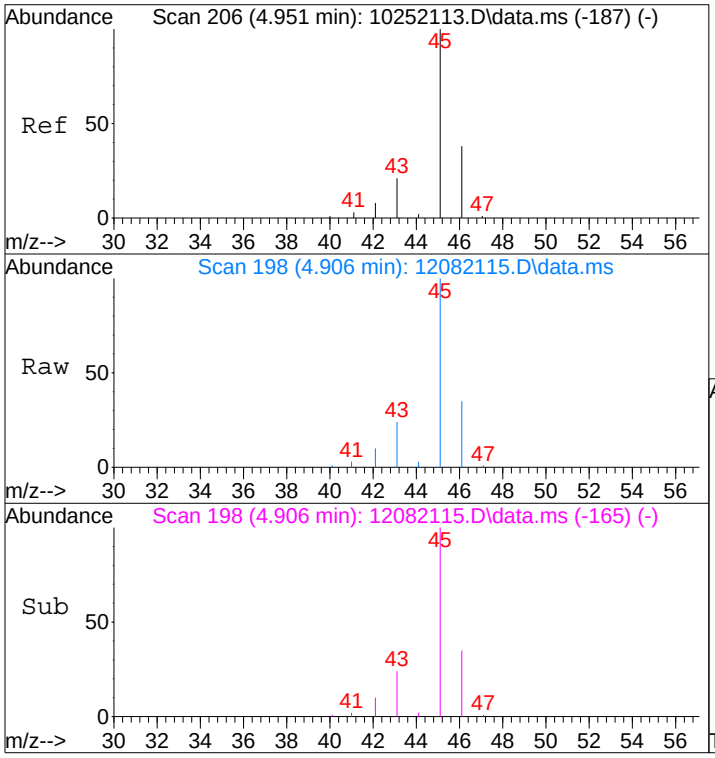


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.88 ng
RT: 4.11 min Scan# 57
Delta R.T. 0.006 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 85 Resp: 45293

Ion	Ratio	Lower	Upper
85	100		
87	33.1	13.0	53.0
101	9.8	0.0	29.8
103	6.1	0.0	26.3

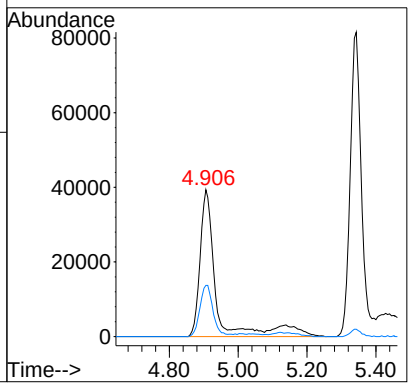


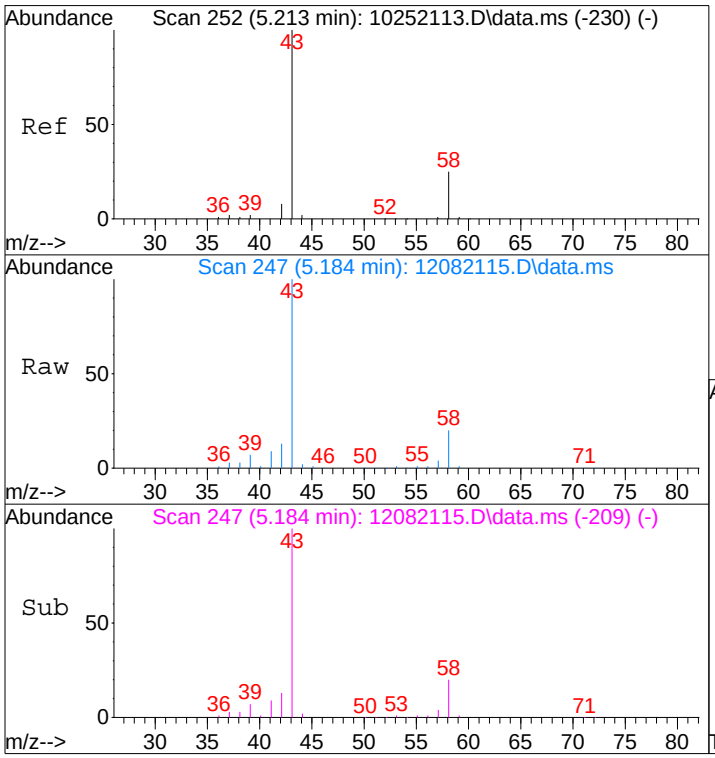


#10
Ethanol
Concen: 9.57 ng
RT: 4.91 min Scan# 198
Delta R.T. -0.062 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 45 Resp: 129208

Ion	Ratio	Lower	Upper
45	100		
46	35.8	18.0	58.0

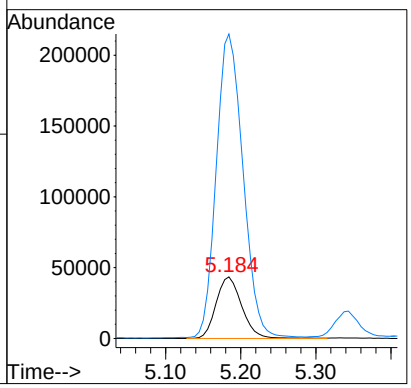


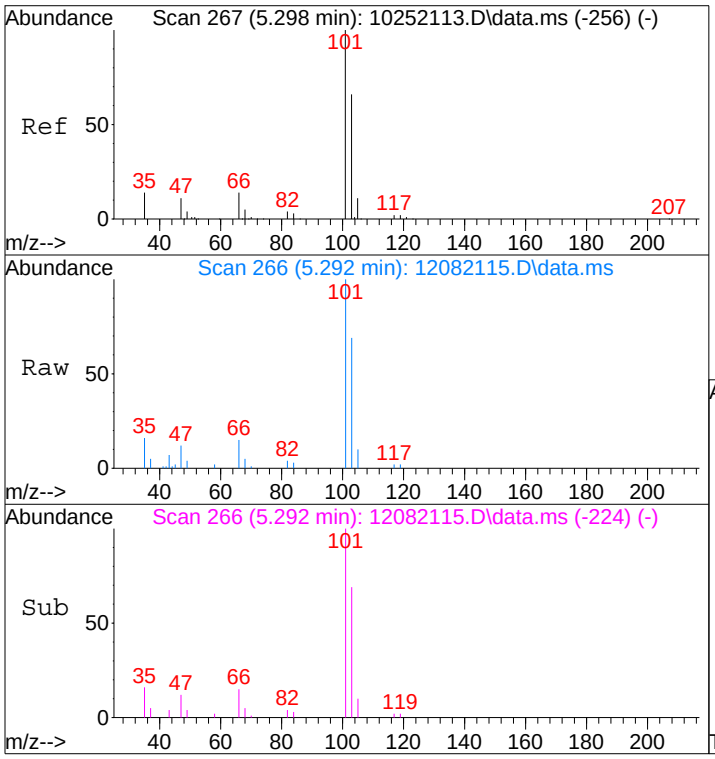


#13
Acetone
Concen: 10.07 ng
RT: 5.18 min Scan# 247
Delta R.T. -0.034 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 58 Resp: 103343

Ion	Ratio	Lower	Upper
58	100		
43	514.8	355.6	415.6#

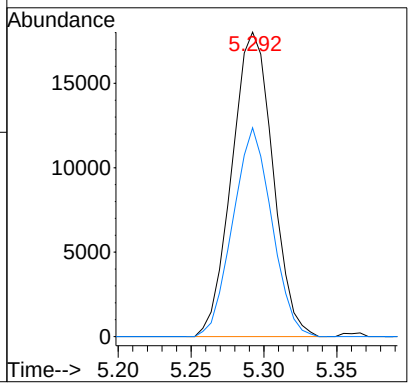


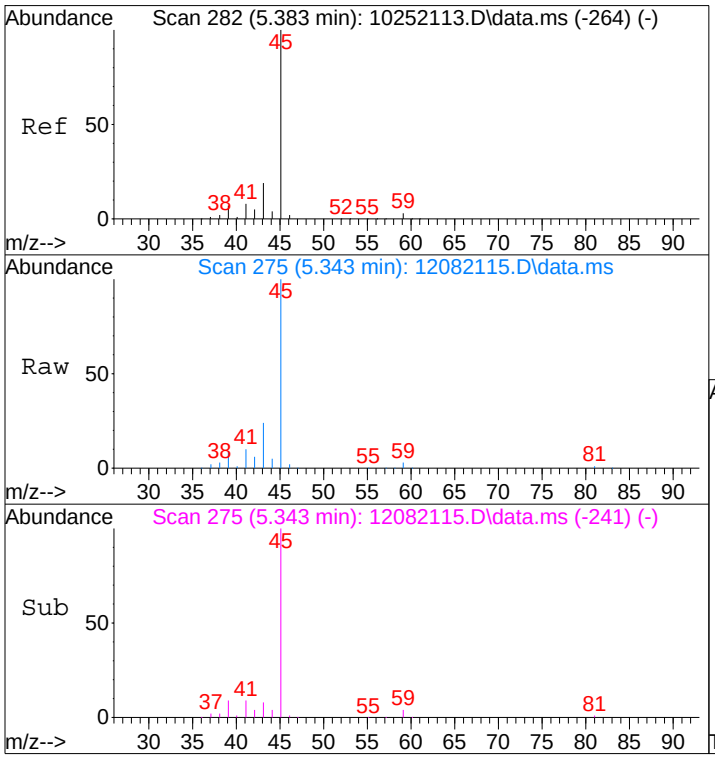


#14
Trichlorofluoromethane
Concen: 1.52 ng
RT: 5.29 min Scan# 266
Delta R.T. -0.011 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion:101 Resp: 35188

Ion	Ratio	Lower	Upper
101	100		
103	65.3	45.2	85.2

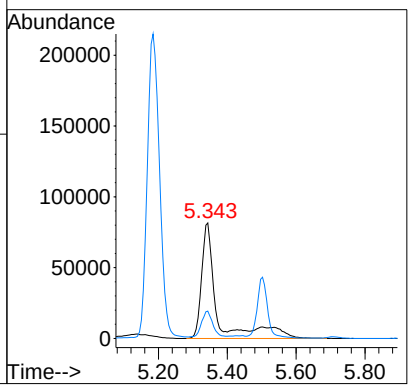


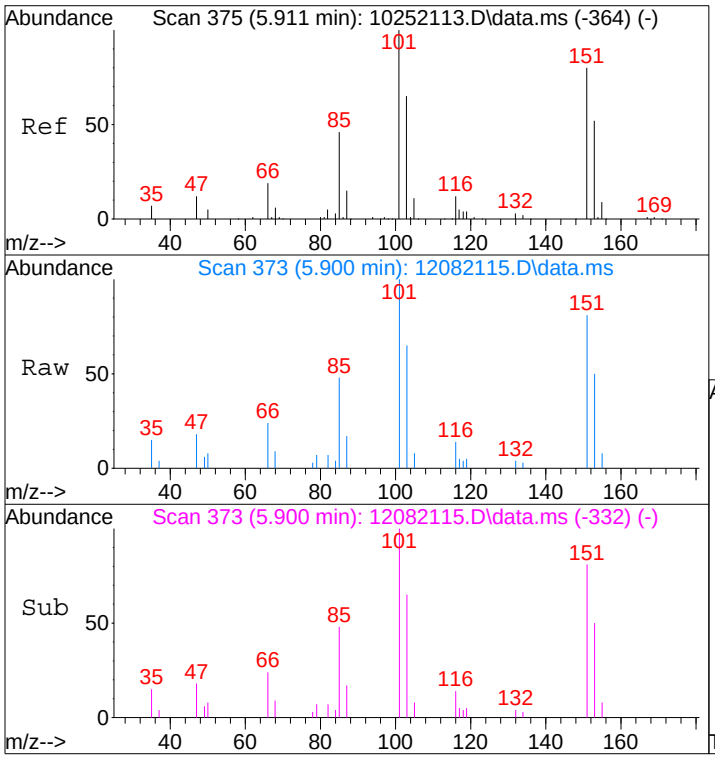


#15
2-Propanol (Isopropanol)
Concen: 6.14 ng
RT: 5.34 min Scan# 275
Delta R.T. -0.057 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 45 Resp: 253846

Ion	Ratio	Lower	Upper
45	100		
43	18.7	0.0	39.3

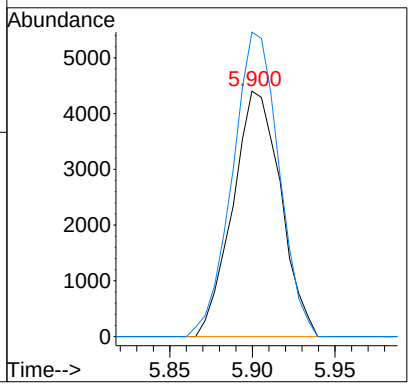


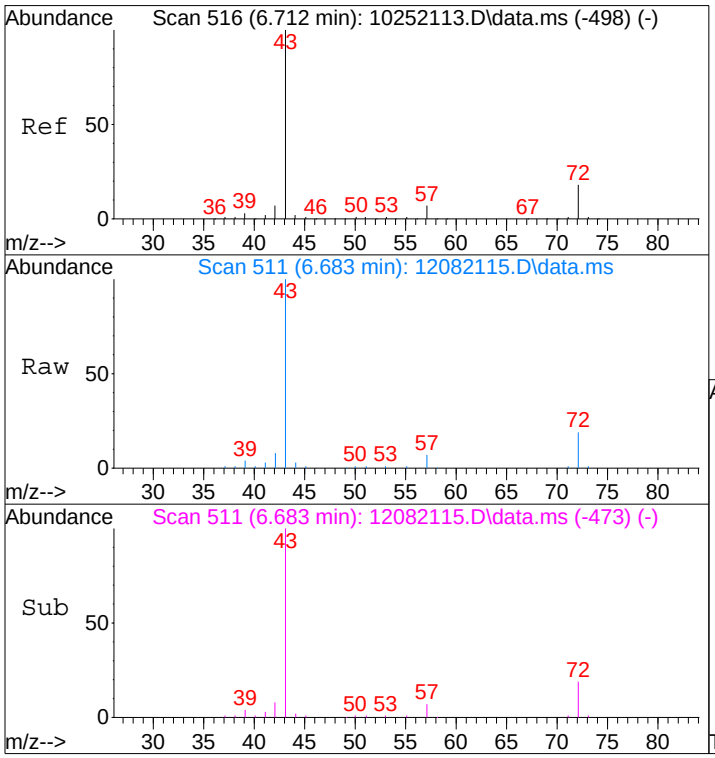


#21
Trichlorotrifluoroethane
Concen: 0.88 ng
RT: 5.90 min Scan# 373
Delta R.T. -0.017 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion:151 Resp: 8893

Ion	Ratio	Lower	Upper
151	100		
101	120.2	98.6	138.6

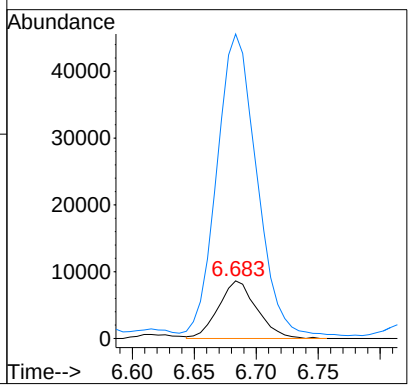


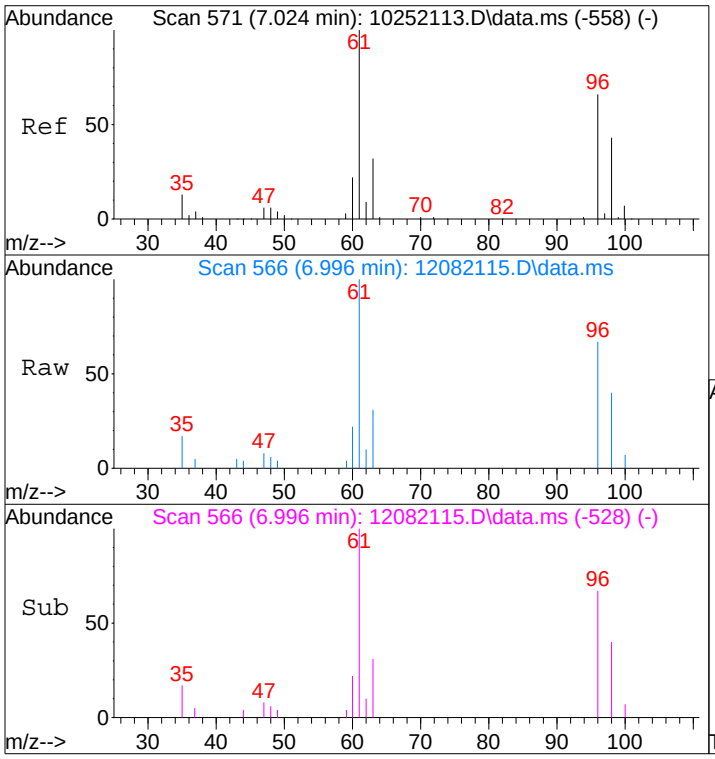


#27
2-Butanone (MEK)
Concen: 2.35 ng
RT: 6.68 min Scan# 511
Delta R.T. -0.034 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 72 Resp: 18468

Ion	Ratio	Lower	Upper
72	100		
43	557.5	528.8	568.8

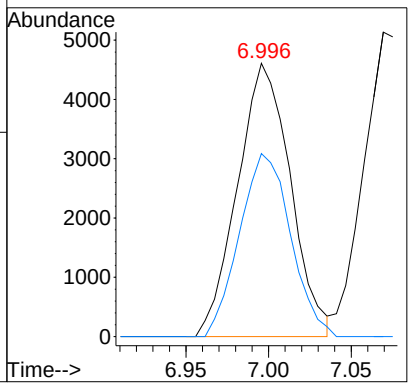


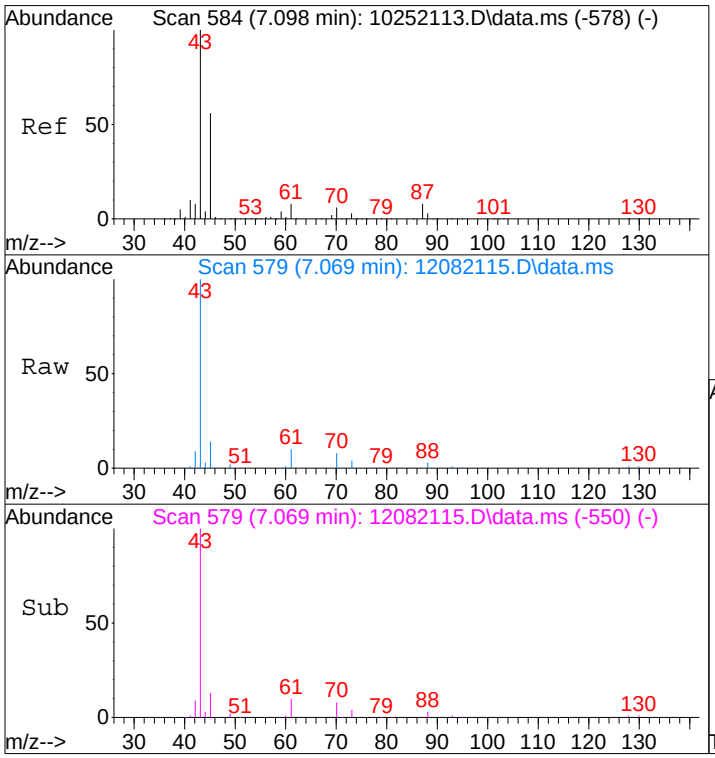


#28
cis-1,2-Dichloroethene
Concen: 0.56 ng
RT: 7.00 min Scan# 566
Delta R.T. -0.034 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 61 Resp: 10277

Ion	Ratio	Lower	Upper
61	100		
96	64.6	49.3	89.3

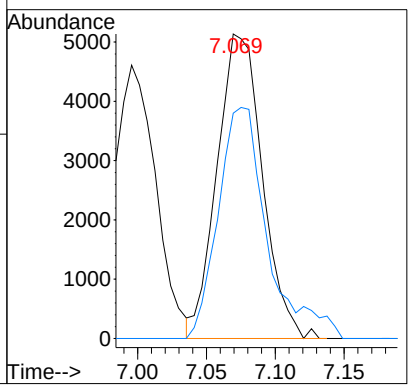


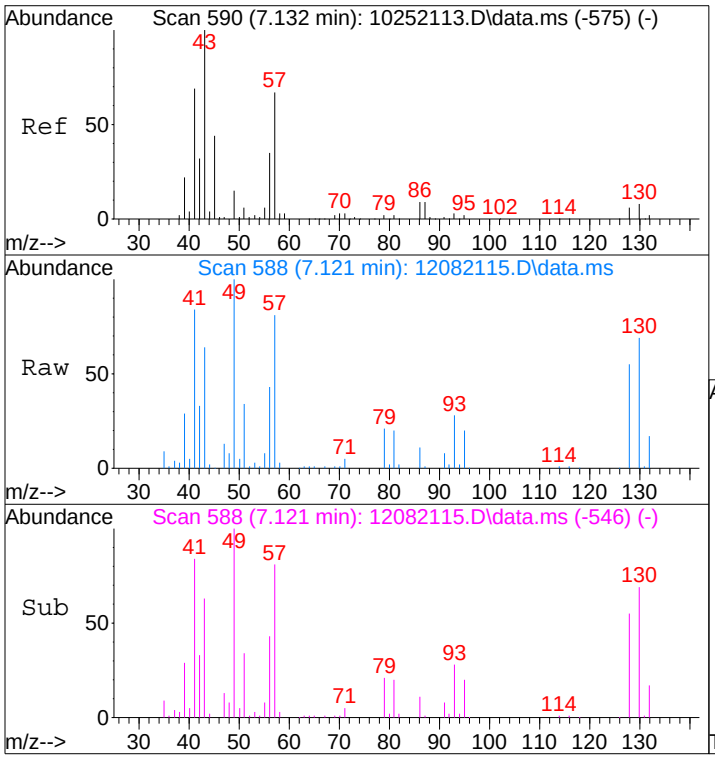


#30
Ethyl Acetate
Concen: 2.49 ng
RT: 7.07 min Scan# 579
Delta R.T. -0.034 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 61 Resp: 11728

Ion	Ratio	Lower	Upper
61	100		
70	82.3	48.6	88.6

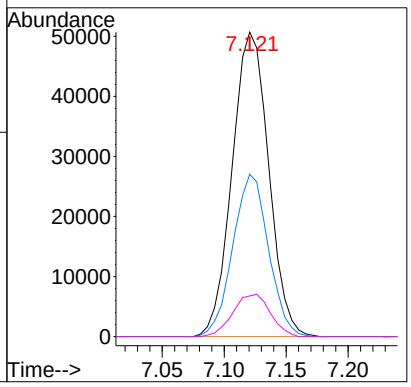


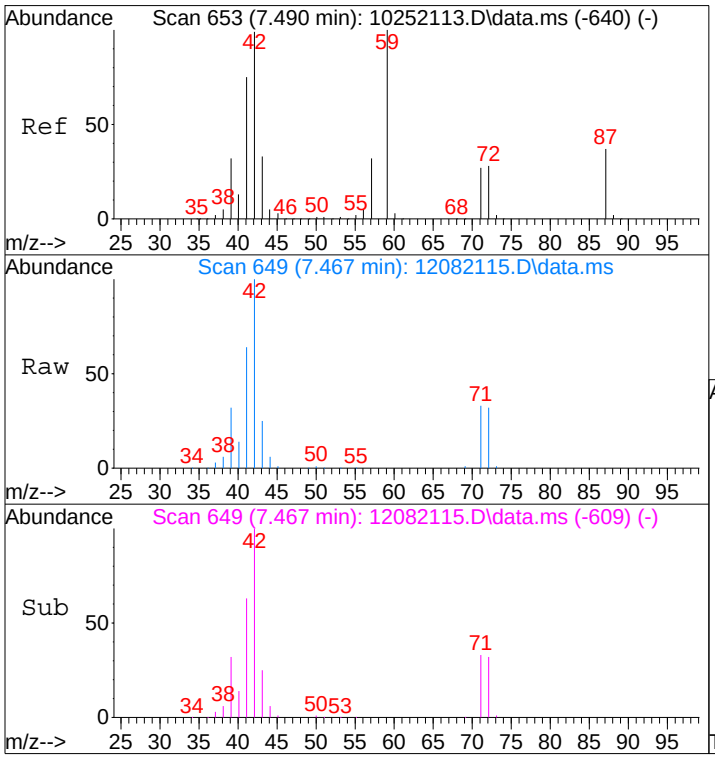


#31
n-Hexane
Concen: 4.53 ng
RT: 7.12 min Scan# 588
Delta R.T. -0.011 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 57 Resp: 104217

Ion	Ratio	Lower	Upper
57	100		
56	52.0	42.1	63.1
86	14.2	11.1	16.7

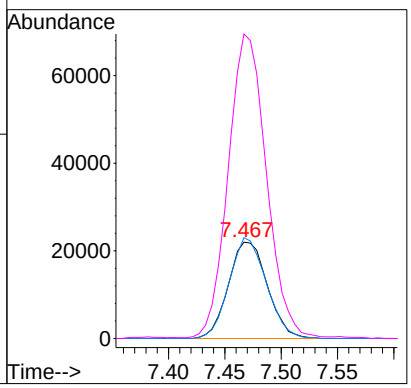


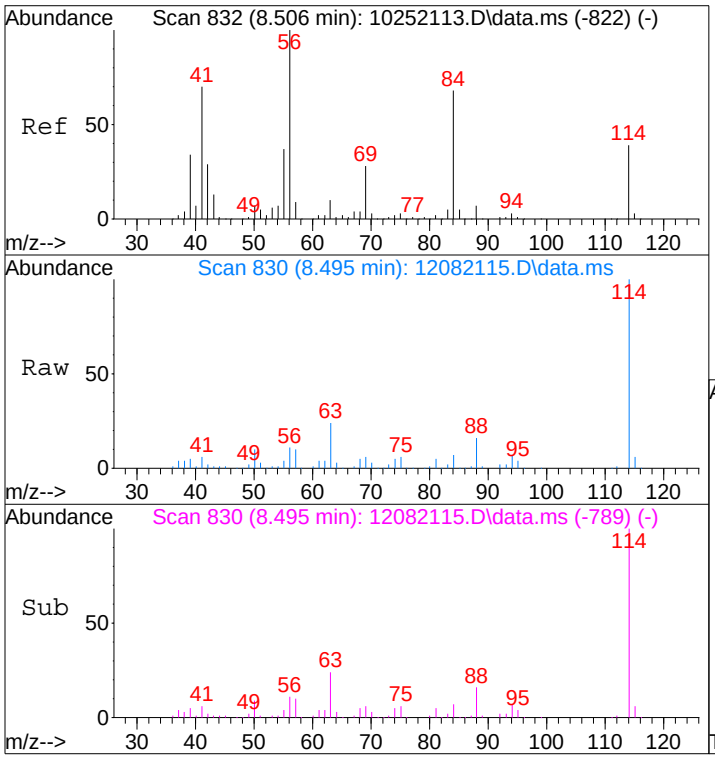


#34
Tetrahydrofuran (THF)
Concen: 7.17 ng
RT: 7.47 min Scan# 649
Delta R.T. -0.023 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 72 Resp: 53116

Ion	Ratio	Lower	Upper
72	100		
71	99.5	75.4	115.4
42	310.6	332.0	372.0#

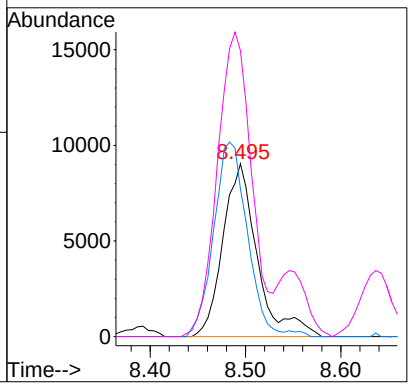


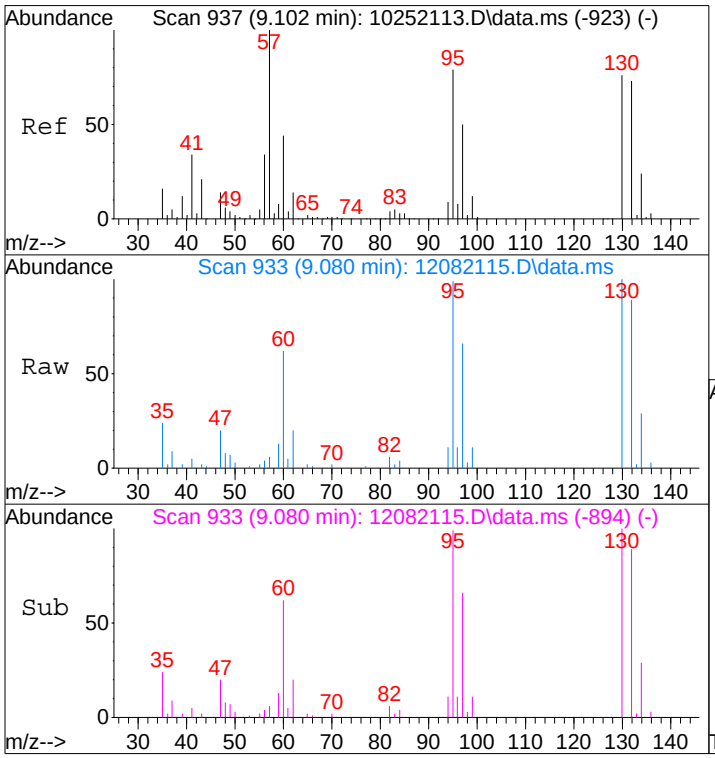


#43
Cyclohexane
Concen: 1.21 ng
RT: 8.49 min Scan# 830
Delta R.T. -0.017 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 84 Resp: 22619

Ion	Ratio	Lower	Upper
84	100		
69	110.7	18.6	58.6#
56	176.5	120.4	160.4#

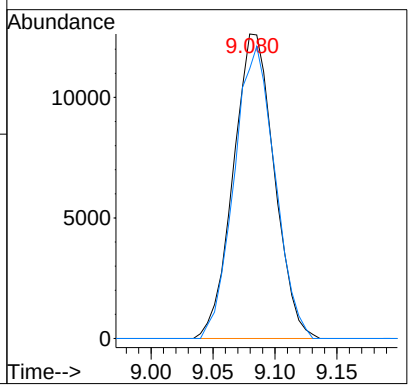


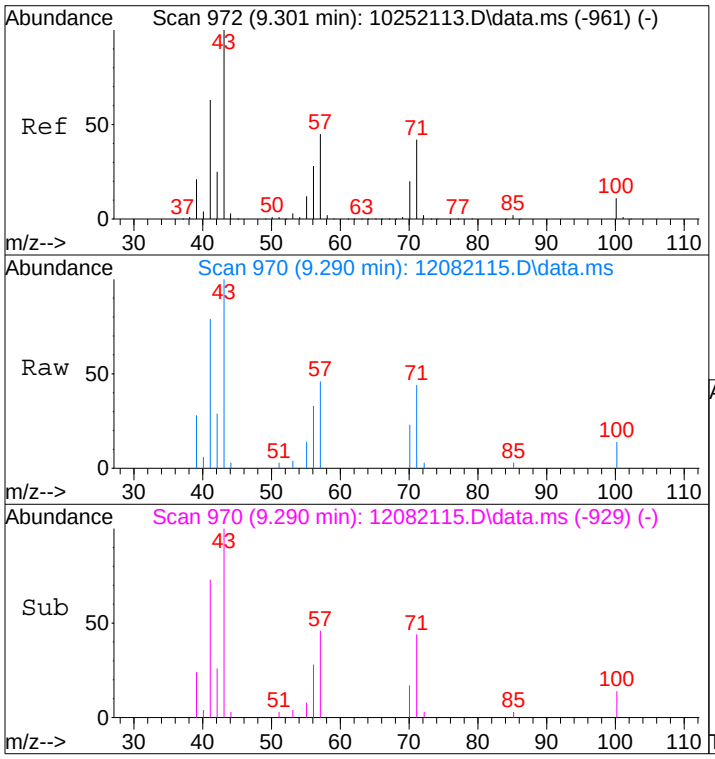


#47
Trichloroethene
Concen: 2.37 ng
RT: 9.08 min Scan# 933
Delta R.T. -0.028 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion:130 Resp: 29073

Ion	Ratio	Lower	Upper
130	100		
132	95.6	77.4	117.4

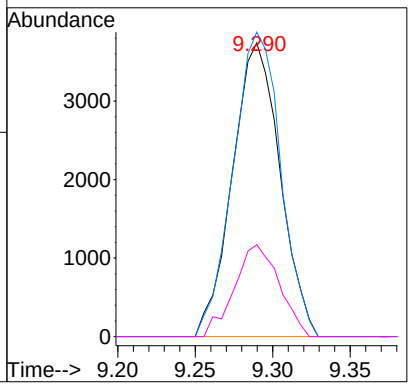


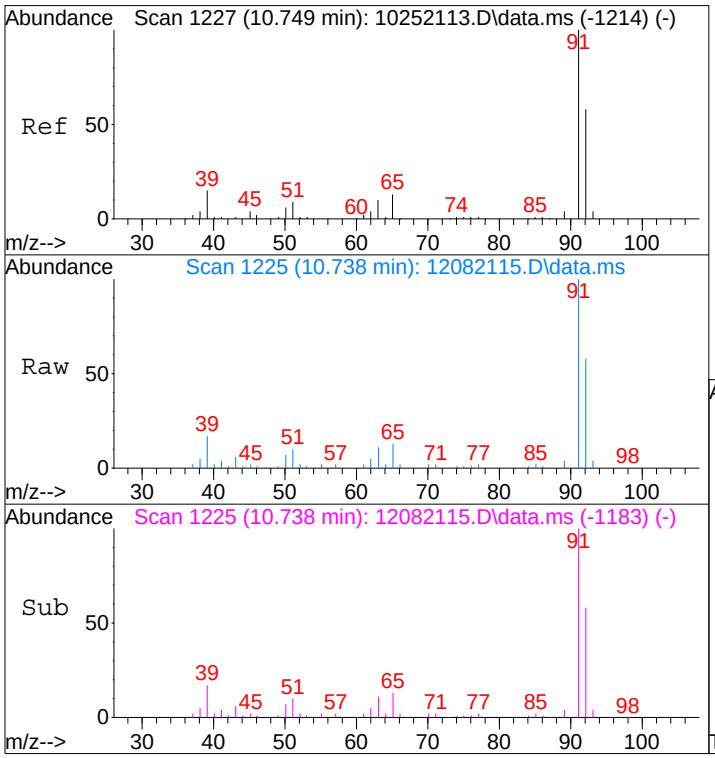


#51
n-Heptane
Concen: 0.67 ng
RT: 9.29 min Scan# 970
Delta R.T. -0.017 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 71 Resp: 8003

Ion	Ratio	Lower	Upper
71	100		
57	103.7	83.7	123.7
100	29.4	9.3	49.3

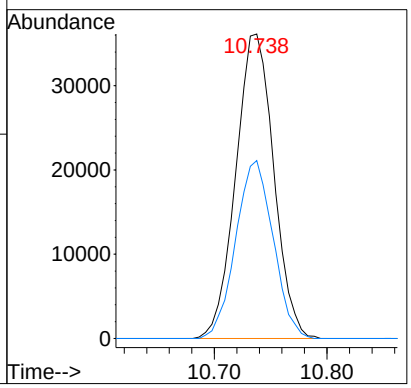


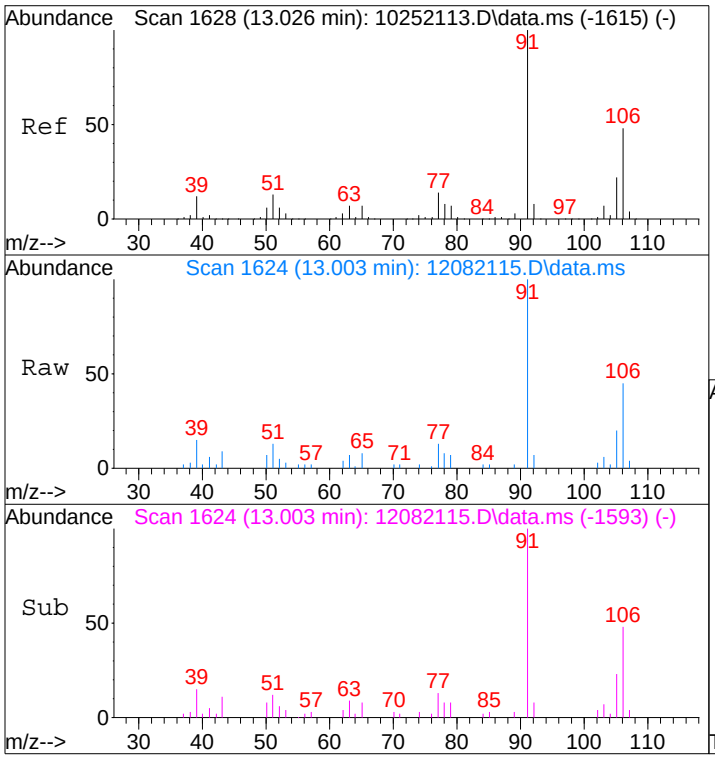


#58
Toluene
Concen: 1.57 ng
RT: 10.74 min Scan# 1225
Delta R.T. -0.011 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 91 Resp: 84905

Ion	Ratio	Lower	Upper
91	100		
92	57.6	38.7	78.7

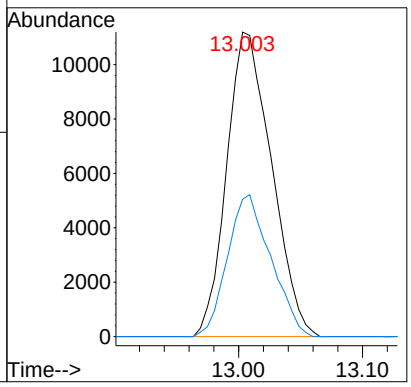


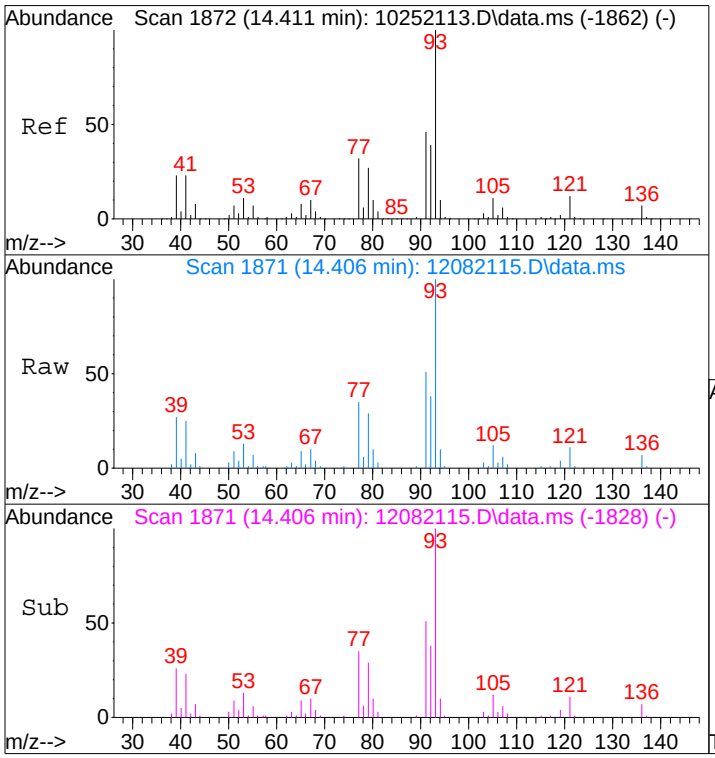


#67
m- & p-Xylenes
Concen: 0.59 ng
RT: 13.00 min Scan# 1624
Delta R.T. -0.023 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 91 Resp: 28183

Ion	Ratio	Lower	Upper
91	100		
106	45.0	28.9	68.9

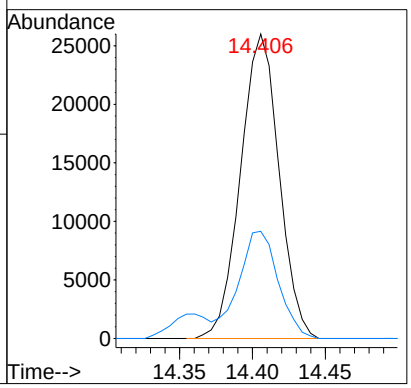


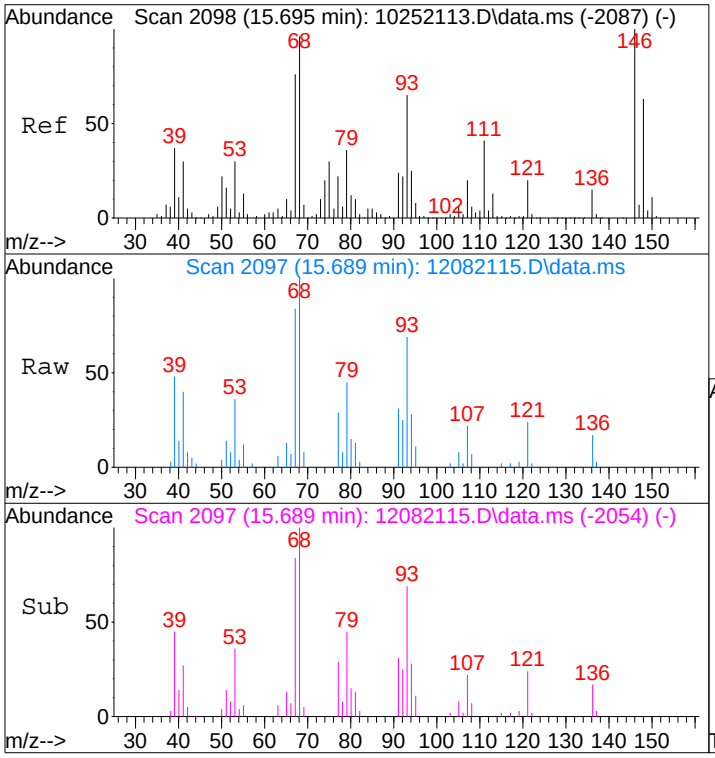


#75
alpha-Pinene
Concen: 1.78 ng
RT: 14.41 min Scan# 1871
Delta R.T. -0.006 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 93 Resp: 47720

Ion	Ratio	Lower	Upper
93	100		
77	36.5	11.3	51.3

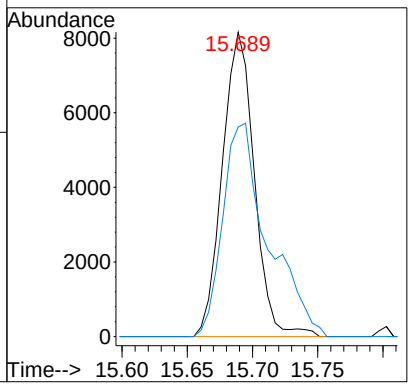




#91
d-Limonene
Concen: 0.83 ng
RT: 15.69 min Scan# 2097
Delta R.T. -0.006 min
Lab File: 12082115.D
Acq: 8 Dec 2021 10:36

Tgt Ion: 68 Resp: 13916

Ion	Ratio	Lower	Upper
68	100		
93	98.7	48.2	88.2#



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082116.D Vial: 8
Acq On : 8 Dec 2021 11:07 Operator: SC
Sample : P2106266-004 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:26:24 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

12/9/21

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	106466	12.500 ng	-0.05
37) 1,4-Difluorobenzene (IS2)	8.48	114	454775	12.500 ng	-0.03
56) Chlorobenzene-d5 (IS3)	12.45	54	111475	12.500 ng	-0.01

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	255834	15.503 ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.00%		
57) Toluene-d8 (SS2)	10.64	98	543889	11.070 ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.56%		
73) Bromofluorobenzene (SS3)	13.89	174	131531	10.385 ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.12%		

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D. d		
3) Dichlorodifluoromethan...	4.11	85	45471	1.940 ng		99
4) Chloromethane	4.24	50	5813	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.33	135	752	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	4.89	45	88979	6.759 ng		96
11) Acetonitrile	5.03	41	5730	N.D.		
12) Acrolein	5.10	56	3931	0.467 ng		92
13) Acetone	5.18	58	93905	9.391 ng	#	68
14) Trichlorofluoromethane	5.29	101	29645	1.315 ng		99
15) 2-Propanol (Isopropanol)	5.33	45	152320	3.781 ng		99
16) Acrylonitrile	5.50	53	1164	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	5.71	59	1426	N.D.		
19) Methylene Chloride	5.75	84	2146	N.D.		
20) 3-Chloro-1-propene (Al...	5.76	41	1227	N.D.		
21) Trichlorotrifluoroethane	5.90	151	6094	0.619 ng		97
22) Carbon Disulfide	6.00	76	1404	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D. d		
27) 2-Butanone (MEK)	6.68	72	14617	1.910 ng	#	92
28) cis-1,2-Dichloroethene	7.00	61	946	N.D.		
29) Diisopropyl Ether	7.11	87	498	N.D.		
30) Ethyl Acetate	7.07	61	8264	1.803 ng		80
31) n-Hexane	7.11	57	65374	2.913 ng		99
32) Chloroform	7.19	83	1393	N.D.		
34) Tetrahydrofuran (THF)	7.47	72	32885	4.551 ng	#	86
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	7.72	62	1750	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	8.48	61	19722	No Calib	#	
40) 1-Butanol	8.09	56	6186	No Calib	#	
41) Benzene	8.27	78	16130	N.D.		
42) Carbon Tetrachloride	8.39	117	5562	N.D.		
43) Cyclohexane	0.00	84	0	N.D. d		
44) tert-Amyl Methyl Ether	8.48	73	7910	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	9.06	83	122	N.D.		
47) Trichloroethene	9.09	130	2445	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	9.11	57	12774	N.D.		
50) Methyl Methacrylate	9.29	100	1114	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082116.D Vial: 8
Acq On : 8 Dec 2021 11:07 Operator: SC
Sample : P2106266-004 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:26:24 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

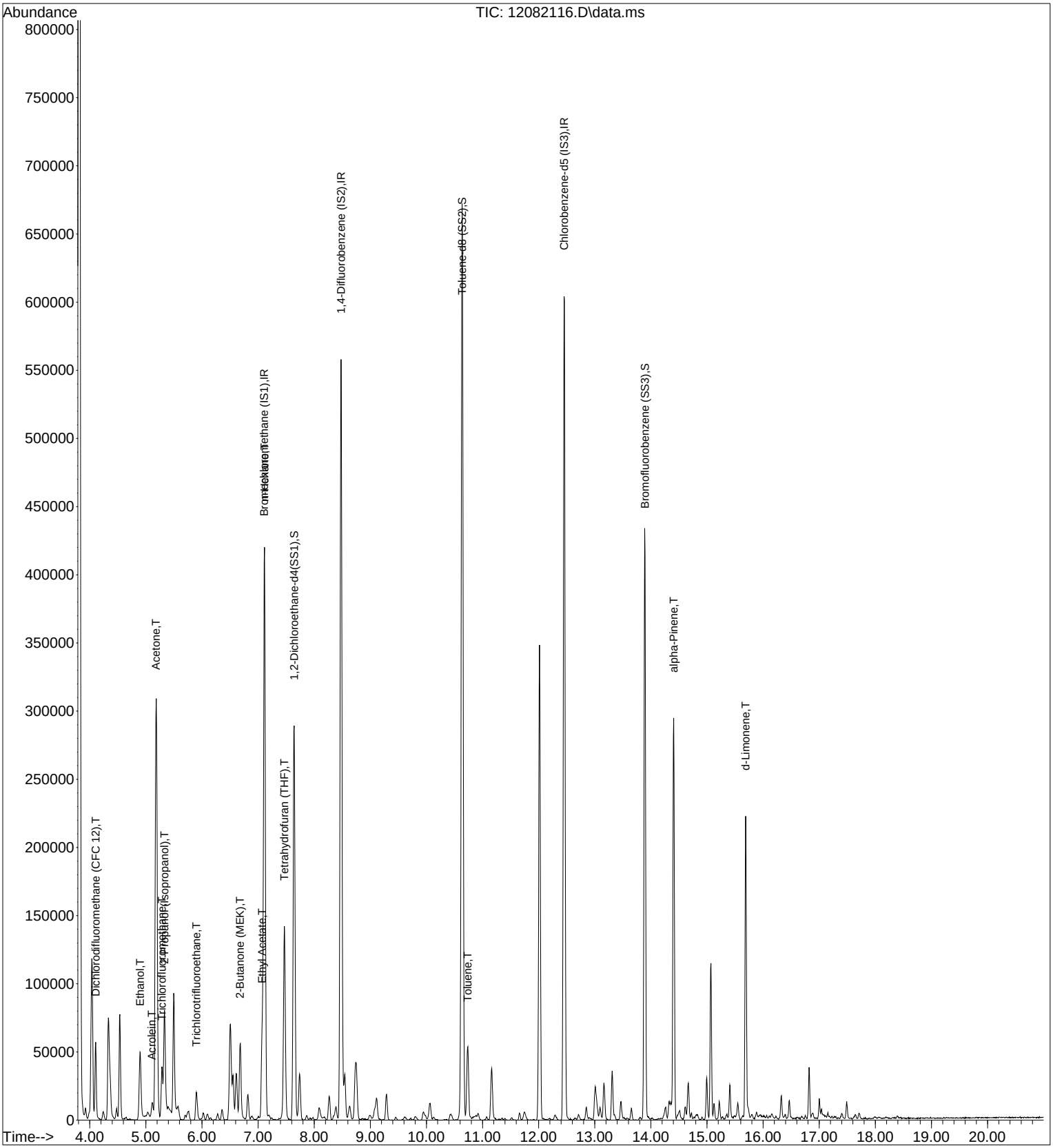
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.29	71	4206	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	9.81	58	641	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	10.73	91	43993	0.836 ng	99
59) 2-Hexanone	10.92	43	4980	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	11.53	43	1771	N.D.	
63) n-Octane	11.67	57	838	N.D.	
64) Tetrachloroethene	12.02	166	290	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	12.84	91	7484	N.D.	
67) m- & p-Xylenes	13.01	91	18814	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	13.36	104	2018	N.D.	
70) o-Xylene	13.46	91	6813	N.D.	
71) n-Nonane	13.65	43	4423	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	14.03	105	506	N.D.	
75) alpha-Pinene	14.41	93	111920	4.286 ng	91
76) n-Propylbenzene	14.51	91	2157	N.D.	
77) 3-Ethyltoluene	14.03	105	506	No Calib #	
78) 4-Ethyltoluene	14.66	105	2370	N.D.	
79) 1,3,5-Trimethylbenzene	14.72	105	1496	N.D.	
80) alpha-Methylstyrene	13.89	118	633	No Calib #	
81) 2-Ethyltoluene	14.66	105	2370	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	5740	N.D.	
83) n-Decane	14.41	58	1120	No Calib #	
84) Benzyl Chloride	15.35	91	430	N.D.	
85) 1,3-Dichlorobenzene	15.35	146	944	N.D.	
86) 1,4-Dichlorobenzene	15.35	146	944	N.D.	
87) sec-Butylbenzene	15.40	105	191	N.D.	
88) 4-Isopropyltoluene (p-...	15.55	119	4867	N.D.	
89) 1,2,3-Trimethylbenzene	14.40	105	13192	No Calib	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	15.69	68	47766	2.935 ng	92
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	14.99	58	199	No Calib #	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	17.49	128	1314	N.D.	
96) n-Dodecane	15.75	57	2184	No Calib #	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	13.04	55	653	No Calib #	
99) tert-Butylbenzene	15.12	119	703	N.D.	
100) n-Butylbenzene	15.96	91	1294	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082116.D Vial: 8
Acq On : 8 Dec 2021 11:07 Operator: SC
Sample : P2106266-004 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:26:24 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082116.D Vial: 8
Acq On : 8 Dec 2021 11:07 Operator: SC
Sample : P2106266-004 (1000mL) Inst : MS09
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Quant Time: Dec 08 11:26:24 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

12/8/21

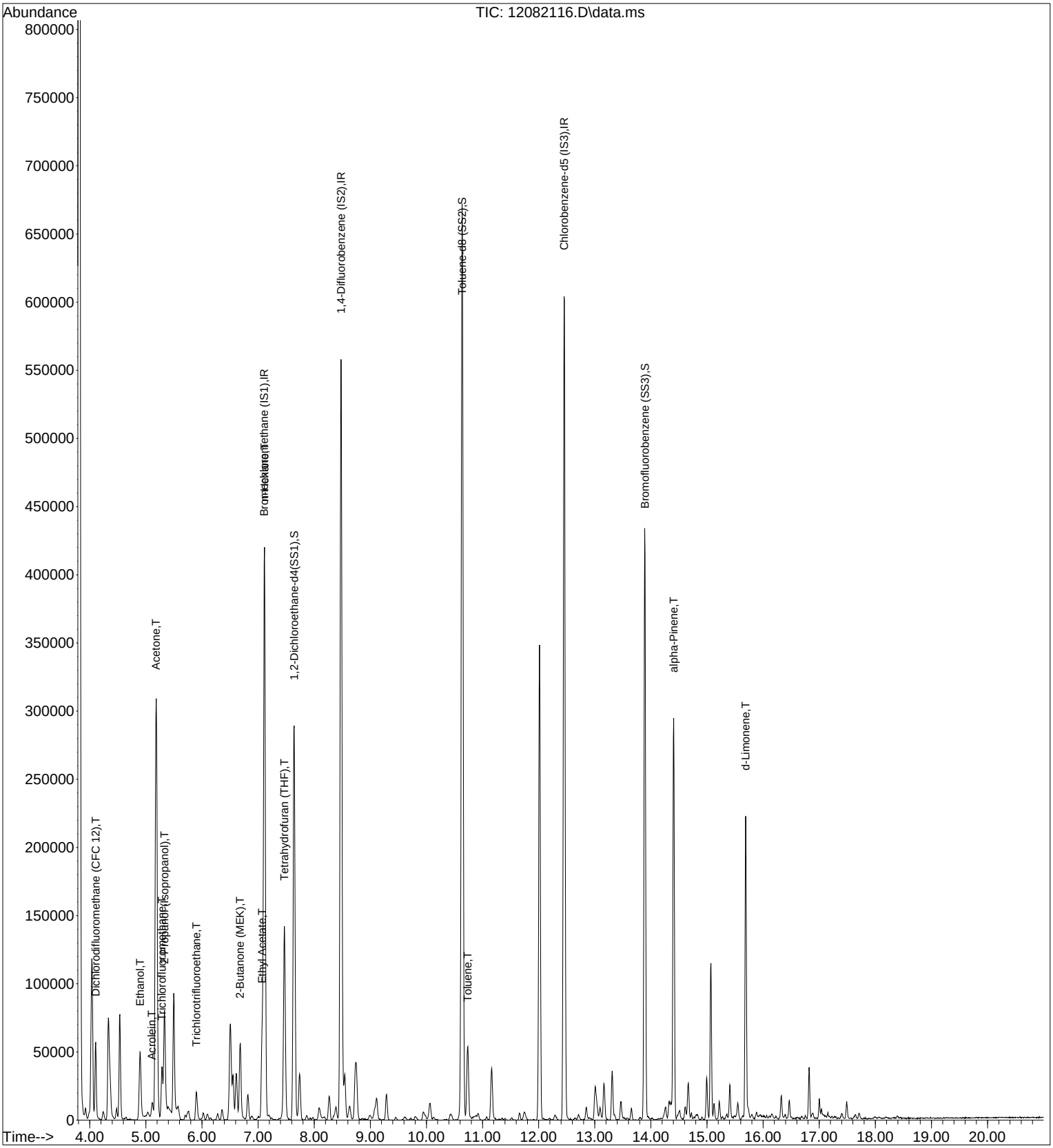
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	106466	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	8.48	114	454775	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	12.45	54	111475	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.64	65	255834	15.503	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.00%				
57) Toluene-d8 (SS2)	10.64	98	543889	11.070	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.56%				
73) Bromofluorobenzene (SS3)	13.89	174	131531	10.385	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.12%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.11	85	45471	1.940	ng		99
10) Ethanol	4.89	45	88979	6.759	ng		96
12) Acrolein	5.10	56	3931	0.467	ng		92
13) Acetone	5.18	58	93905	9.391	ng	#	68
14) Trichlorofluoromethane	5.29	101	29645	1.315	ng		99
15) 2-Propanol (Isopropanol)	5.33	45	152320	3.781	ng		99
21) Trichlorotrifluoroethane	5.90	151	6094	0.619	ng		97
27) 2-Butanone (MEK)	6.68	72	14617	1.910	ng	#	92
30) Ethyl Acetate	7.07	61	8264	1.803	ng		80
31) n-Hexane	7.11	57	65374	2.913	ng		99
34) Tetrahydrofuran (THF)	7.47	72	32885	4.551	ng	#	86
58) Toluene	10.73	91	43993	0.836	ng		99
75) alpha-Pinene	14.41	93	111920	4.286	ng		91
91) d-Limonene	15.69	68	47766	2.935	ng		92

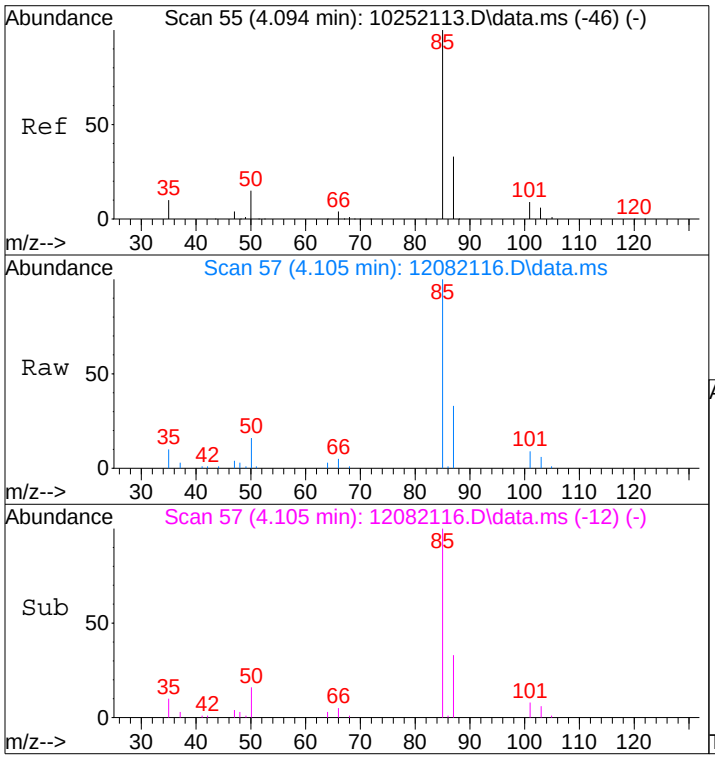
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082116.D Vial: 8
Acq On : 8 Dec 2021 11:07 Operator: SC
Sample : P2106266-004 (1000mL) Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 11:26:24 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

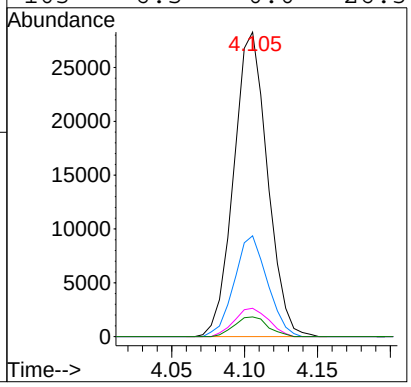


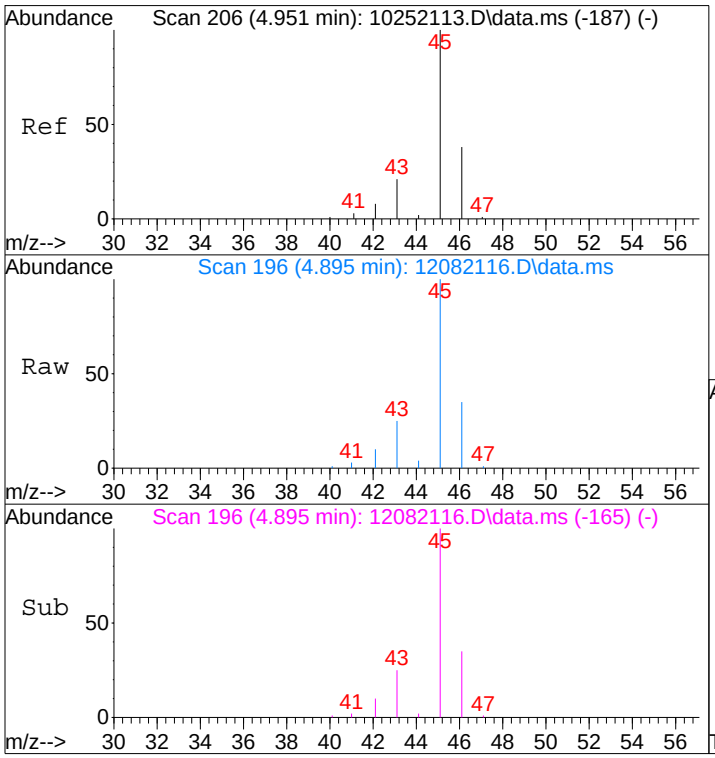


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.94 ng
RT: 4.11 min Scan# 57
Delta R.T. 0.006 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 85 Resp: 45471

Ion	Ratio	Lower	Upper
85	100		
87	32.6	13.0	53.0
101	9.5	0.0	29.8
103	6.5	0.0	26.3

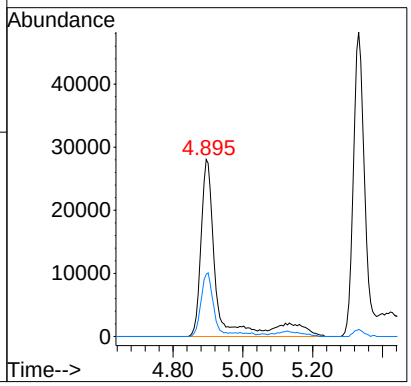


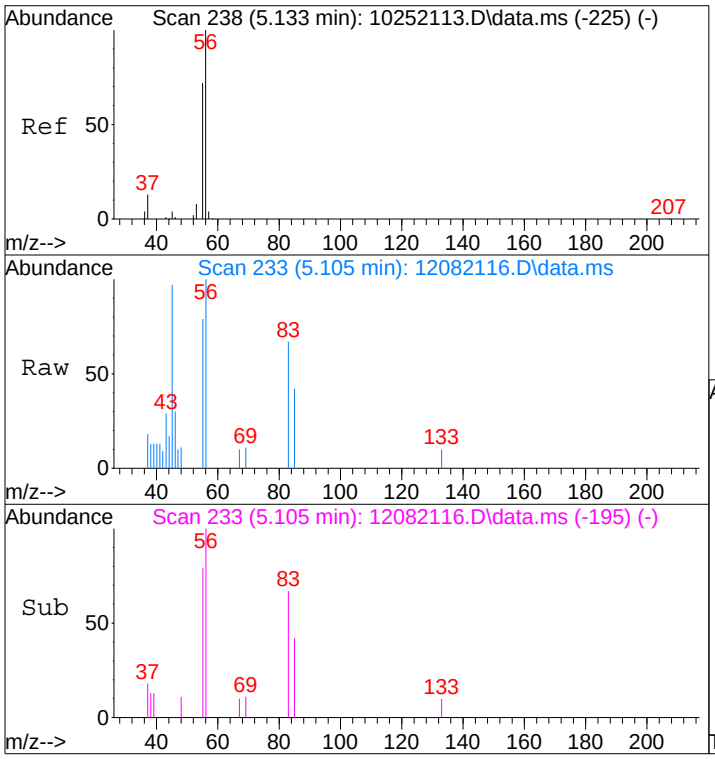


#10
Ethanol
Concen: 6.76 ng
RT: 4.89 min Scan# 196
Delta R.T. -0.074 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 45 Resp: 88979

Ion	Ratio	Lower	Upper
45	100		
46	35.8	18.0	58.0

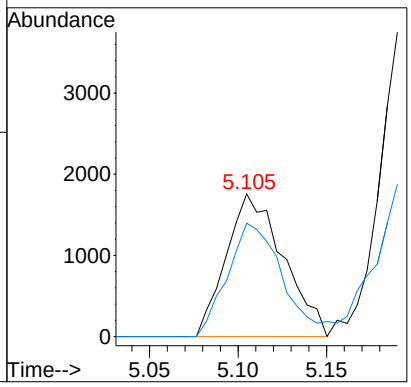


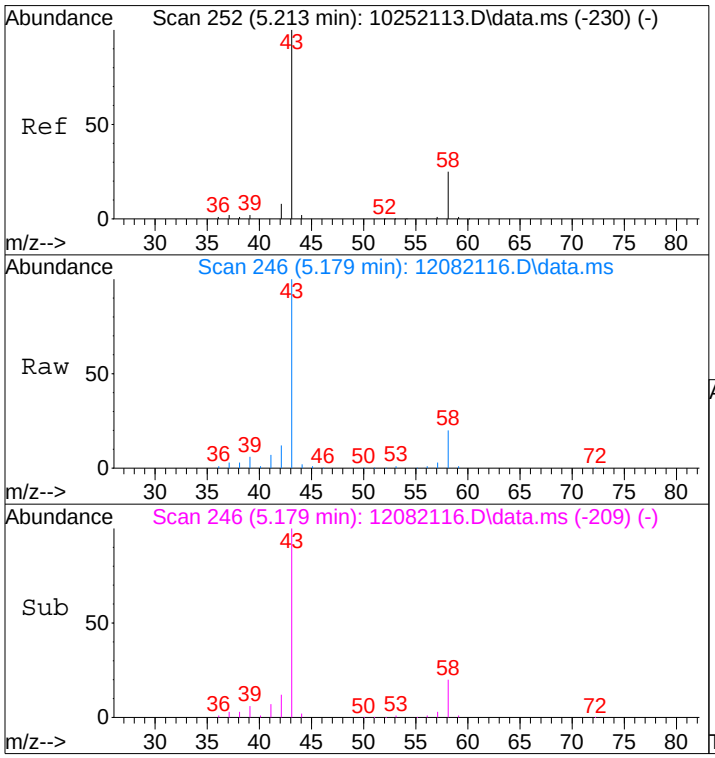


#12
Acrolein
Concen: 0.47 ng
RT: 5.10 min Scan# 233
Delta R.T. -0.034 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 56 Resp: 3931

Ion	Ratio	Lower	Upper
56	100		
55	77.9	51.4	91.4

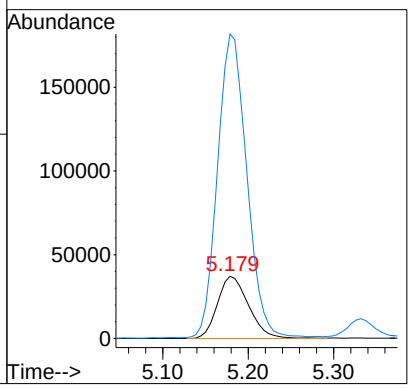


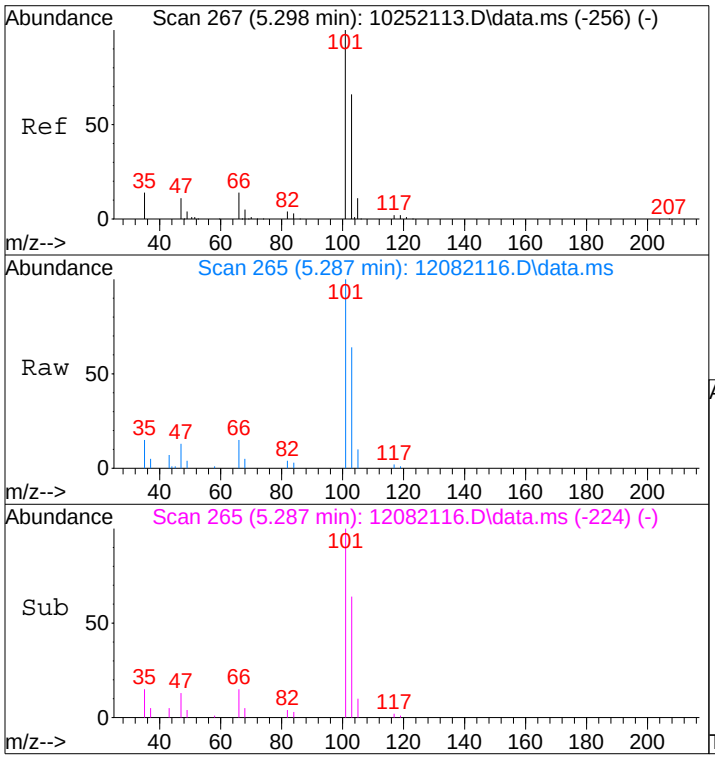


#13
Acetone
Concen: 9.39 ng
RT: 5.18 min Scan# 246
Delta R.T. -0.040 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 58 Resp: 93905

Ion	Ratio	Lower	Upper
58	100		
43	459.2	355.6	415.6#

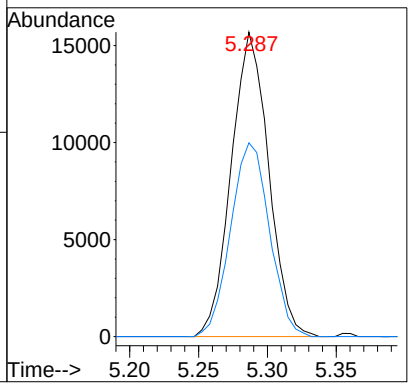


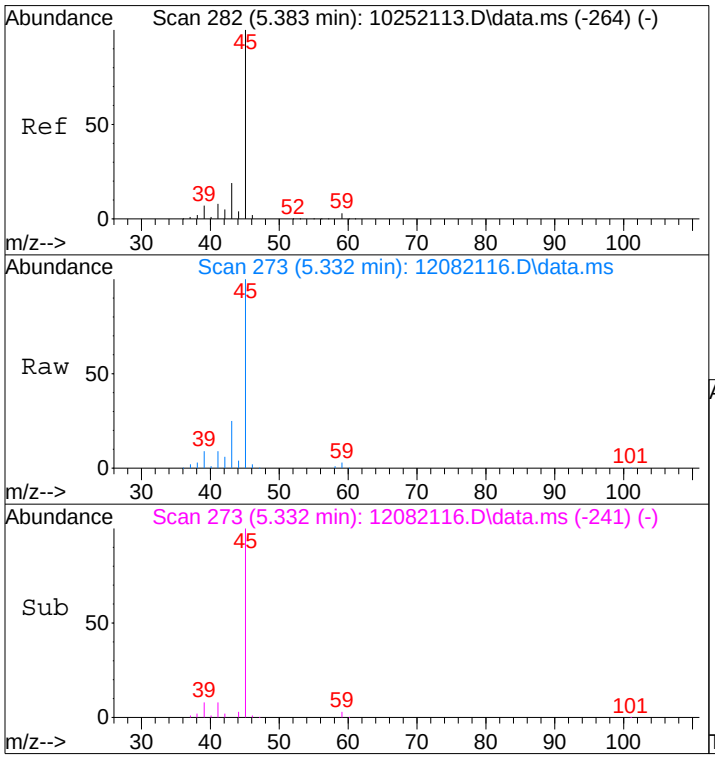


#14
Trichlorofluoromethane
Concen: 1.32 ng
RT: 5.29 min Scan# 265
Delta R.T. -0.017 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion:101 Resp: 29645

Ion	Ratio	Lower	Upper
101	100		
103	66.0	45.2	85.2

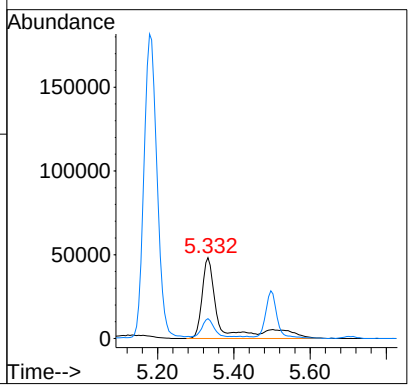


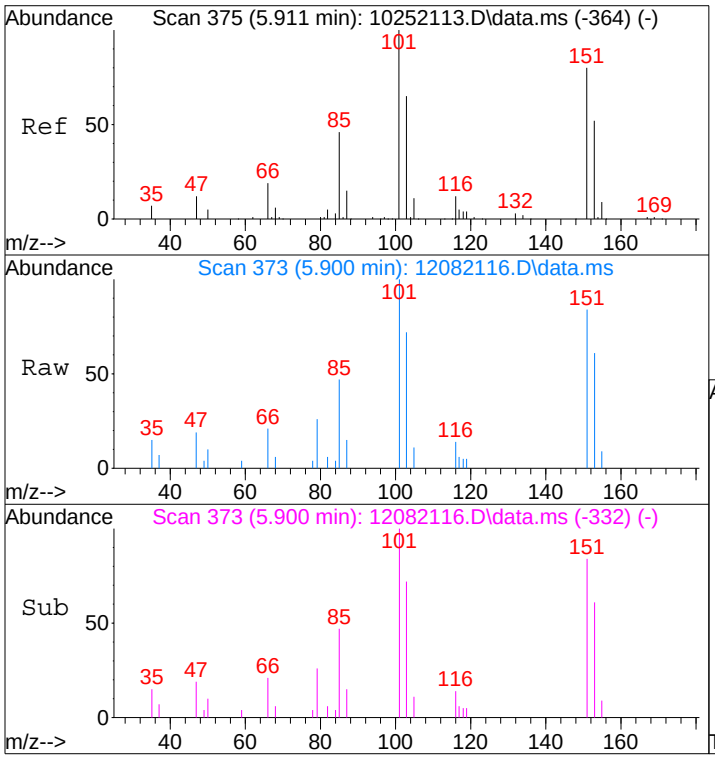


#15
2-Propanol (Isopropanol)
Concen: 3.78 ng
RT: 5.33 min Scan# 273
Delta R.T. -0.068 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 45 Resp: 152320

Ion	Ratio	Lower	Upper
45	100		
43	19.8	0.0	39.3

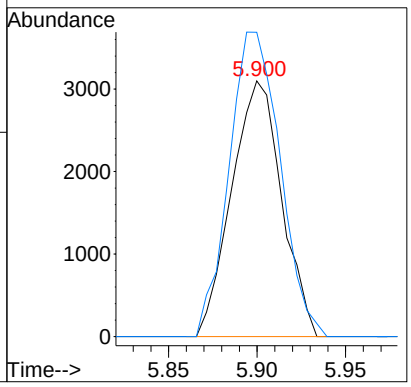


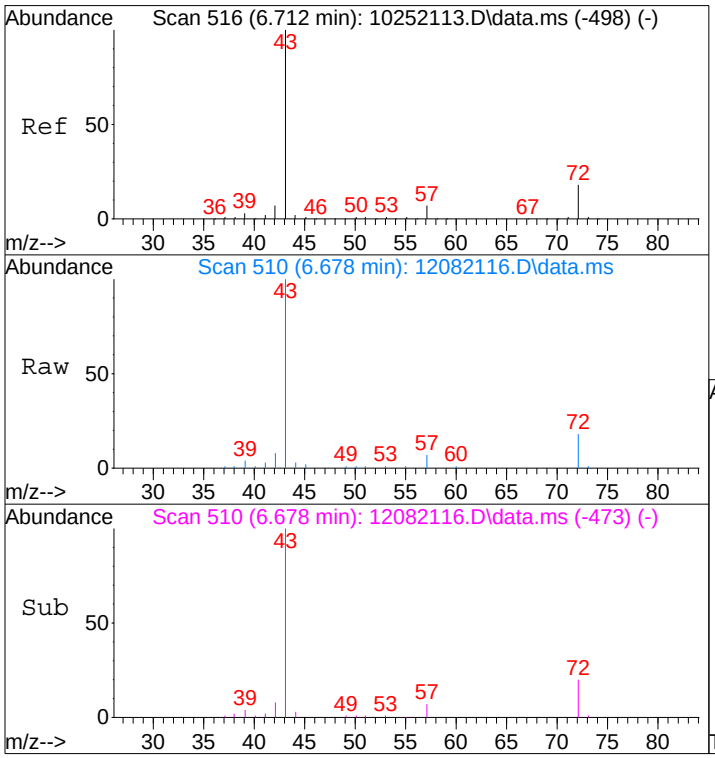


#21
Trichlorotrifluoroethane
Concen: 0.62 ng
RT: 5.90 min Scan# 373
Delta R.T. -0.017 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion:151 Resp: 6094

Ion	Ratio	Lower	Upper
151	100		
101	121.5	98.6	138.6

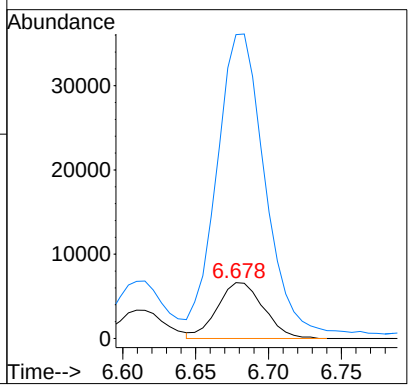


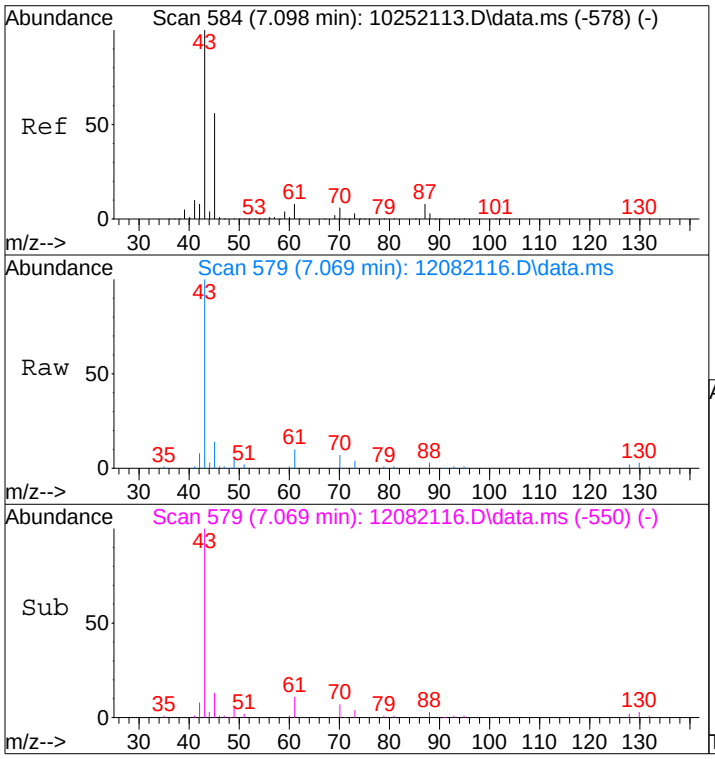


#27
2-Butanone (MEK)
Concen: 1.91 ng
RT: 6.68 min Scan# 510
Delta R.T. -0.040 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 72 Resp: 14617

Ion	Ratio	Lower	Upper
72	100		
43	572.0	528.8	568.8#

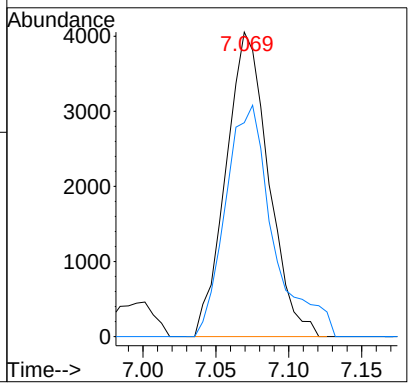


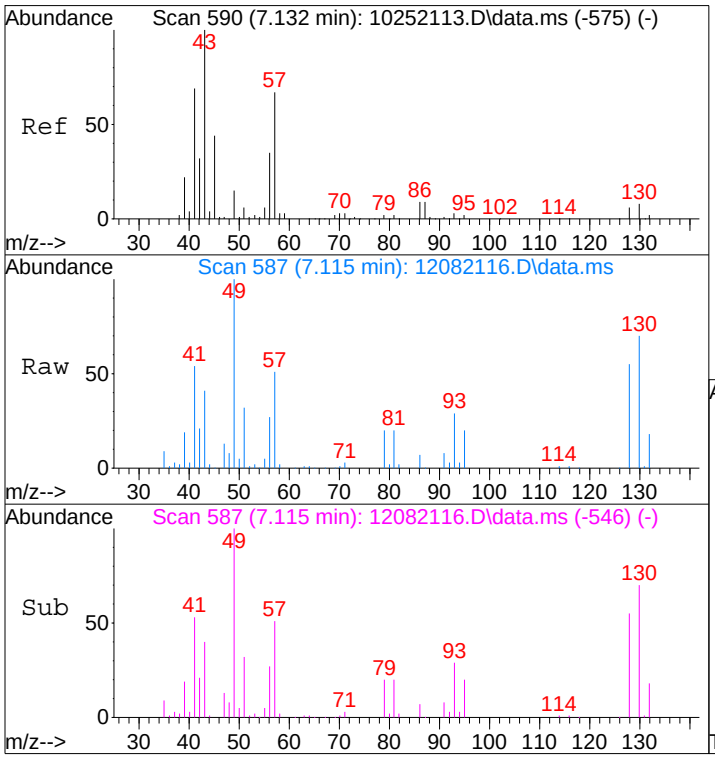


#30
Ethyl Acetate
Concen: 1.80 ng
RT: 7.07 min Scan# 579
Delta R.T. -0.034 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 61 Resp: 8264

Ion	Ratio	Lower	Upper
61	100		
70	84.7	48.6	88.6

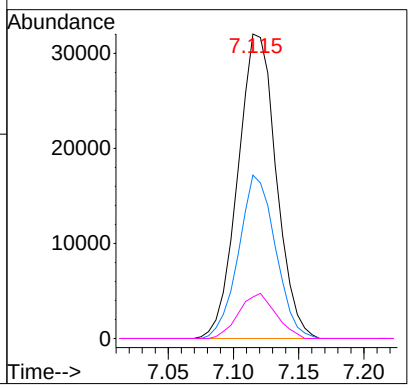


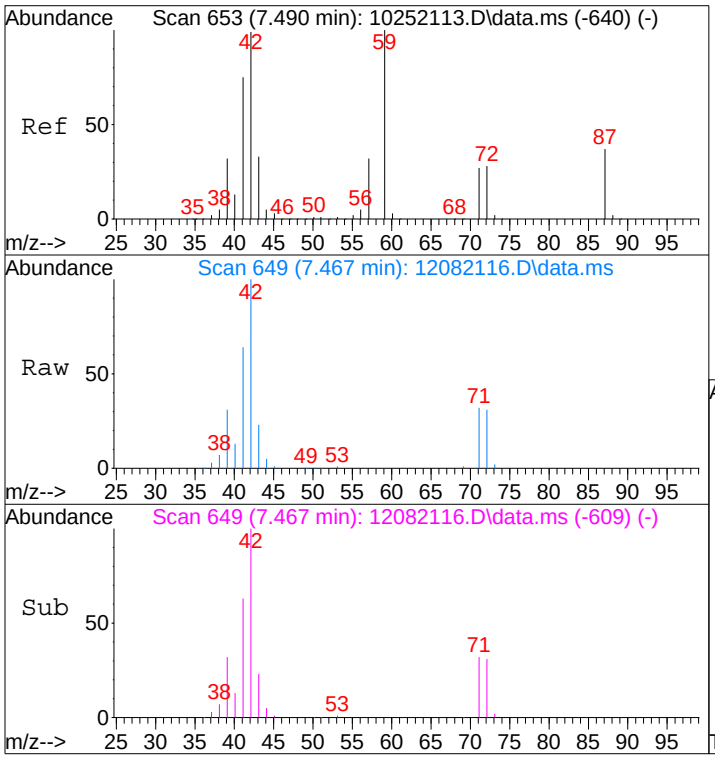


#31
n-Hexane
Concen: 2.91 ng
RT: 7.11 min Scan# 587
Delta R.T. -0.017 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 57 Resp: 65374

Ion	Ratio	Lower	Upper
57	100		
56	51.7	42.1	63.1
86	14.3	11.1	16.7

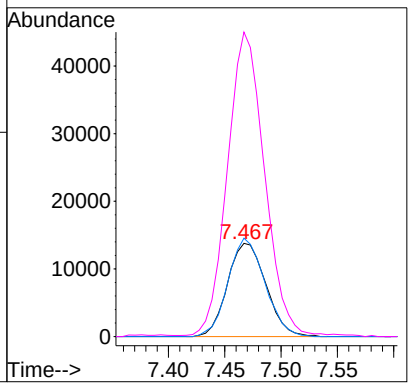


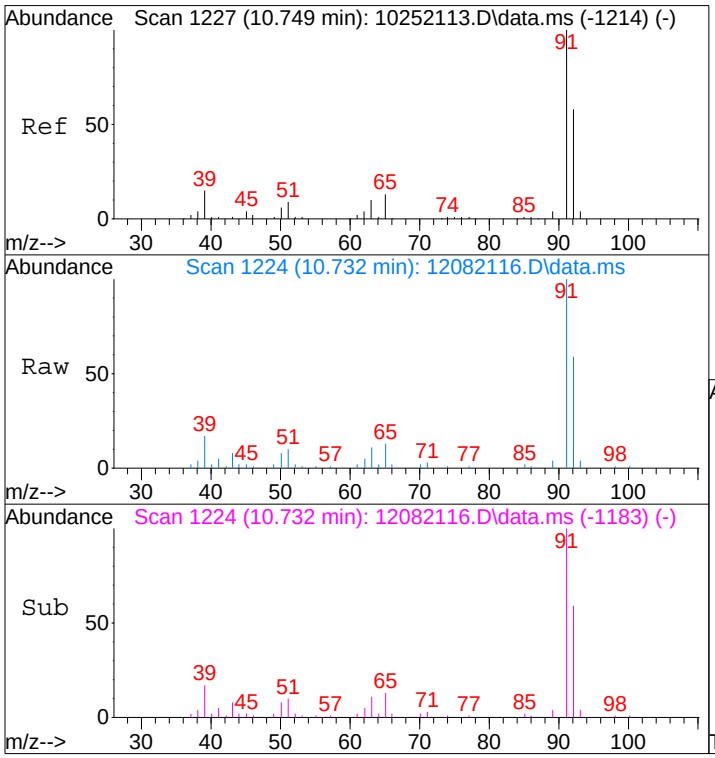


#34
Tetrahydrofuran (THF)
Concen: 4.55 ng
RT: 7.47 min Scan# 649
Delta R.T. -0.023 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 72 Resp: 32885

Ion	Ratio	Lower	Upper
72	100		
71	100.7	75.4	115.4
42	317.1	332.0	372.0#

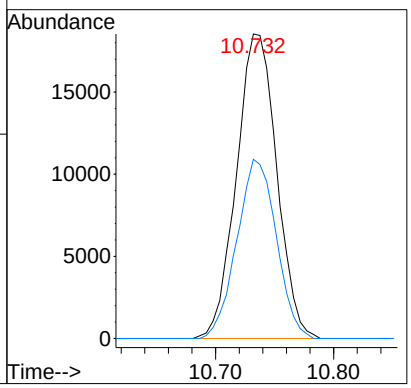


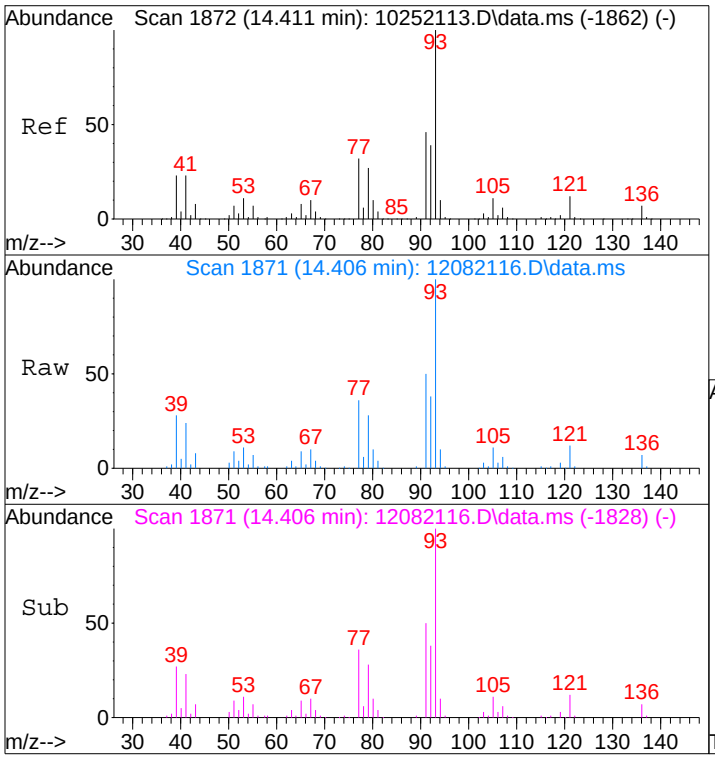


#58
Toluene
Concen: 0.84 ng
RT: 10.73 min Scan# 1224
Delta R.T. -0.017 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 91 Resp: 43993

Ion	Ratio	Lower	Upper
91	100		
92	57.6	38.7	78.7

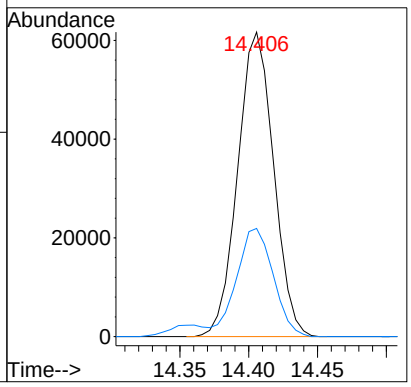


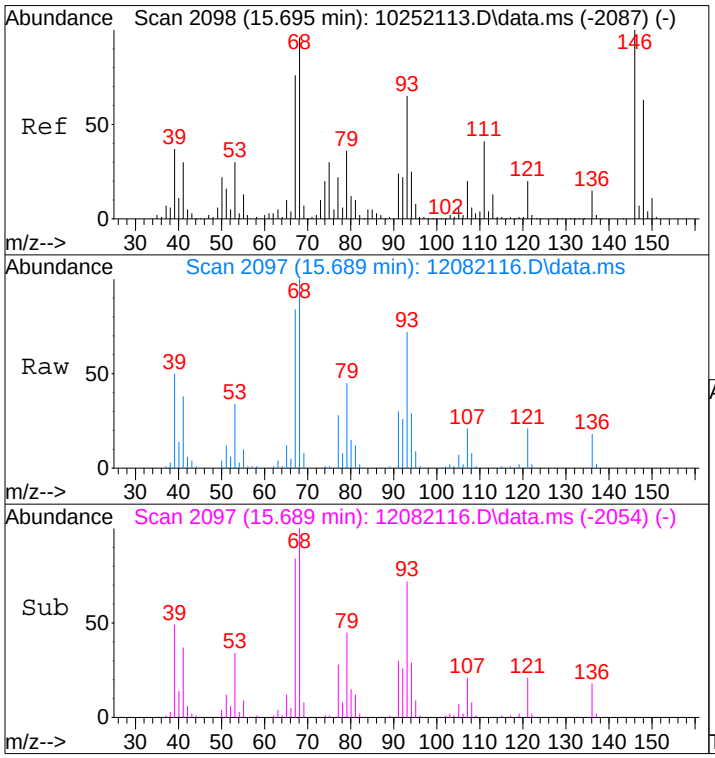


#75
alpha-Pinene
Concen: 4.29 ng
RT: 14.41 min Scan# 1871
Delta R.T. -0.006 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 93 Resp: 111920

Ion	Ratio	Lower	Upper
93	100		
77	36.3	11.3	51.3

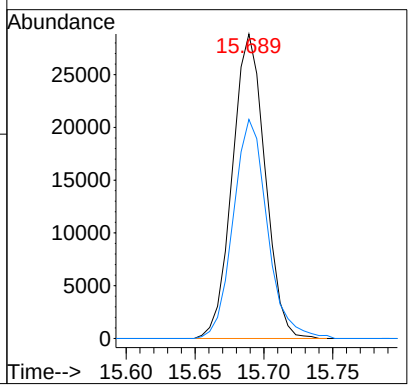




#91
d-Limonene
Concen: 2.93 ng
RT: 15.69 min Scan# 2097
Delta R.T. -0.006 min
Lab File: 12082116.D
Acq: 8 Dec 2021 11:07

Tgt Ion: 68 Resp: 47766

Ion	Ratio	Lower	Upper
68	100		
93	75.0	48.2	88.2



Quantitation Report (QT Reviewed)

01115460

Data File : I:\MS09\Data\2021 12\08\12082104.D Vial: 2
Acq On : 8 Dec 2021 00:45 Operator: SC
Sample : MB R9120821 1000mL Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 08:16:53 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

12/8/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	132849	12.500	ng	-0.05
37) 1,4-Difluorobenzene (IS2)	8.48	114	577083	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	12.45	54	133569	12.500	ng	-0.01

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	311044	15.106	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 120.88%			
57) Toluene-d8 (SS2)	10.64	98	688580	11.697	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.60%			
73) Bromofluorobenzene (SS3)	13.89	174	149456	9.849	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.80%			

Target Compounds

							Qvalue
2) Propene	4.08	42	996	N.D.			
3) Dichlorodifluoromethan...	0.00	85	0	N.D.			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	4.92	45	1370	0.083	ng		74
11) Acetonitrile	5.07	41	522	N.D.			
12) Acrolein	5.13	56	539	0.051	ng	#	42
13) Acetone	5.21	58	4626	0.371	ng		89
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	5.37	45	431	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	6.01	76	248	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	6.50	86	435	0.141	ng		98
27) 2-Butanone (MEK)	6.70	72	286	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	8.47	61	23443	No Calib		#	
40) 1-Butanol	8.13	56	188	No Calib		#	
41) Benzene	8.26	78	1659	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	8.47	84	646	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	0.00	130	0	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	9.11	57	116	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082104.D Vial: 2
Acq On : 8 Dec 2021 00:45 Operator: SC
Sample : MB R9120821 1000mL Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 08:16:53 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

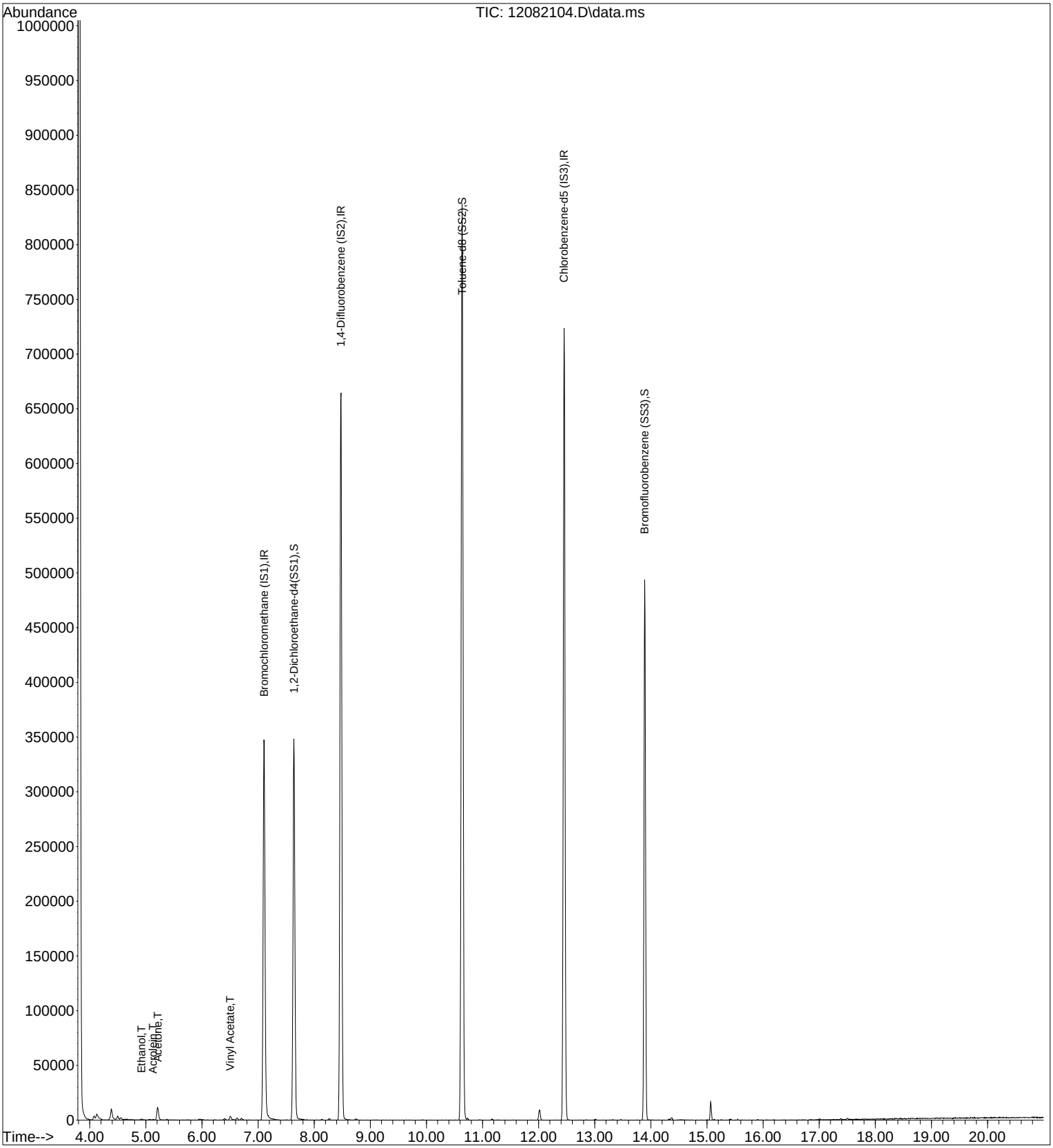
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	10.74	91	661	N.D.	
59) 2-Hexanone	10.95	43	412	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	11.54	43	168	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	0.00	166	0	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	12.86	91	400	N.D.	
67) m- & p-Xylenes	13.00	91	1209	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	13.46	91	642	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	14.02	105	312	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	14.51	91	264	N.D.	
77) 3-Ethyltoluene	14.02	105	312	No Calib	#
78) 4-Ethyltoluene	14.67	105	325	N.D.	
79) 1,3,5-Trimethylbenzene	14.73	105	216	N.D.	
80) alpha-Methylstyrene	13.89	118	640	No Calib	#
81) 2-Ethyltoluene	14.67	105	325	No Calib	#
82) 1,2,4-Trimethylbenzene	15.12	105	550	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	15.26	91	413	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	15.40	105	121	N.D.	
88) 4-Isopropyltoluene (p-...	15.55	119	378	N.D.	
89) 1,2,3-Trimethylbenzene	14.37	105	989	No Calib	#
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	58	0	N.D.	
94) 1,2,4-Trichlorobenzene	17.38	180	357	N.D.	
95) Naphthalene	17.50	128	1633	N.D.	
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	15.13	119	114	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	
101) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082104.D Vial: 2
Acq On : 8 Dec 2021 00:45 Operator: SC
Sample : MB R9120821 1000mL Inst : MS09
Misc : S34-10072101

Quant Time: Dec 08 08:16:53 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

01115463

Data File : I:\MS09\Data\2021 12\08\12082105.D Vial: 2
Acq On : 8 Dec 2021 1:15 Operator: SC
Sample : LCS R9120821 25ng Inst : MS09
Misc : S34-10072101/S35-12032102 (1/2)

12/8/21

Quant Time: Dec 08 08:17:18 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.14	130	136859	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	8.50	114	585191	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	12.46	54	140851	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.67	65	314452	14.824	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.56%				
57) Toluene-d8 (SS2)	10.65	98	696395	11.218	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.76%				
73) Bromofluorobenzene (SS3)	13.89	174	154504	9.655	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 77.20%				
Target Compounds							Qvalue
2) Propene	4.03	42	478811	18.996	ng		93
3) Dichlorodifluoromethan...	4.10	85	739900	24.554	ng		99
4) Chloromethane	4.24	50	542126	21.166	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.32	135	306535	22.967	ng		100
6) Vinyl Chloride	4.41	62	431772	21.939	ng		98
7) 1,3-Butadiene	4.51	54	339669	23.584	ng		90
8) Bromomethane	4.70	94	232902	21.248	ng		100
9) Chloroethane	4.82	64	227985	20.807	ng		100
10) Ethanol	4.95	45	1411872	83.430	ng		97
11) Acetonitrile	5.07	41	798939	18.054	ng		97
12) Acrolein	5.13	56	461843	42.724	ng		96
13) Acetone	5.21	58	1278795	99.488	ng	#	74
14) Trichlorofluoromethane	5.30	101	683961	23.608	ng		99
15) 2-Propanol (Isopropanol)	5.38	45	2424161	46.808	ng		95
16) Acrylonitrile	5.50	53	968123	40.945	ng		96
17) 1,1-Dichloroethene	5.70	96	301209	22.017	ng	#	84
18) 2-Methyl-2-Propanol (t...	5.75	59	2243290	56.906	ng		96
19) Methylene Chloride	5.78	84	312353	21.402	ng		94
20) 3-Chloro-1-propene (Al...	5.84	41	716539	18.406	ng		96
21) Trichlorotrifluoroethane	5.91	151	283822	22.435	ng		95
22) Carbon Disulfide	6.00	76	2211925	43.418	ng		100
23) trans-1,2-Dichloroethene	6.35	61	538537	23.309	ng		93
24) 1,1-Dichloroethane	6.49	63	660108	23.507	ng		100
25) Methyl tert-Butyl Ether	6.48	73	1178487	25.939	ng		97
26) Vinyl Acetate	6.52	86	349271	109.927	ng	#	68
27) 2-Butanone (MEK)	6.71	72	444333	45.170	ng		98
28) cis-1,2-Dichloroethene	7.02	61	518929	22.605	ng		93
29) Diisopropyl Ether	7.10	87	535882	45.707	ng	#	60
30) Ethyl Acetate	7.09	61	358727	60.886	ng		86
31) n-Hexane	7.13	57	614915	21.316	ng		98
32) Chloroform	7.22	83	641590	24.623	ng		99
34) Tetrahydrofuran (THF)	7.48	72	420723	45.297	ng		93
35) Ethyl tert-Butyl Ether	7.47	87	859433	49.618	ng		97
36) 1,2-Dichloroethane	7.75	62	602626	26.337	ng		99
38) 1,1,1-Trichloroethane	7.94	97	620044	24.557	ng		99
39) Isopropyl Acetate	8.28	61	12155	No Calib		#	
40) 1-Butanol	8.11	56	9010	No Calib		#	
41) Benzene	8.29	78	1282354	21.804	ng		98
42) Carbon Tetrachloride	8.40	117	511281	22.683	ng		100
43) Cyclohexane	8.51	84	968739	41.525	ng		95
44) tert-Amyl Methyl Ether	8.68	73	2106252	51.847	ng		98
45) 1,2-Dichloropropane	8.92	63	334005	21.060	ng		98
46) Bromodichloromethane	9.06	83	547491	25.365	ng		96
47) Trichloroethene	9.10	130	341746	22.368	ng		99
48) 1,4-Dioxane	9.05	88	261297	23.786	ng		98
49) 2,2,4-Trimethylpentane...	9.12	57	1534571	21.124	ng		94
50) Methyl Methacrylate	9.18	100	277210	48.618	ng		95

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082105.D Vial: 2
Acq On : 8 Dec 2021 1:15 Operator: SC
Sample : LCS R9120821 25ng Inst : MS09
Misc : S34-10072101/S35-12032102 (1/2)

Quant Time: Dec 08 08:17:18 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

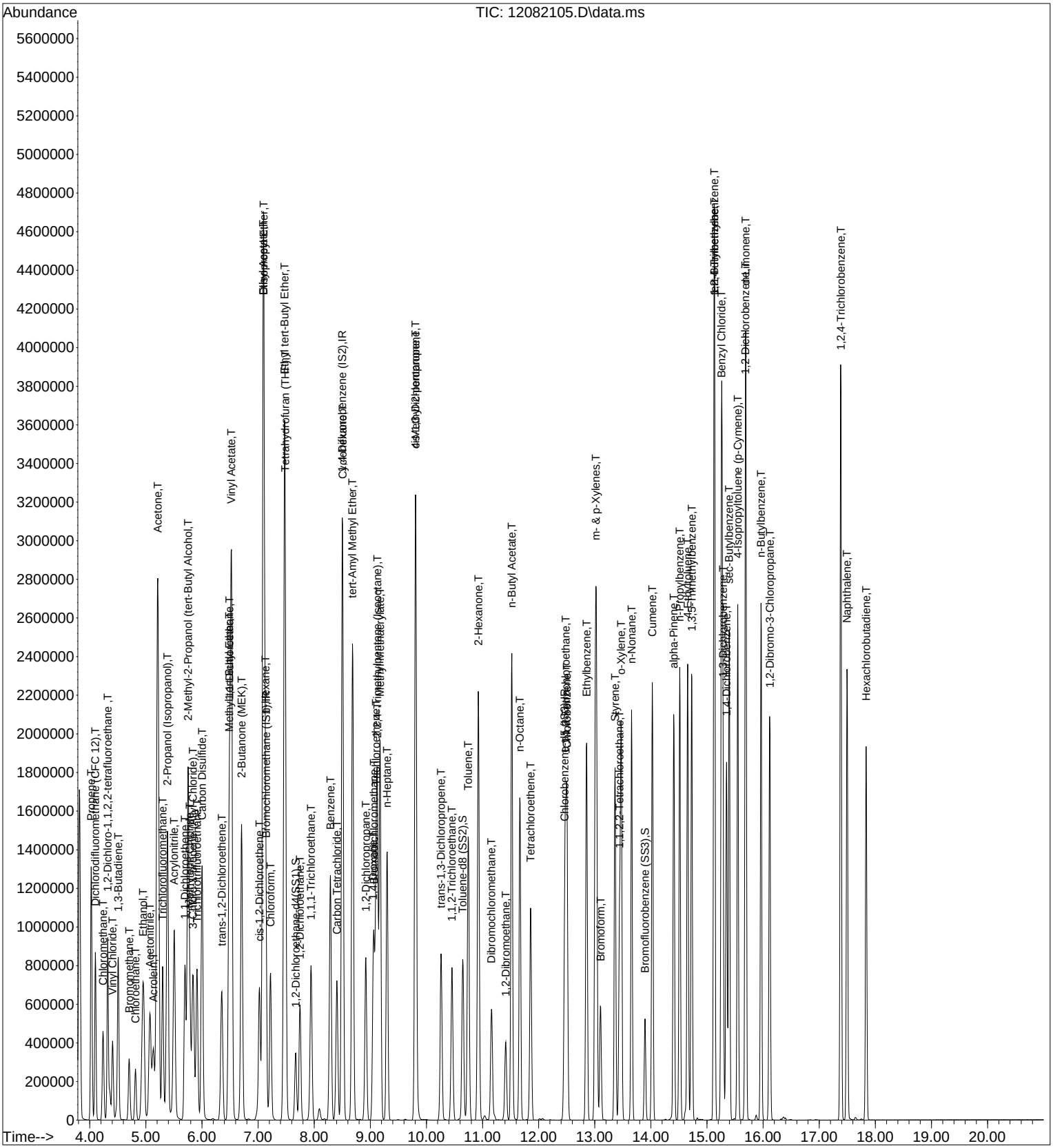
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	9.30	71	330067	22.027 ng		98
52) cis-1,3-Dichloropropene	9.81	75	571463	25.187 ng		100
53) 4-Methyl-2-pentanone	9.81	58	683839	46.644 ng		93
54) trans-1,3-Dichloropropene	10.26	75	567066	25.562 ng		100
55) 1,1,2-Trichloroethane	10.45	97	301695	21.482 ng		99
58) Toluene	10.74	91	1331814	20.020 ng		98
59) 2-Hexanone	10.92	43	2120566	45.032 ng		96
60) Dibromochloromethane	11.16	129	392786	20.655 ng		98
61) 1,2-Dibromoethane	11.41	107	356677	20.303 ng		99
62) n-Butyl Acetate	11.52	43	2348847	44.907 ng		96
63) n-Octane	11.66	57	322104	20.212 ng		99
64) Tetrachloroethene	11.86	166	373706	20.023 ng		100
65) Chlorobenzene	12.50	112	860737	20.065 ng		100
66) Ethylbenzene	12.86	91	1606888	21.237 ng		98
67) m- & p-Xylenes	13.02	91	2561083	43.785 ng		96
68) Bromoform	13.11	173	335304	20.447 ng		100
69) Styrene	13.36	104	939800	22.101 ng		95
70) o-Xylene	13.47	91	1314288	22.049 ng		96
71) n-Nonane	13.66	43	918096	20.633 ng		99
72) 1,1,2,2-Tetrachloroethane	13.44	83	549066	20.186 ng		100
74) Cumene	14.03	105	1577725	20.840 ng		98
75) alpha-Pinene	14.41	93	827796	25.092 ng		92
76) n-Propylbenzene	14.51	91	1955925	21.422 ng		97
77) 3-Ethyltoluene	14.03	105	1577725	No Calib		
78) 4-Ethyltoluene	14.66	105	1581232	21.894 ng		98
79) 1,3,5-Trimethylbenzene	14.73	105	1360224	22.267 ng		97
80) alpha-Methylstyrene	13.89	118	637	No Calib	#	
81) 2-Ethyltoluene	14.66	105	1581232	No Calib		
82) 1,2,4-Trimethylbenzene	15.13	105	1419840	23.025 ng		99
83) n-Decane	14.41	58	6239	No Calib	#	
84) Benzyl Chloride	15.26	91	2634857	52.466 ng		97
85) 1,3-Dichlorobenzene	15.29	146	773844	21.220 ng		99
86) 1,4-Dichlorobenzene	15.35	146	769369	21.279 ng		99
87) sec-Butylbenzene	15.39	105	1746682	21.064 ng		98
88) 4-Isopropyltoluene (p-...	15.55	119	1557373	21.488 ng		97
89) 1,2,3-Trimethylbenzene	14.41	105	98960	No Calib		
90) 1,2-Dichlorobenzene	15.68	146	729737	20.892 ng		100
91) d-Limonene	15.69	68	568713	27.655 ng		98
92) 1,2-Dibromo-3-Chloropr...	16.12	157	544450	40.830 ng	#	75
93) n-Undecane	15.13	58	66511	No Calib		
94) 1,2,4-Trichlorobenzene	17.39	180	1229950	46.689 ng		99
95) Naphthalene	17.49	128	1839712	27.107 ng		100
96) n-Dodecane	15.69	57	708	No Calib	#	
97) Hexachlorobutadiene	17.84	225	369504	18.767 ng		100
98) Cyclohexanone	13.02	55	2204	No Calib	#	
99) tert-Butylbenzene	15.13	119	1347180	21.990 ng		98
100) n-Butylbenzene	15.96	91	1500976	22.115 ng		99
101) 1,1,1,2-Tetrachloroethane	12.48	131	336739	20.901 ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082105.D Vial: 2
Acq On : 8 Dec 2021 1:15 Operator: SC
Sample : LCS R9120821 25ng Inst : MS09
Misc : S34-10072101/S35-12032102 (1/2)

Quant Time: Dec 08 08:17:18 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

01115466

Data File : I:\MS09\Data\2021 12\08\12082106.D Vial: 2
Acq On : 8 Dec 2021 1:45 Operator: SC
Sample : LCSD R9120821 25ng Inst : MS09
Misc : S34-10072101/S35-12032102 (1/2)

12/8/21

Quant Time: Dec 08 08:19:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.14	130	138673	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	8.50	114	592045	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	12.46	54	140280	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.67	65	319013	14.842	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.72%				
57) Toluene-d8 (SS2)	10.65	98	701534	11.347	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.80%				
73) Bromofluorobenzene (SS3)	13.89	174	154270	9.679	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 77.44%				
Target Compounds							Qvalue
2) Propene	4.02	42	473411	18.536	ng		93
3) Dichlorodifluoromethan...	4.09	85	731732	23.965	ng		99
4) Chloromethane	4.24	50	536728	20.682	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.32	135	308891	22.840	ng		100
6) Vinyl Chloride	4.40	62	440373	22.084	ng		98
7) 1,3-Butadiene	4.50	54	343773	23.557	ng		89
8) Bromomethane	4.70	94	228788	20.600	ng		99
9) Chloroethane	4.81	64	225376	20.300	ng		100
10) Ethanol	4.95	45	1416016	82.580	ng		97
11) Acetonitrile	5.07	41	804166	17.934	ng		88
12) Acrolein	5.13	56	459855	41.983	ng		96
13) Acetone	5.21	58	1286221	98.757	ng	#	75
14) Trichlorofluoromethane	5.30	101	678032	23.097	ng		100
15) 2-Propanol (Isopropanol)	5.38	45	2435603	46.414	ng		95
16) Acrylonitrile	5.50	53	969873	40.482	ng		96
17) 1,1-Dichloroethene	5.70	96	300813	21.700	ng	#	84
18) 2-Methyl-2-Propanol (t...	5.75	59	2256975	56.504	ng		96
19) Methylene Chloride	5.78	84	311689	21.077	ng		94
20) 3-Chloro-1-propene (Al...	5.84	41	732826	18.578	ng		95
21) Trichlorotrifluoroethane	5.91	151	284062	22.160	ng		94
22) Carbon Disulfide	6.00	76	2213141	42.874	ng		100
23) trans-1,2-Dichloroethene	6.35	61	538964	23.022	ng		93
24) 1,1-Dichloroethane	6.49	63	661565	23.250	ng		100
25) Methyl tert-Butyl Ether	6.48	73	1171747	25.453	ng		97
26) Vinyl Acetate	6.52	86	348855	108.360	ng	#	66
27) 2-Butanone (MEK)	6.71	72	444428	44.589	ng		96
28) cis-1,2-Dichloroethene	7.02	61	522283	22.453	ng		92
29) Diisopropyl Ether	7.10	87	537234	45.223	ng	#	60
30) Ethyl Acetate	7.09	61	359217	60.171	ng		87
31) n-Hexane	7.13	57	617413	21.122	ng		98
32) Chloroform	7.22	83	639686	24.229	ng		100
34) Tetrahydrofuran (THF)	7.48	72	419624	44.588	ng		94
35) Ethyl tert-Butyl Ether	7.47	87	862363	49.136	ng		97
36) 1,2-Dichloroethane	7.74	62	602691	25.995	ng		99
38) 1,1,1-Trichloroethane	7.94	97	622004	24.349	ng		99
39) Isopropyl Acetate	8.28	61	12548	No Calib		#	
40) 1-Butanol	8.11	56	8428	No Calib		#	
41) Benzene	8.29	78	1289751	21.676	ng		98
42) Carbon Tetrachloride	8.40	117	510167	22.372	ng		100
43) Cyclohexane	8.51	84	967960	41.011	ng		95
44) tert-Amyl Methyl Ether	8.68	73	2115138	51.463	ng		98
45) 1,2-Dichloropropane	8.92	63	337826	21.055	ng		98
46) Bromodichloromethane	9.06	83	548759	25.130	ng		96
47) Trichloroethene	9.10	130	341516	22.094	ng		100
48) 1,4-Dioxane	9.05	88	263218	23.683	ng		97
49) 2,2,4-Trimethylpentane...	9.12	57	1546214	21.037	ng		93
50) Methyl Methacrylate	9.18	100	280618	48.646	ng		96

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082106.D Vial: 2
Acq On : 8 Dec 2021 1:45 Operator: SC
Sample : LCSD R9120821 25ng Inst : MS09
Misc : S34-10072101/S35-12032102 (1/2)

Quant Time: Dec 08 08:19:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

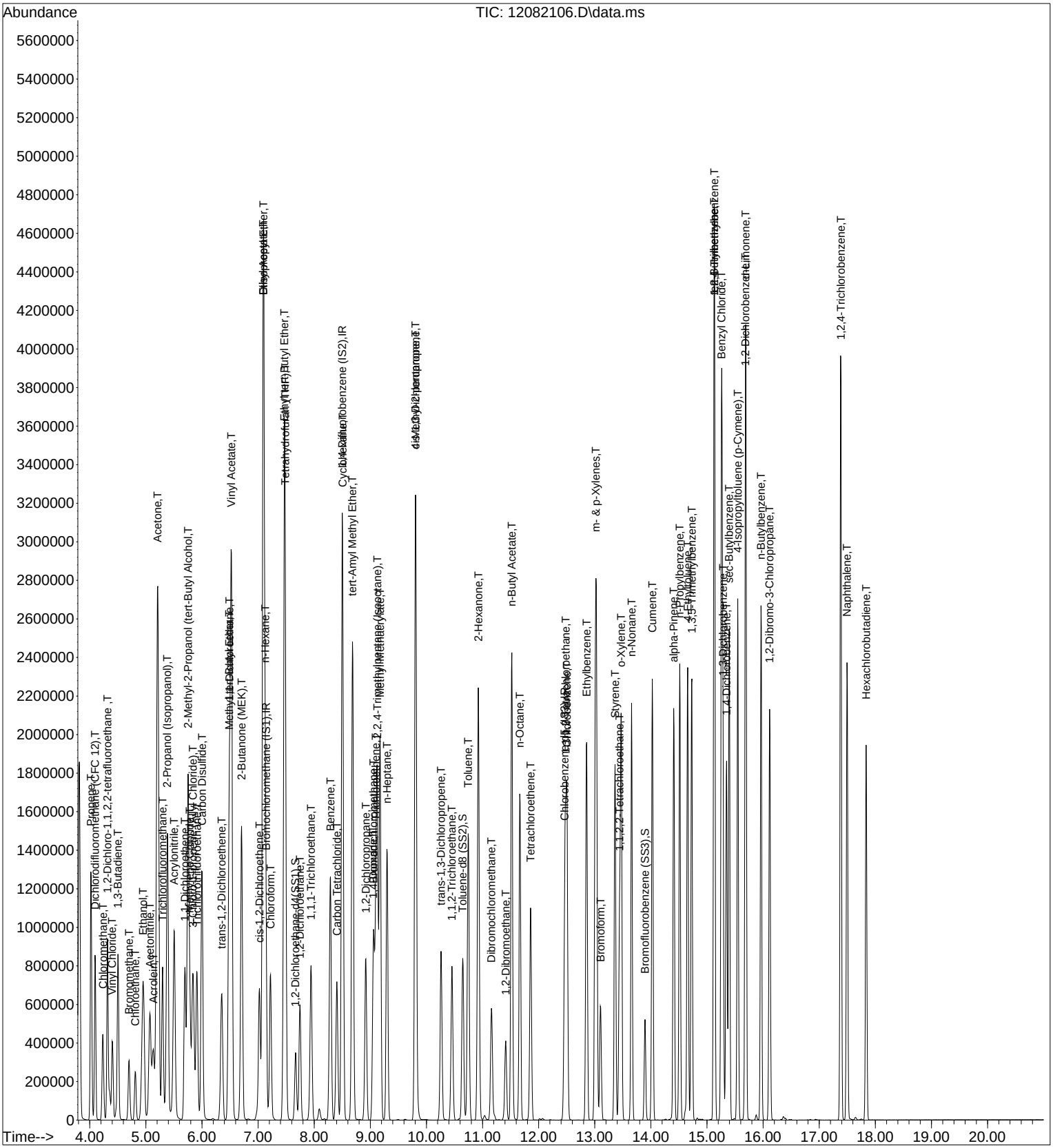
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	9.30	71	334477	22.063 ng		97
52) cis-1,3-Dichloropropene	9.81	75	575643	25.077 ng		100
53) 4-Methyl-2-pentanone	9.81	58	692041	46.657 ng		94
54) trans-1,3-Dichloropropene	10.26	75	572270	25.498 ng		100
55) 1,1,2-Trichloroethane	10.45	97	305044	21.469 ng		99
58) Toluene	10.74	91	1342215	20.259 ng		99
59) 2-Hexanone	10.92	43	2151559	45.876 ng		96
60) Dibromochloromethane	11.16	129	396021	20.909 ng		99
61) 1,2-Dibromoethane	11.41	107	357758	20.447 ng		99
62) n-Butyl Acetate	11.52	43	2379650	45.681 ng		96
63) n-Octane	11.66	57	323920	20.408 ng		98
64) Tetrachloroethene	11.86	166	377263	20.296 ng		99
65) Chlorobenzene	12.50	112	866831	20.290 ng		100
66) Ethylbenzene	12.86	91	1621127	21.512 ng		98
67) m- & p-Xylenes	13.02	91	2588660	44.436 ng		96
68) Bromoform	13.11	173	337331	20.654 ng		100
69) Styrene	13.36	104	948365	22.394 ng		95
70) o-Xylene	13.47	91	1325648	22.331 ng		96
71) n-Nonane	13.66	43	926397	20.905 ng		99
72) 1,1,2,2-Tetrachloroethane	13.44	83	553473	20.431 ng		100
74) Cumene	14.03	105	1590267	21.092 ng		98
75) alpha-Pinene	14.41	93	834906	25.411 ng		92
76) n-Propylbenzene	14.51	91	1966408	21.624 ng		97
77) 3-Ethyltoluene	14.03	105	1590267	No Calib		
78) 4-Ethyltoluene	14.66	105	1593502	22.154 ng		99
79) 1,3,5-Trimethylbenzene	14.73	105	1364169	22.422 ng		98
80) alpha-Methylstyrene	13.89	118	572	No Calib	#	
81) 2-Ethyltoluene	14.66	105	1594686	No Calib		
82) 1,2,4-Trimethylbenzene	15.13	105	1423171	23.173 ng		99
83) n-Decane	14.42	58	5256	No Calib	#	
84) Benzyl Chloride	15.26	91	2689977	53.782 ng		97
85) 1,3-Dichlorobenzene	15.29	146	779012	21.449 ng		99
86) 1,4-Dichlorobenzene	15.35	146	777585	21.593 ng		99
87) sec-Butylbenzene	15.39	105	1756283	21.266 ng		98
88) 4-Isopropyltoluene (p-...	15.55	119	1568104	21.724 ng		97
89) 1,2,3-Trimethylbenzene	14.41	105	99125	No Calib		
90) 1,2-Dichlorobenzene	15.68	146	733822	21.095 ng		100
91) d-Limonene	15.69	68	576290	28.138 ng		98
92) 1,2-Dibromo-3-Chloropr...	16.11	157	553502	41.678 ng	#	76
93) n-Undecane	15.13	58	70166	No Calib		
94) 1,2,4-Trichlorobenzene	17.39	180	1249127	47.610 ng		98
95) Naphthalene	17.49	128	1876715	27.765 ng		100
96) n-Dodecane	15.70	57	514	No Calib	#	
97) Hexachlorobutadiene	17.84	225	374400	19.093 ng		100
98) Cyclohexanone	13.02	55	2192	No Calib	#	
99) tert-Butylbenzene	15.13	119	1352646	22.170 ng		98
100) n-Butylbenzene	15.96	91	1523129	22.533 ng		99
101) 1,1,1,2-Tetrachloroethane	12.48	131	337504	21.033 ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082106.D Vial: 2
Acq On : 8 Dec 2021 1:45 Operator: SC
Sample : LCSD R9120821 25ng Inst : MS09
Misc : S34-10072101/S35-12032102 (1/2)

Quant Time: Dec 08 08:19:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Response Factor Report MS09

01115469

Method Path : I:\MS09\Methods\
Method File : R9102521.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 26 09:02:55 2021
Response Via : Initial Calibration

10/26/21

Calibration Files
0.1 =10252108.D 0.2 =10252109.D 0.5 =10252110.D 1.0 =10252111.D 5.0 =10252112.D 25 =10252
100 =10252115.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------									
2)	T	Propene	3.002	2.352	2.531	2.203	1.984	1.974	2.016	2.355	2.302	15.12
3)	T	Dichlorodifluo...	3.182	2.829	3.264	2.865	2.497	2.572	2.435	2.373	2.752	12.33
4)	T	Chloromethane	2.873	2.571	2.917	2.515	2.078	2.283	2.028	1.449	2.339	20.84
5)	T	1,2-Dichloro-1...	1.301	1.224	1.480	1.296	1.127	1.162	1.086	1.075	1.219	11.23
6)	T	Vinyl Chloride	1.934	1.821	2.097	1.876	1.713	1.763	1.606	1.570	1.797	9.66
7)	T	1,3-Butadiene	1.423	1.222	1.491	1.325	1.214	1.302	1.279	1.268	1.315	7.34
8)	T	Bromomethane	1.361	1.120	1.324	1.147	0.705	0.928	0.746	0.679	1.001	27.50
9)	T	Chloroethane	1.221	0.952	1.212	1.036	0.901	0.932	0.884	0.868	1.001	14.27
10)	T	Ethanol	1.946	1.767	1.818	1.564	1.344	1.359	1.299	1.267	1.546	17.24
11)	T	Acetonitrile	4.968	4.434	4.494	3.974	3.501	3.547	3.491	3.925	4.042	13.47
12)	T	Acrolein	1.075	0.994	1.167	1.046	0.921	0.928	0.891	0.875	0.987	10.36
13)	T	Acetone	1.632	1.357	1.344	1.168	1.014	1.022	0.955	0.899	1.174	21.47
14)	T	Trichlorofluor...	3.145	2.824	3.146	2.702	2.367	2.412	2.310	2.263	2.646	13.76
15)	T	2-Propanol (Is...	5.888	5.109	5.735	4.996	4.186	4.534	4.087	3.307	4.730	18.46
16)	T	Acrylonitrile	2.336	2.104	2.565	2.333	2.017	2.035	1.958	1.929	2.160	10.47
17)	T	1,1-Dichloroet...	1.505	1.218	1.475	1.300	1.133	1.160	1.112	1.093	1.250	13.00
18)	T	2-Methyl-2-Pro...	4.264	3.822	4.525	3.997	3.280	3.739	3.133	2.045	3.601	21.67
19)	T	Methylene Chlo...	1.644	1.358	1.542	1.393	1.201	1.226	1.171	1.128	1.333	13.94
20)	T	3-Chloro-1-pro...	4.182	3.926	4.679	4.101	3.117	3.031	2.751	2.657	3.556	21.29
21)	T	Trichlorotrifl...	1.343	1.175	1.373	1.216	1.034	1.066	1.026	1.012	1.155	12.52
22)	T	Carbon Disulfide	5.543	4.756	5.546	4.890	4.247	4.338	4.086	3.818	4.653	13.93
23)	T	trans-1,2-Dich...	2.296	2.084	2.412	2.179	1.933	2.039	1.976	1.962	2.110	8.16
24)	T	1,1-Dichloroet...	2.861	2.685	3.085	2.687	2.323	2.407	2.283	2.188	2.565	12.26
25)	T	Methyl tert-Bu...	4.851	4.311	4.953	4.344	3.856	4.058	3.735	3.088	4.150	14.67
26)	T	Vinyl Acetate	0.284	0.283	0.338	0.312	0.282	0.294	0.274	0.254	0.290	8.78
27)	T	2-Butanone (MEK)	0.984	0.887	1.058	0.950	0.830	0.868	0.824	0.786	0.898	10.26
28)	T	cis-1,2-Dichlo...	2.365	1.989	2.398	2.135	1.898	2.035	1.970	1.985	2.097	8.98
29)	T	Diisopropyl Ether	1.260	1.163	1.296	1.162	1.004	0.985	0.881	0.816	1.071	16.40
30)	T	Ethyl Acetate	0.617	0.570	0.662	0.593	0.514	0.506	0.452	0.391	0.538	16.62
31)	T	n-Hexane	3.096	2.792	3.134	2.770	2.432	2.486	2.306	2.062	2.635	14.37
32)	T	Chloroform	2.796	2.366	2.837	2.477	2.133	2.232	2.126	2.071	2.380	12.65
33)	S	1,2-Dichloroet...	1.885	1.875	1.902	1.910	1.933	1.986	1.979	2.030	1.937	2.85
34)	T	Tetrahydrofura...	0.999	0.830	1.016	0.889	0.785	0.815	0.755	0.697	0.848	13.35
35)	T	Ethyl tert-But...	1.733	1.592	1.890	1.644	1.482	1.545	1.434	1.336	1.582	11.08
36)	T	1,2-Dichloroet...	2.380	2.139	2.443	2.183	1.882	1.967	1.880	1.846	2.090	11.18
37)	IR	1,4-Difluorobenzen...	----------ISTD----------									
38)	T	1,1,1-Trichlor...	0.623	0.537	0.638	0.545	0.480	0.502	0.494	0.497	0.539	11.18
39)	T	Isopropyl Acetate									0.000	-1.00
40)	T	1-Butanol									0.000	-1.00
41)	T	Benzene	1.609	1.325	1.457	1.269	1.085	1.121	1.095	1.089	1.256	15.67
42)	T	Carbon Tetrach...	0.564	0.484	0.545	0.487	0.426	0.451	0.445	0.450	0.481	10.26
43)	T	Cyclohexane	0.654	0.535	0.593	0.512	0.433	0.440	0.420	0.400	0.498	18.32
44)	T	tert-Amyl Meth...	0.989	0.865	0.996	0.881	0.773	0.838	0.811	0.789	0.868	9.80
45)	T	1,2-Dichloropr...	0.386	0.336	0.402	0.348	0.302	0.314	0.310	0.311	0.339	11.11
46)	T	Bromodichlorom...	0.516	0.469	0.519	0.457	0.419	0.440	0.433	0.435	0.461	8.24
47)	T	Trichloroethene	0.382	0.347	0.392	0.334	0.294	0.299	0.287	0.277	0.326	13.50
48)	T	1,4-Dioxane	0.232	0.223	0.274	0.242	0.216	0.234	0.230	0.226	0.235	7.52
49)	T	2,2,4-Trimethy...	1.830	1.571	1.800	1.575	1.383	1.449	1.415	1.391	1.552	11.52
50)	T	Methyl Methacr...	0.122	0.110	0.141	0.129	0.117	0.123	0.118	0.115	0.122	7.90
51)	T	n-Heptane	0.379	0.316	0.361	0.335	0.288	0.301	0.293	0.288	0.320	10.94
52)	T	cis-1,3-Dichlo...	0.498	0.456	0.556	0.511	0.459	0.481	0.464	0.451	0.485	7.42
53)	T	4-Methyl-2-pen...	0.325	0.289	0.360	0.318	0.290	0.318	0.308	0.297	0.313	7.51
54)	T	trans-1,3-Dich...	0.458	0.443	0.523	0.473	0.445	0.485	0.479	0.486	0.474	5.47

55)	T	1,1,2-Trichlor...	0.360	0.279	0.349	0.311	0.271	0.282	0.275	0.274	0.300	11.91
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	5.597	5.630	5.556	5.604	5.528	5.451	5.420	5.288	5.509	2.10
58)	T	Toluene	7.359	6.541	7.156	6.233	5.304	5.271	4.909	4.456	5.904	18.16
59)	T	2-Hexanone	4.536	4.185	4.873	4.377	3.870	4.173	3.894	3.525	4.179	10.12
60)	T	Dibromochlorom...	1.944	1.698	1.986	1.773	1.570	1.600	1.515	1.415	1.688	12.01
61)	T	1,2-Dibromoethane	1.770	1.623	1.865	1.648	1.448	1.459	1.378	1.283	1.559	12.86
62)	T	n-Butyl Acetate	4.949	4.555	5.441	4.905	4.363	4.681	4.365	3.876	4.642	10.14
63)	T	n-Octane	1.595	1.439	1.706	1.514	1.317	1.333	1.252	1.158	1.414	12.99
64)	T	Tetrachloroethene	1.930	1.769	2.001	1.773	1.497	1.506	1.426	1.349	1.656	14.71
65)	T	Chlorobenzene	4.693	4.124	4.594	4.074	3.459	3.461	3.187	2.864	3.807	17.46
66)	T	Ethylbenzene	8.037	7.076	7.961	7.236	6.234	6.240	5.760	5.178	6.715	15.34
67)	T	m- & p-Xylenes	6.124	5.391	6.352	5.635	4.847	4.835	4.430	3.913	5.191	16.14
68)	T	Bromoform	1.567	1.470	1.670	1.476	1.341	1.432	1.373	1.312	1.455	8.22
69)	T	Styrene	3.883	3.727	4.391	4.083	3.630	3.806	3.515	3.155	3.774	9.83
70)	T	o-Xylene	6.203	5.378	6.477	5.713	4.931	4.951	4.565	4.101	5.290	15.34
71)	T	n-Nonane	4.427	3.983	4.706	4.241	3.734	3.777	3.517	3.205	3.949	12.49
72)	T	1,1,2,2-Tetrac...	2.889	2.637	2.866	2.599	2.210	2.204	2.045	1.861	2.414	15.97
73)	S	Bromofluoroben...	1.444	1.435	1.433	1.433	1.428	1.407	1.402	1.378	1.420	1.56
74)	T	Cumene	8.111	7.210	8.163	7.233	6.261	6.181	5.638	4.952	6.719	17.17
75)	T	alpha-Pinene	2.845	2.665	3.512	3.172	2.801	3.046	2.828	2.551	2.928	10.48
76)	T	n-Propylbenzene	9.488	8.401	9.947	8.855	7.649	7.575	6.888	6.020	8.103	16.34
77)	T	3-Ethyltoluene									0.000	-1.00
78)	T	4-Ethyltoluene	7.075	6.518	7.925	6.998	6.145	6.143	5.574	4.896	6.409	14.72
79)	T	1,3,5-Trimethy...	6.009	5.474	6.735	5.954	5.113	5.158	4.737	4.191	5.421	14.80
80)	T	alpha-Methylst...									0.000	-1.00
81)	T	2-Ethyltoluene									0.000	-1.00
82)	T	1,2,4-Trimethy...	5.792	5.616	6.725	6.026	5.313	5.348	4.792	4.169	5.473	14.16
83)	T	n-Decane									0.000	-1.00
84)	T	Benzyl Chloride	4.448	4.270	4.986	4.638	4.426	4.785	4.365	3.737	4.457	8.40
85)	T	1,3-Dichlorobe...	3.931	3.403	3.860	3.389	2.932	3.022	2.790	2.564	3.236	15.29
86)	T	1,4-Dichlorobe...	4.007	3.298	3.825	3.328	2.905	3.022	2.765	2.519	3.209	15.97
87)	T	sec-Butylbenzene	8.563	7.621	9.107	8.139	7.048	6.902	6.167	5.326	7.359	17.07
88)	T	4-Isopropyltol...	7.288	6.529	7.911	7.123	6.252	6.135	5.480	4.738	6.432	15.88
89)	T	1,2,3-Trimethy...									0.000	-1.00
90)	T	1,2-Dichlorobe...	3.773	3.289	3.744	3.321	2.876	2.862	2.592	2.343	3.100	16.77
91)	T	d-Limonene	1.342	1.232	2.161	1.957	1.882	2.201	2.028	1.797	1.825	19.66
92)	T	1,2-Dibromo-3-...	1.326	1.214	1.356	1.233	1.146	1.156	1.061	0.974	1.183	10.81
93)	T	n-Undecane									0.000	-1.00
94)	T	1,2,4-Trichlor...	2.275	2.051	2.629	2.385	2.181	2.595	2.407	2.179	2.338	8.77
95)	T	Naphthalene	4.879	4.640	6.589	6.289	5.856	7.398	6.698	5.836	6.023	15.40
96)	T	n-Dodecane									0.000	-1.00
97)	T	Hexachlorobuta...	2.030	1.822	2.048	1.812	1.619	1.678	1.557	1.411	1.747	12.81
98)	T	Cyclohexanone									0.000	-1.00
99)	T	tert-Butylbenzene	6.174	5.729	6.756	6.057	5.252	5.090	4.517	3.920	5.437	17.11
100)	T	n-Butylbenzene	6.651	5.891	7.363	6.583	5.840	5.905	5.316	4.638	6.023	14.01
101)	T	1,1,1,2-Tetrac...	1.660	1.533	1.743	1.502	1.314	1.329	1.234	1.124	1.430	15.01

(#) = Out of Range

R9102521.M Tue Oct 26 09:36:14 2021

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S34-10142102
20ng/L Std. ID: S34-10142101
40ng/L Std. ID:
200ng/L Std. ID: S34-10122101
1000ng/L Std. ID:

10/26/21

Dilution Factors:		1	5	25	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	20	200	200	200
	Source Std.		Primary Working Standards					Injection (L):	0.025	0.050	0.1250	0.050	0.25	0.125	0.25	0.50
Compounds	mg/m^3	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Dichlorodifluoromethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Chloromethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Freon-114	1.08	1080	216	43.2	21.6	4.32	1.08		0.108	0.216	0.540	1.08	5.40	27.00	54.0	108
Vinyl Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,3-Butadiene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Bromomethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Chloroethane	1.02	1020	204	40.8	20.4	4.08	1.02		0.102	0.204	0.510	1.02	5.10	25.50	51.0	102
Ethanol	3.62	3620	724	144.8	72.4	14.48	3.62		0.362	0.724	1.810	3.62	18.10	90.50	181.0	362
Acetonitrile	0.93	930	186	37.2	18.6	3.72	0.93		0.093	0.186	0.465	0.93	4.65	23.25	46.5	93
Acrolein	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
Acetone	5.19	5190	1038	207.6	103.8	20.76	5.19		0.519	1.038	2.595	5.19	25.95	129.75	259.5	519
Trichlorofluoromethane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Isopropanol	2.02	2020	404	80.8	40.4	8.08	2.02		0.202	0.404	1.010	2.02	10.10	50.50	101.0	202
Acrylonitrile	2.03	2030	406	81.2	40.6	8.12	2.03		0.203	0.406	1.015	2.03	10.15	50.75	101.5	203
1,1-Dichloroethene	1.07	1070	214	42.8	21.4	4.28	1.07		0.107	0.214	0.535	1.07	5.35	26.75	53.5	107
tert-Butanol	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
Methylene Chloride	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Allyl Chloride	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Trichlorotrifluoroethane	1.08	1080	216	43.2	21.6	4.32	1.08		0.108	0.216	0.540	1.08	5.40	27.00	54.0	108
Carbon Disulfide	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
trans-1,2-Dichloroethene	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
1,1-Dichloroethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Methyl tert-Butyl Ether	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Vinyl Acetate	3.40	3400	680	136.0	68.0	13.60	3.40		0.340	0.680	1.700	3.40	17.00	85.00	170.0	340
2-Butanone	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
cis-1,2-Dichloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Diisopropyl Ether	2.12	2120	424	84.8	42.4	8.48	2.12		0.212	0.424	1.060	2.12	10.60	53.00	106.0	212
Ethyl Acetate	4.08	4080	816	163.2	81.6	16.32	4.08		0.408	0.816	2.040	4.08	20.40	102.00	204.0	408
n-Hexane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Chloroform	1.07	1070	214	42.8	21.4	4.28	1.07		0.107	0.214	0.535	1.07	5.35	26.75	53.5	107
Tetrahydrofuran	1.97	1970	394	78.8	39.4	7.88	1.97		0.197	0.394	0.985	1.97	9.85	49.25	98.5	197
Ethyl tert-Butyl Ether	2.10	2100	420	84.0	42.0	8.40	2.10		0.210	0.420	1.050	2.10	10.50	52.50	105.0	210
1,2-Dichloroethane	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
1,1,1-Trichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Benzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Carbon Tetrachloride	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Cyclohexane	2.07	2070	414	82.8	41.4	8.28	2.07		0.207	0.414	1.035	2.07	10.35	51.75	103.5	207
tert-Amyl Methyl Ether	2.09	2090	418	83.6	41.8	8.36	2.09		0.209	0.418	1.045	2.09	10.45	52.25	104.5	209
1,2-Dichloropropane	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Bromodichloromethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Trichloroethene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
1,4-Dioxane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Isooctane	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
Methyl Methacrylate	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
n-Heptane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:		40ng/L Std. ID:	
4ng/L Std. ID:	S34-10142102	200ng/L Std. ID:	S34-10122101
20ng/L Std. ID:	S34-10142101	1000ng/L Std. ID:	

Dilution Factors:		1	5	25	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	20	200	200	200
	Source Std.		Primary Working Standards					Injection (L):	0.025	0.050	0.1250	0.050	0.25	0.125	0.25	0.50
Compounds	mg/m^3	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
4-Methyl-2-pentanone	2.08	2080	416	83.2	41.6	8.32	2.08		0.208	0.416	1.040	2.08	10.40	52.00	104.0	208
trans-1,3-Dichloropropene	1.01	1010	202	40.4	20.2	4.04	1.01		0.101	0.202	0.505	1.01	5.05	25.25	50.5	101
1,1,2-Trichloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Toluene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
2-Hexanone	2.05	2050	410	82.0	41.0	8.20	2.05		0.205	0.410	1.025	2.05	10.25	51.25	102.5	205
Dibromochloromethane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,2-Dibromoethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butyl Acetate	2.04	2040	408	81.6	40.8	8.16	2.04		0.204	0.408	1.020	2.04	10.20	51.00	102.0	204
n-Octane	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Chlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Ethylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
m-&p-Xylene	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
Bromoform	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Styrene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
o-Xylene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Nonane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,1,2,2-Tetrachloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Cumene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
alpha-Pinene	1.08	1080	216	43.2	21.6	4.32	1.08		0.108	0.216	0.540	1.08	5.40	27.00	54.0	108
n-Propylbenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
4-Ethyltoluene	1.06	1060	212	42.4	21.2	4.24	1.06		0.106	0.212	0.530	1.06	5.30	26.50	53.0	106
1,3,5-Trimethylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,2,4-Trimethylbenzene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
Benzyl Chloride	2.06	2060	412	82.4	41.2	8.24	2.06		0.206	0.412	1.030	2.06	10.30	51.50	103.0	206
1,3-Dichlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,4-Dichlorobenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
sec-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
p-Isopropyltoluene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,2-Dichlorobenzene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
d-Limonene	1.05	1050	210	42.0	21.0	4.20	1.05		0.105	0.210	0.525	1.05	5.25	26.25	52.5	105
1,2-Dibromo-3-chloropropane	2.00	2000	400	80.0	40.0	8.00	2.00		0.200	0.400	1.000	2.00	10.00	50.00	100.0	200
1,2,4-Trichlorobenzene	2.04	2040	408	81.6	40.8	8.16	2.04		0.204	0.408	1.020	2.04	10.20	51.00	102.0	204
Naphthalene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
Hexachloro-1,3-butadiene	1.03	1030	206	41.2	20.6	4.12	1.03		0.103	0.206	0.515	1.03	5.15	25.75	51.5	103
tert-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
n-Butylbenzene	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104
1,1,1,2-Tetrachloroethane	1.04	1040	208	41.6	20.8	4.16	1.04		0.104	0.208	0.520	1.04	5.20	26.00	52.0	104

Calibration Status Report MS09

01115473

Method : I:\MS09\Methods\R9102521.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 26 09:02:55 2021
Response via : Initial Calibration

10/26/21

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS09\Data\2021_10\25\10252108.D
2	0.2	0	13	I:\MS09\Data\2021_10\25\10252109.D
3	0.5	1	13	I:\MS09\Data\2021_10\25\10252110.D
4	1.0	1	13	I:\MS09\Data\2021_10\25\10252111.D
5	5.0	5	13	I:\MS09\Data\2021_10\25\10252112.D
6	25	26	13	I:\MS09\Data\2021_10\25\10252113.D
7	50	52	13	I:\MS09\Data\2021_10\25\10252114.D
8	100	104	13	I:\MS09\Data\2021_10\25\10252115.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Oct 26 09:01 2021	Oct 26 08:55 2021	25 Oct 2021 18:48
2	0.2	Oct 26 09:01 2021	Oct 26 08:53 2021	25 Oct 2021 19:19
3	0.5	Oct 26 09:01 2021	Oct 26 08:52 2021	25 Oct 2021 19:50
4	1.0	Oct 26 09:02 2021	Oct 26 08:51 2021	25 Oct 2021 20:21
5	5.0	Oct 26 09:02 2021	Oct 26 08:48 2021	25 Oct 2021 20:52
6	25	Oct 26 09:02 2021	Oct 26 08:47 2021	25 Oct 2021 21:23
7	50	Oct 26 09:02 2021	Oct 26 08:58 2021	25 Oct 2021 21:54
8	100	Oct 26 09:02 2021	Oct 26 09:00 2021	25 Oct 2021 22:24

R9102521.M Tue Oct 26 09:37:14 2021

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252108.D Vial: 5
Acq On : 25 Oct 2021 18:48 Operator: SC
Sample : 0.1ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142102 (11/12)

Quant Time: Oct 26 08:55:12 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/26/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	142406	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	617228	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.46	54	131439	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	268373	10.731	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.84%			
57) Toluene-d8 (SS2)	10.64	98	735724	13.574	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.56%			
73) Bromofluorobenzene (SS3)	13.89	174	189801	10.095	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.80%			

Target Compounds

							Qvalue
2) Propene	4.07	42	3557	0.207	ng		92
3) Dichlorodifluoromethan...	4.13	85	3806	0.124	ng	#	93
4) Chloromethane	4.28	50	3338	0.172	ng		93
5) 1,2-Dichloro-1,1,2,2-t...	4.34	135	1601	0.125	ng		99
6) Vinyl Chloride	4.43	62	2291	0.133	ng		96
7) 1,3-Butadiene	4.53	54	1686	0.118	ng	#	40
8) Bromomethane	4.73	94	1581	0.161	ng		95
9) Chloroethane	4.83	64	1419	0.164	ng		86
10) Ethanol	4.91	45	8026	0.700	ng		87
11) Acetonitrile	5.04	41	5264	0.193	ng	#	36
12) Acrolein	5.12	56	2450	0.297	ng		95
13) Acetone	5.20	58	9652	0.922	ng		97
14) Trichlorofluoromethane	5.31	101	3691	0.129	ng		100
15) 2-Propanol (Isopropanol)	5.35	45	13549	0.342	ng		82
16) Acrylonitrile	5.47	53	5402	0.309	ng		93
17) 1,1-Dichloroethene	5.71	96	1835	0.149	ng		94
18) 2-Methyl-2-Propanol (t...	5.74	59	10201	0.273	ng		92
19) Methylene Chloride	5.75	84	1948	0.147	ng		91
20) 3-Chloro-1-propene (Al...	5.84	41	5003	0.192	ng		88
21) Trichlorotrifluoroethane	5.91	151	1652	0.139	ng		94
22) Carbon Disulfide	6.01	76	13261	0.287	ng		95
23) trans-1,2-Dichloroethene	6.34	61	2773	0.138	ng		99
24) 1,1-Dichloroethane	6.46	63	3422	0.136	ng		96
25) Methyl tert-Butyl Ether	6.50	73	5803	0.129	ng		92
26) Vinyl Acetate	6.50	86	1099	0.374	ng	#	58
27) 2-Butanone (MEK)	6.70	72	2310	0.255	ng	#	72
28) cis-1,2-Dichloroethene	6.99	61	2802	0.139	ng		99
29) Diisopropyl Ether	7.10	87	3043	0.271	ng	#	93
30) Ethyl Acetate	7.08	61	2868	0.580	ng		97
31) n-Hexane	7.13	57	3704	0.157	ng		94
32) Chloroform	7.19	83	3408	0.134	ng		99
34) Tetrahydrofuran (THF)	7.49	72	2243	0.254	ng		97
35) Ethyl tert-Butyl Ether	7.47	87	4146	0.235	ng		96
36) 1,2-Dichloroethane	7.72	62	2874	0.121	ng		100
38) 1,1,1-Trichloroethane	7.92	97	3198	0.127	ng		95
39) Isopropyl Acetate	8.48	61	20096	No Calib		#	
40) 1-Butanol	8.13	56	577	No Calib		#	
41) Benzene	8.27	78	8261	0.160	ng		100
42) Carbon Tetrachloride	8.39	117	2923	0.134	ng		98
43) Cyclohexane	8.49	84	6684	0.311	ng	#	1
44) tert-Amyl Methyl Ether	8.68	73	10210	0.256	ng		98
45) 1,2-Dichloropropane	8.90	63	1964	0.158	ng		98
46) Bromodichloromethane	9.05	83	2676	0.131	ng		96
47) Trichloroethene	9.09	130	1943	0.142	ng		90
48) 1,4-Dioxane	9.06	88	1190	0.119	ng		93
49) 2,2,4-Trimethylpentane...	9.12	57	9581	0.173	ng		97
50) Methyl Methacrylate	9.18	100	1248	0.236	ng	#	87

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252108.D Vial: 5
Acq On : 25 Oct 2021 18:48 Operator: SC
Sample : 0.1ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142102 (11/12)

Quant Time: Oct 26 08:55:12 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

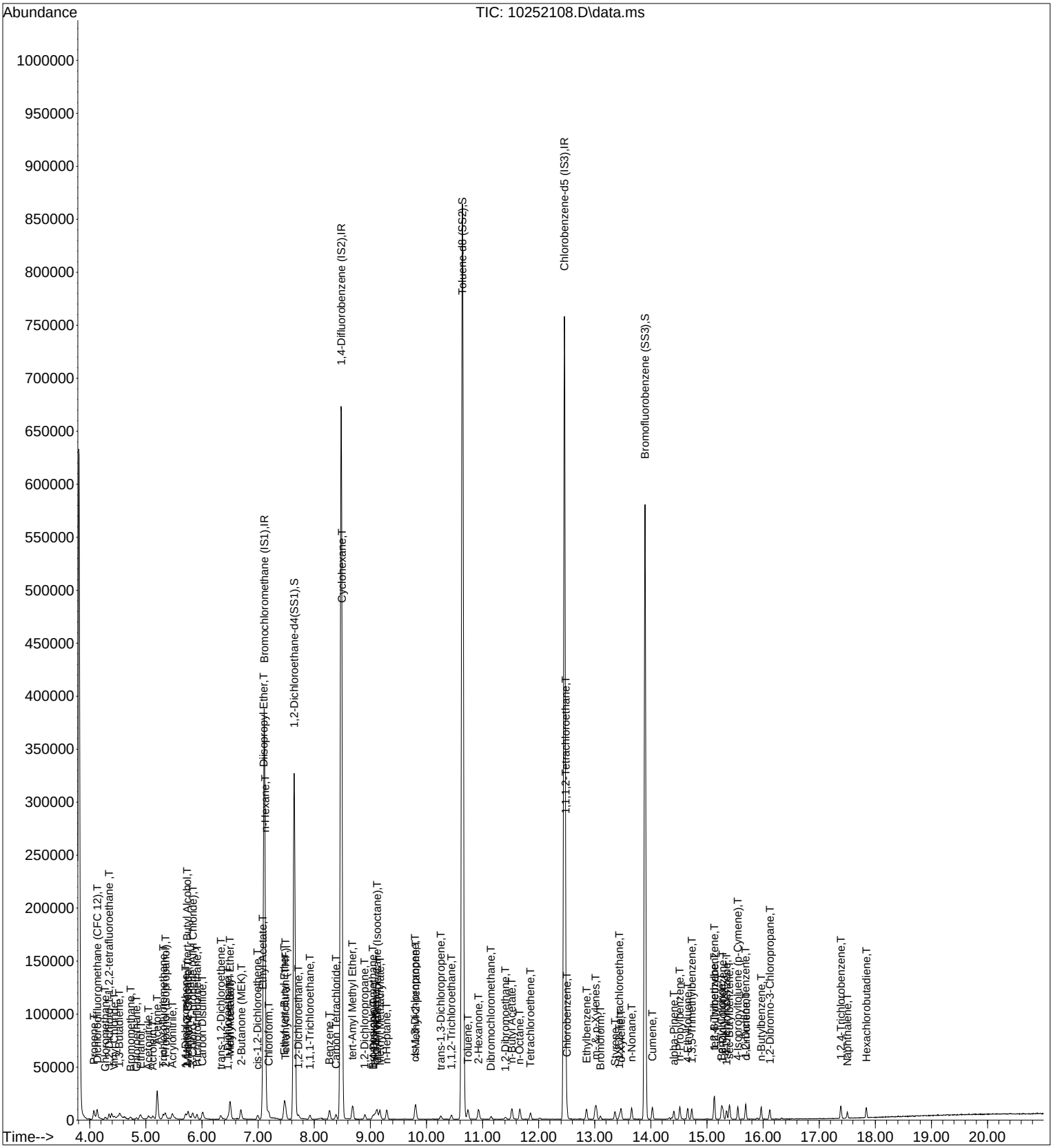
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.29	71	1964	0.152 ng	92
52) cis-1,3-Dichloropropene	9.80	75	2580	0.120 ng	98
53) 4-Methyl-2-pentanone	9.81	58	3342	0.282 ng	94
54) trans-1,3-Dichloropropene	10.25	75	2283	0.106 ng	92
55) 1,1,2-Trichloroethane	10.44	97	1847	0.150 ng	97
58) Toluene	10.74	91	7970	0.158 ng	100
59) 2-Hexanone	10.93	43	9778	0.325 ng	98
60) Dibromochloromethane	11.15	129	2146	0.143 ng	93
61) 1,2-Dibromoethane	11.41	107	1936	0.143 ng	97
62) n-Butyl Acetate	11.52	43	10615	0.328 ng	98
63) n-Octane	11.66	57	1761	0.164 ng	95
64) Tetrachloroethene	11.85	166	2111	0.140 ng	95
65) Chlorobenzene	12.50	112	5132	0.148 ng	96
66) Ethylbenzene	12.86	91	8704	0.146 ng	99
67) m- & p-Xylenes	13.01	91	13265	0.278 ng	99
68) Bromoform	13.10	173	1714	0.131 ng	94
69) Styrene	13.36	104	4205	0.118 ng	99
70) o-Xylene	13.47	91	6783	0.140 ng	98
71) n-Nonane	13.66	43	4841	0.178 ng	97
72) 1,1,2,2-Tetrachloroethane	13.43	83	3159	0.160 ng	94
74) Cumene	14.03	105	8870	0.145 ng	96
75) alpha-Pinene	14.41	93	3231	0.112 ng	91
76) n-Propylbenzene	14.51	91	10476	0.146 ng	97
77) 3-Ethyltoluene	13.90	105	170	No Calib #	
78) 4-Ethyltoluene	14.66	105	7886	0.132 ng	99
79) 1,3,5-Trimethylbenzene	14.73	105	6571	0.129 ng	98
80) alpha-Methylstyrene	13.89	118	749	No Calib #	
81) 2-Ethyltoluene	14.03	105	8870	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	6273	0.117 ng	93
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	15.26	91	9635	0.216 ng	100
85) 1,3-Dichlorobenzene	15.28	146	4299	0.141 ng	99
86) 1,4-Dichlorobenzene	15.35	146	4382	0.146 ng	97
87) sec-Butylbenzene	15.40	105	9364	0.139 ng	99
88) 4-Isopropyltoluene (p-...	15.55	119	7970	0.128 ng	98
89) 1,2,3-Trimethylbenzene	14.40	105	412	No Calib #	
90) 1,2-Dichlorobenzene	15.69	146	4166	0.144 ng	99
91) d-Limonene	15.69	68	1482	0.079 ng	97
92) 1,2-Dibromo-3-Chloropr...	16.12	157	2789	0.257 ng	92
93) n-Undecane	0.00	58	0	N.D.	
94) 1,2,4-Trichlorobenzene	17.39	180	4881	0.205 ng	98
95) Naphthalene	17.50	128	5335	0.086 ng	88
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	17.84	225	2199	0.125 ng	93
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	15.13	119	6752	0.127 ng	98
100) n-Butylbenzene	15.97	91	7273	0.133 ng	97
101) 1,1,1,2-Tetrachloroethane	12.48	131	1815	0.137 ng	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

01115476

Data File : I:\MS09\Data\2021 10\25\10252108.D Vial: 5
Acq On : 25 Oct 2021 18:48 Operator: SC
Sample : 0.1ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142102 (11/12)

Quant Time: Oct 26 08:55:12 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252109.D Vial: 5
Acq On : 25 Oct 2021 19:19 Operator: SC
Sample : 0.2ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142102 (11/12)

Quant Time: Oct 26 08:53:54 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/26/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	142137	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	616786	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	12.46	54	130136	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	266552	10.678	ng	-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.44%			
57) Toluene-d8 (SS2)	10.64	98	732637	13.653	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.20%			
73) Bromofluorobenzene (SS3)	13.89	174	186768	10.033	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.24%			

Target Compounds

							Qvalue
2) Propene	4.07	42	5563	0.324	ng		98
3) Dichlorodifluoromethan...	4.13	85	6756	0.220	ng		98
4) Chloromethane	4.27	50	5965	0.308	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.34	135	3007	0.235	ng		96
6) Vinyl Chloride	4.43	62	4307	0.250	ng		97
7) 1,3-Butadiene	4.53	54	2890	0.203	ng	#	60
8) Bromomethane	4.71	94	2597	0.266	ng		95
9) Chloroethane	4.83	64	2208	0.255	ng		97
10) Ethanol	4.89	45	14544	1.271	ng		83
11) Acetonitrile	5.05	41	9378	0.344	ng	#	68
12) Acrolein	5.12	56	4520	0.549	ng		94
13) Acetone	5.20	58	16012	1.533	ng		99
14) Trichlorofluoromethane	5.30	101	6616	0.232	ng		95
15) 2-Propanol (Isopropanol)	5.33	45	23470	0.593	ng		79
16) Acrylonitrile	5.47	53	9713	0.557	ng		95
17) 1,1-Dichloroethene	5.70	96	2963	0.241	ng		99
18) 2-Methyl-2-Propanol (t...	5.74	59	18254	0.490	ng		87
19) Methylene Chloride	5.75	84	3211	0.244	ng		90
20) 3-Chloro-1-propene (Al...	5.83	41	9376	0.360	ng		87
21) Trichlorotrifluoroethane	5.91	151	2886	0.243	ng		96
22) Carbon Disulfide	6.00	76	22714	0.492	ng		98
23) trans-1,2-Dichloroethene	6.33	61	5024	0.250	ng		98
24) 1,1-Dichloroethane	6.47	63	6412	0.255	ng		99
25) Methyl tert-Butyl Ether	6.49	73	10295	0.229	ng		95
26) Vinyl Acetate	6.51	86	2186	0.746	ng	#	90
27) 2-Butanone (MEK)	6.69	72	4155	0.460	ng	#	79
28) cis-1,2-Dichloroethene	7.00	61	4705	0.234	ng		94
29) Diisopropyl Ether	7.10	87	5607	0.500	ng	#	82
30) Ethyl Acetate	7.08	61	5285	1.071	ng		98
31) n-Hexane	7.13	57	6667	0.283	ng		99
32) Chloroform	7.19	83	5757	0.226	ng		98
34) Tetrahydrofuran (THF)	7.48	72	3720	0.423	ng		97
35) Ethyl tert-Butyl Ether	7.46	87	7602	0.431	ng		98
36) 1,2-Dichloroethane	7.72	62	5157	0.217	ng		97
38) 1,1,1-Trichloroethane	7.92	97	5513	0.218	ng		99
39) Isopropyl Acetate	8.48	61	18788	No Calib		#	
40) 1-Butanol	8.13	56	523	No Calib		#	
41) Benzene	8.27	78	13597	0.263	ng		99
42) Carbon Tetrachloride	8.39	117	5018	0.229	ng		97
43) Cyclohexane	8.49	84	10924	0.509	ng	#	1
44) tert-Amyl Methyl Ether	8.68	73	17848	0.448	ng		98
45) 1,2-Dichloropropane	8.90	63	3417	0.275	ng		98
46) Bromodichloromethane	9.05	83	4859	0.238	ng		99
47) Trichloroethene	9.09	130	3523	0.257	ng		93
48) 1,4-Dioxane	9.05	88	2290	0.228	ng		98
49) 2,2,4-Trimethylpentane...	9.11	57	16437	0.296	ng		96
50) Methyl Methacrylate	9.17	100	2250	0.426	ng		90

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252109.D Vial: 5
Acq On : 25 Oct 2021 19:19 Operator: SC
Sample : 0.2ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142102 (11/12)

Quant Time: Oct 26 08:53:54 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

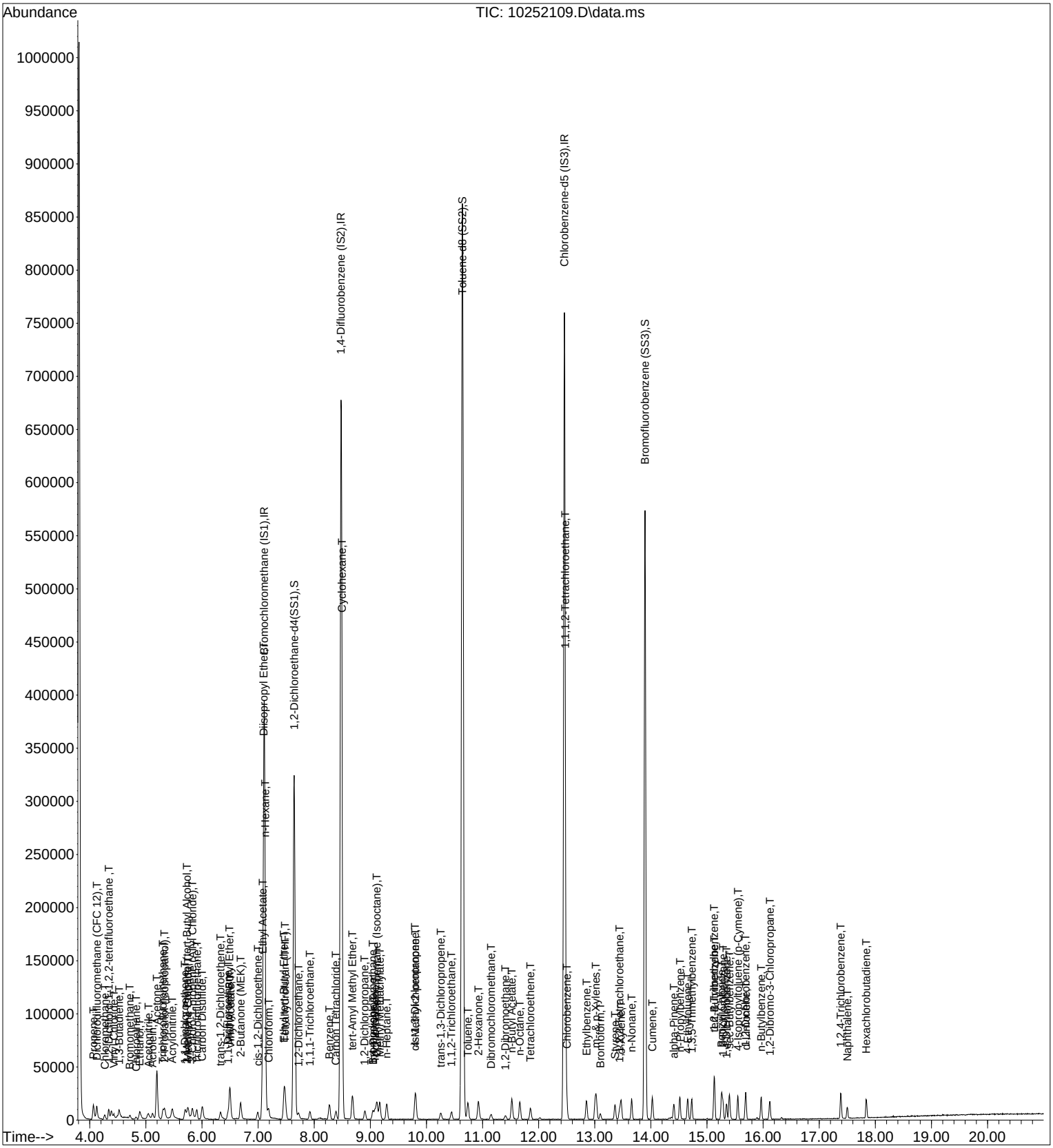
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	9.29	71	3276	0.253 ng		96
52) cis-1,3-Dichloropropene	9.79	75	4724	0.219 ng		100
53) 4-Methyl-2-pentanone	9.80	58	5925	0.500 ng		97
54) trans-1,3-Dichloropropene	10.25	75	4418	0.204 ng		95
55) 1,1,2-Trichloroethane	10.44	97	2864	0.233 ng		93
58) Toluene	10.74	91	14029	0.281 ng		98
59) 2-Hexanone	10.92	43	17862	0.600 ng		96
60) Dibromochloromethane	11.15	129	3712	0.250 ng		100
61) 1,2-Dibromoethane	11.41	107	3514	0.262 ng		100
62) n-Butyl Acetate	11.52	43	19346	0.603 ng		97
63) n-Octane	11.66	57	3146	0.296 ng		95
64) Tetrachloroethene	11.85	166	3830	0.257 ng		97
65) Chlorobenzene	12.50	112	8930	0.260 ng		97
66) Ethylbenzene	12.86	91	15175	0.258 ng		99
67) m- & p-Xylenes	13.02	91	23125	0.489 ng		99
68) Bromoform	13.10	173	3183	0.246 ng		97
69) Styrene	13.36	104	7994	0.227 ng		97
70) o-Xylene	13.47	91	11646	0.243 ng		99
71) n-Nonane	13.66	43	8626	0.321 ng		98
72) 1,1,2,2-Tetrachloroethane	13.44	83	5711	0.292 ng		96
74) Cumene	14.03	105	15614	0.258 ng		98
75) alpha-Pinene	14.41	93	5994	0.210 ng		96
76) n-Propylbenzene	14.52	91	18366	0.258 ng		99
77) 3-Ethyltoluene	13.90	105	185	No Calib	#	
78) 4-Ethyltoluene	14.66	105	14387	0.243 ng		98
79) 1,3,5-Trimethylbenzene	14.73	105	11854	0.234 ng		97
80) alpha-Methylstyrene	13.89	118	863	No Calib	#	
81) 2-Ethyltoluene	14.03	105	15614	No Calib		
82) 1,2,4-Trimethylbenzene	15.13	105	12044	0.227 ng		96
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	15.26	91	18315	0.415 ng		99
85) 1,3-Dichlorobenzene	15.29	146	7368	0.244 ng		97
86) 1,4-Dichlorobenzene	15.35	146	7142	0.241 ng		97
87) sec-Butylbenzene	15.40	105	16503	0.247 ng		98
88) 4-Isopropyltoluene (p-...	15.55	119	14139	0.230 ng		99
89) 1,2,3-Trimethylbenzene	14.41	105	626	No Calib	#	
90) 1,2-Dichlorobenzene	15.69	146	7190	0.250 ng		99
91) d-Limonene	15.69	68	2694	0.144 ng		95
92) 1,2-Dibromo-3-Chloropr...	16.12	157	5057	0.471 ng		95
93) n-Undecane	15.13	58	858	No Calib	#	
94) 1,2,4-Trichlorobenzene	17.38	180	8713	0.370 ng		99
95) Naphthalene	17.50	128	10048	0.164 ng		96
96) n-Dodecane	15.55	57	175	No Calib	#	
97) Hexachlorobutadiene	17.84	225	3907	0.224 ng		99
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	15.13	119	12405	0.235 ng		98
100) n-Butylbenzene	15.97	91	12757	0.235 ng		99
101) 1,1,1,2-Tetrachloroethane	12.48	131	3320	0.253 ng	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252109.D Vial: 5
Acq On : 25 Oct 2021 19:19 Operator: SC
Sample : 0.2ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142102 (11/12)

Quant Time: Oct 26 08:53:54 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252110.D Vial: 6
Acq On : 25 Oct 2021 19:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

10/26/21

Quant Time: Oct 26 08:52:41 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	140066	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	610374	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	12.46	54	130584	12.500	ng		0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.64	65	266386	10.829	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.64%				
57) Toluene-d8 (SS2)	10.64	98	725551	13.474	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.76%				
73) Bromofluorobenzene (SS3)	13.89	174	187130	10.018	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.16%				

Target Compounds

							Qvalue
2) Propene	4.05	42	14747	0.873	ng		99
3) Dichlorodifluoromethan...	4.12	85	19202	0.634	ng		100
4) Chloromethane	4.25	50	16671	0.874	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.33	135	8958	0.710	ng		100
6) Vinyl Chloride	4.42	62	12216	0.719	ng		98
7) 1,3-Butadiene	4.51	54	8688	0.621	ng	#	86
8) Bromomethane	4.71	94	7568	0.786	ng		96
9) Chloroethane	4.82	64	6925	0.813	ng		100
10) Ethanol	4.89	45	36871	3.269	ng		97
11) Acetonitrile	5.04	41	23415	0.872	ng		85
12) Acrolein	5.12	56	13081	1.613	ng		99
13) Acetone	5.19	58	39090	3.798	ng		99
14) Trichlorofluoromethane	5.30	101	18155	0.646	ng		99
15) 2-Propanol (Isopropanol)	5.33	45	64908	1.664	ng		86
16) Acrylonitrile	5.46	53	29169	1.696	ng		96
17) 1,1-Dichloroethene	5.70	96	8841	0.730	ng		96
18) 2-Methyl-2-Propanol (t...	5.70	59	53238	1.449	ng		95
19) Methylene Chloride	5.75	84	8986	0.692	ng		96
20) 3-Chloro-1-propene (Al...	5.83	41	27525	1.073	ng		87
21) Trichlorotrifluoroethane	5.91	151	8306	0.710	ng		100
22) Carbon Disulfide	6.00	76	65255	1.434	ng		98
23) trans-1,2-Dichloroethene	6.33	61	14327	0.724	ng		98
24) 1,1-Dichloroethane	6.46	63	18148	0.733	ng		99
25) Methyl tert-Butyl Ether	6.48	73	29139	0.657	ng		97
26) Vinyl Acetate	6.50	86	6445	2.233	ng	#	96
27) 2-Butanone (MEK)	6.68	72	12214	1.373	ng		98
28) cis-1,2-Dichloroethene	6.99	61	13973	0.706	ng		98
29) Diisopropyl Ether	7.09	87	15388	1.392	ng	#	91
30) Ethyl Acetate	7.07	61	15134	3.112	ng		97
31) n-Hexane	7.12	57	18434	0.794	ng		100
32) Chloroform	7.19	83	17010	0.678	ng		100
34) Tetrahydrofuran (THF)	7.48	72	11216	1.294	ng		98
35) Ethyl tert-Butyl Ether	7.46	87	22238	1.279	ng		97
36) 1,2-Dichloroethane	7.72	62	14507	0.619	ng		98
38) 1,1,1-Trichloroethane	7.92	97	16190	0.648	ng		99
39) Isopropyl Acetate	8.08	61	506	No Calib		#	
40) 1-Butanol	8.10	56	739	No Calib			
41) Benzene	8.27	78	37007	0.724	ng		99
42) Carbon Tetrachloride	8.39	117	13959	0.645	ng		97
43) Cyclohexane	8.49	84	29986	1.411	ng	#	55
44) tert-Amyl Methyl Ether	8.68	73	50803	1.289	ng		98
45) 1,2-Dichloropropane	8.90	63	10121	0.824	ng		98
46) Bromodichloromethane	9.04	83	13302	0.659	ng		98
47) Trichloroethene	9.09	130	9847	0.726	ng		98
48) 1,4-Dioxane	9.05	88	6954	0.700	ng		99
49) 2,2,4-Trimethylpentane...	9.12	57	46582	0.848	ng		99
50) Methyl Methacrylate	9.16	100	7166	1.370	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252110.D Vial: 6
Acq On : 25 Oct 2021 19:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:52:41 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

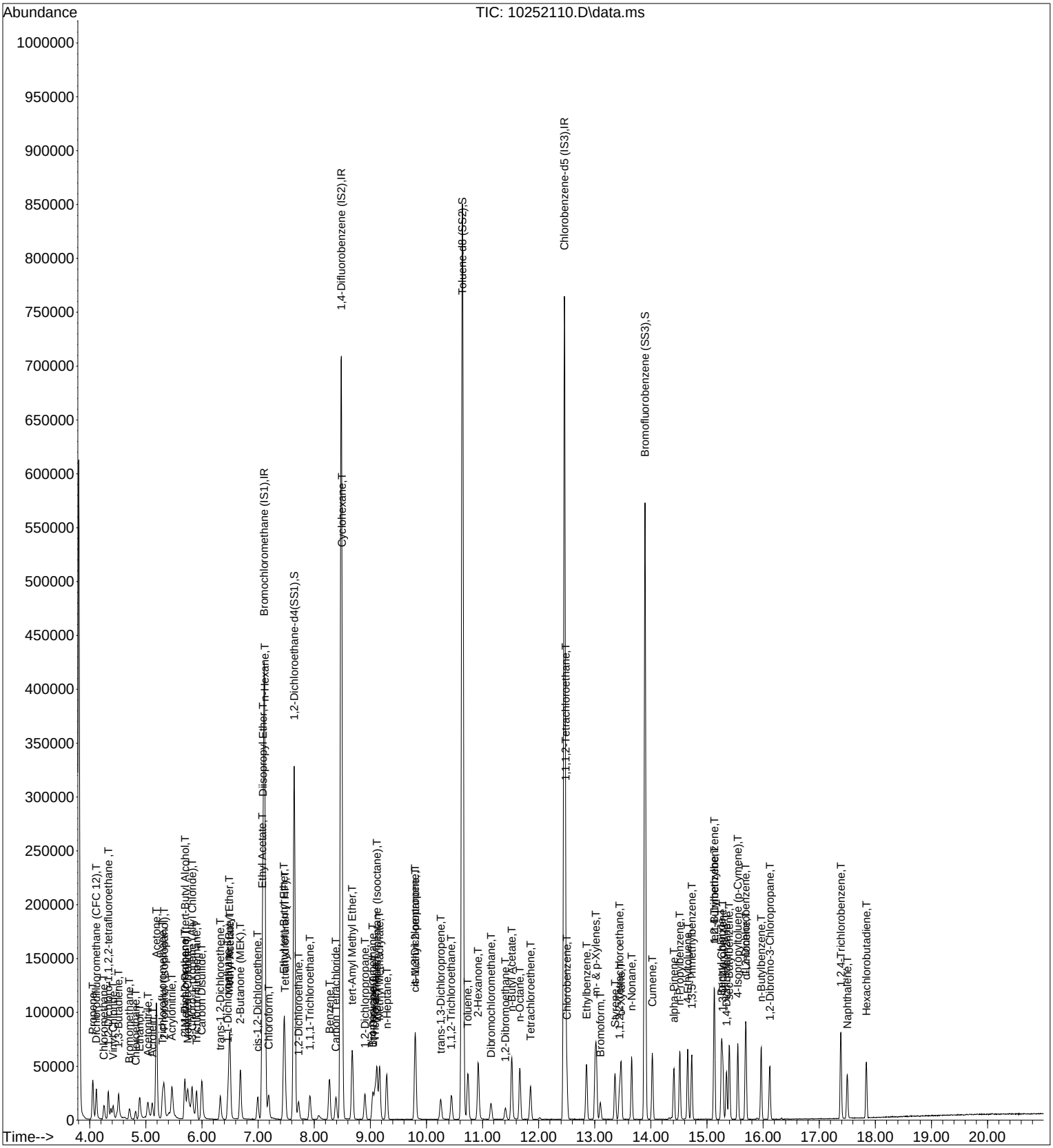
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.30	71	9264	0.724 ng	97
52) cis-1,3-Dichloropropene	9.79	75	14266	0.669 ng	99
53) 4-Methyl-2-pentanone	9.80	58	18303	1.561 ng	99
54) trans-1,3-Dichloropropene	10.25	75	12886	0.602 ng	98
55) 1,1,2-Trichloroethane	10.44	97	8852	0.728 ng	98
58) Toluene	10.74	91	38502	0.768 ng	100
59) 2-Hexanone	10.92	43	52177	1.747 ng	99
60) Dibromochloromethane	11.15	129	10894	0.732 ng	99
61) 1,2-Dibromoethane	11.41	107	10129	0.752 ng	99
62) n-Butyl Acetate	11.52	43	57979	1.801 ng	99
63) n-Octane	11.66	57	9358	0.877 ng	97
64) Tetrachloroethene	11.86	166	10868	0.727 ng	100
65) Chlorobenzene	12.50	112	24958	0.725 ng	99
66) Ethylbenzene	12.86	91	42829	0.725 ng	98
67) m- & p-Xylenes	13.02	91	68346	1.441 ng	99
68) Bromoform	13.10	173	9074	0.698 ng	99
69) Styrene	13.36	104	23624	0.669 ng	99
70) o-Xylene	13.47	91	35185	0.730 ng	99
71) n-Nonane	13.66	43	25565	0.948 ng	99
72) 1,1,2,2-Tetrachloroethane	13.44	83	15568	0.793 ng	100
74) Cumene	14.03	105	44344	0.731 ng	100
75) alpha-Pinene	14.41	93	19814	0.692 ng	98
76) n-Propylbenzene	14.51	91	54553	0.765 ng	99
77) 3-Ethyltoluene	14.03	105	44339	No Calib #	
78) 4-Ethyltoluene	14.66	105	43880	0.739 ng	98
79) 1,3,5-Trimethylbenzene	14.73	105	36585	0.720 ng	99
80) alpha-Methylstyrene	13.89	118	788	No Calib #	
81) 2-Ethyltoluene	14.03	105	44344	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	36181	0.680 ng	98
83) n-Decane	14.51	58	284	No Calib #	
84) Benzyl Chloride	15.26	91	53645	1.211 ng	100
85) 1,3-Dichlorobenzene	15.28	146	20971	0.693 ng	100
86) 1,4-Dichlorobenzene	15.35	146	20779	0.698 ng	98
87) sec-Butylbenzene	15.39	105	49474	0.739 ng	99
88) 4-Isopropyltoluene (p-...	15.55	119	42973	0.697 ng	99
89) 1,2,3-Trimethylbenzene	14.41	105	2280	No Calib #	
90) 1,2-Dichlorobenzene	15.69	146	20535	0.713 ng	98
91) d-Limonene	15.69	68	11852	0.633 ng	95
92) 1,2-Dibromo-3-Chloropr...	16.12	157	14165	1.316 ng	96
93) n-Undecane	15.12	58	2343	No Calib #	
94) 1,2,4-Trichlorobenzene	17.39	180	28017	1.185 ng	99
95) Naphthalene	17.50	128	35791	0.581 ng	99
96) n-Dodecane	15.55	57	730	No Calib #	
97) Hexachlorobutadiene	17.84	225	11021	0.631 ng	100
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	15.13	119	36700	0.694 ng	99
100) n-Butylbenzene	15.97	91	40000	0.734 ng	98
101) 1,1,1,2-Tetrachloroethane	12.48	131	9469	0.718 ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

01115482

Data File : I:\MS09\Data\2021 10\25\10252110.D Vial: 6
Acq On : 25 Oct 2021 19:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:52:41 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

01115483

Data File : I:\MS09\Data\2021 10\25\10252111.D Vial: 6
Acq On : 25 Oct 2021 20:21 Operator: SC
Sample : 1.0ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:51:31 2021 10/26/21
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.11	130	138195	12.500	ng		-0.04
37) 1,4-Difluorobenzene (IS2)	8.48	114	604996	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	12.46	54	128587	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.64	65	263920	10.874	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.96%				
57) Toluene-d8 (SS2)	10.64	98	720606	13.590	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.72%				
73) Bromofluorobenzene (SS3)	13.89	174	184275	10.019	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.16%				
Target Compounds							Qvalue
2) Propene	4.04	42	25330	1.520	ng		98
3) Dichlorodifluoromethan...	4.11	85	33258	1.112	ng		99
4) Chloromethane	4.24	50	28356	1.507	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.33	135	15475	1.242	ng		97
6) Vinyl Chloride	4.41	62	21570	1.286	ng		98
7) 1,3-Butadiene	4.51	54	15231	1.103	ng		94
8) Bromomethane	4.70	94	12930	1.361	ng		100
9) Chloroethane	4.81	64	11687	1.390	ng		97
10) Ethanol	4.89	45	62608	5.626	ng		99
11) Acetonitrile	5.03	41	40864	1.542	ng		97
12) Acrolein	5.10	56	23129	2.890	ng		99
13) Acetone	5.18	58	67028	6.601	ng		100
14) Trichlorofluoromethane	5.29	101	30768	1.110	ng		99
15) 2-Propanol (Isopropanol)	5.32	45	111570	2.898	ng		89
16) Acrylonitrile	5.46	53	52367	3.087	ng		95
17) 1,1-Dichloroethene	5.69	96	15382	1.287	ng		97
18) 2-Methyl-2-Propanol (t...	5.70	59	92795	2.560	ng		97
19) Methylene Chloride	5.75	84	16017	1.250	ng		89
20) 3-Chloro-1-propene (Al...	5.82	41	47611	1.881	ng		89
21) Trichlorotrifluoroethane	5.90	151	14519	1.259	ng		99
22) Carbon Disulfide	5.99	76	113538	2.529	ng		98
23) trans-1,2-Dichloroethene	6.33	61	25531	1.308	ng		99
24) 1,1-Dichloroethane	6.46	63	31195	1.277	ng		100
25) Methyl tert-Butyl Ether	6.48	73	50423	1.153	ng		99
26) Vinyl Acetate	6.49	86	11740	4.122	ng	#	97
27) 2-Butanone (MEK)	6.68	72	21634	2.465	ng		99
28) cis-1,2-Dichloroethene	6.99	61	24546	1.257	ng		98
29) Diisopropyl Ether	7.08	87	27245	2.498	ng	#	86
30) Ethyl Acetate	7.07	61	26731	5.571	ng		95
31) n-Hexane	7.12	57	32158	1.404	ng		99
32) Chloroform	7.19	83	29305	1.183	ng		100
34) Tetrahydrofuran (THF)	7.47	72	19366	2.264	ng		97
35) Ethyl tert-Butyl Ether	7.46	87	38158	2.224	ng		99
36) 1,2-Dichloroethane	7.72	62	25580	1.106	ng		97
38) 1,1,1-Trichloroethane	7.92	97	27433	1.108	ng		99
39) Isopropyl Acetate	8.27	61	284	No Calib		#	
40) 1-Butanol	8.11	56	1204	No Calib		#	
41) Benzene	8.27	78	63886	1.261	ng		98
42) Carbon Tetrachloride	8.39	117	24752	1.154	ng		99
43) Cyclohexane	8.49	84	51334	2.438	ng	#	76
44) tert-Amyl Methyl Ether	8.68	73	89129	2.282	ng		97
45) 1,2-Dichloropropane	8.90	63	17329	1.424	ng		97
46) Bromodichloromethane	9.04	83	23218	1.160	ng		98
47) Trichloroethene	9.09	130	16634	1.238	ng		100
48) 1,4-Dioxane	9.05	88	12179	1.237	ng		97
49) 2,2,4-Trimethylpentane...	9.11	57	80790	1.484	ng		94
50) Methyl Methacrylate	9.16	100	12954	2.499	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252111.D Vial: 6
Acq On : 25 Oct 2021 20:21 Operator: SC
Sample : 1.0ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:51:31 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

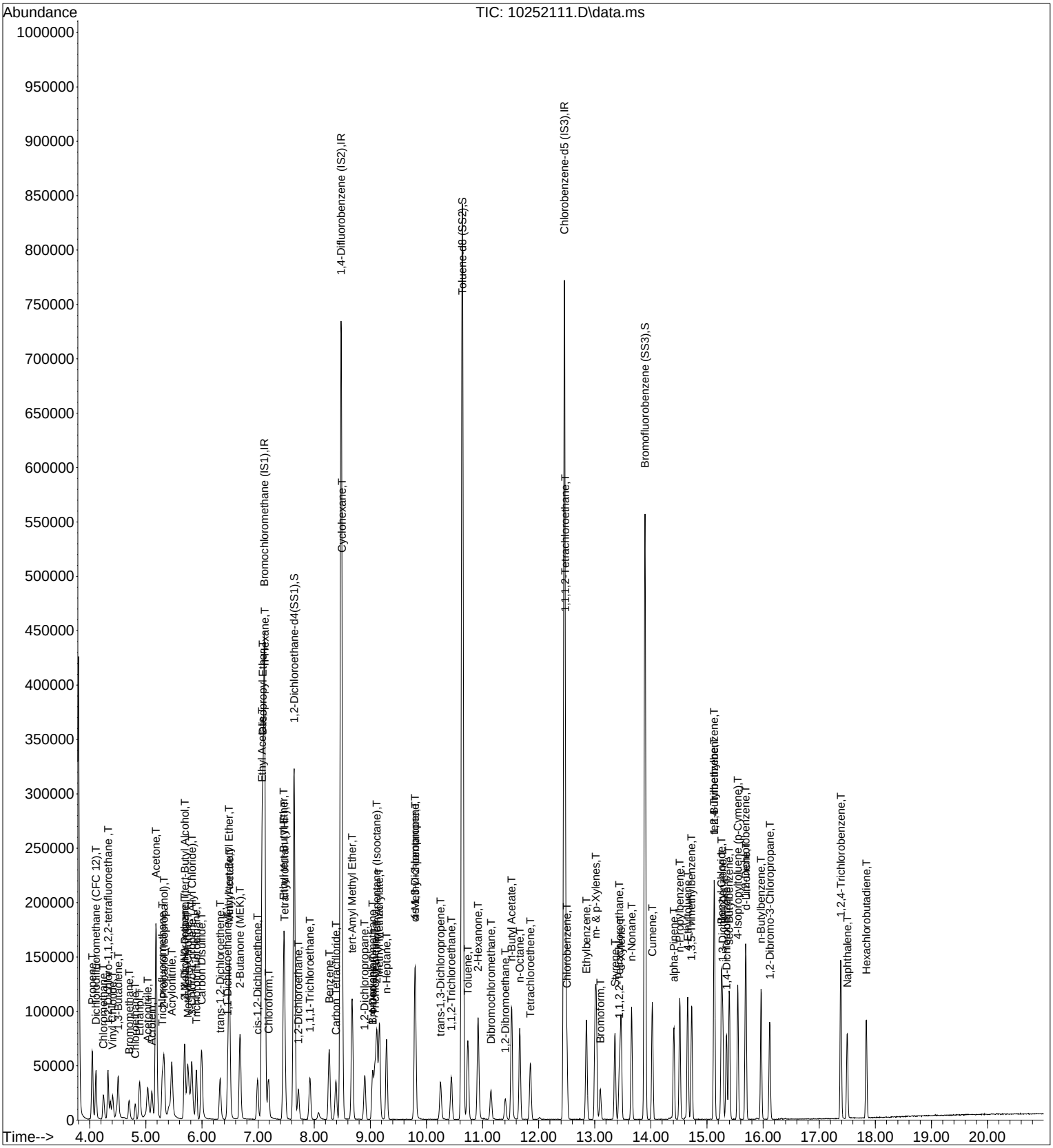
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.29	71	17024	1.342 ng	99
52) cis-1,3-Dichloropropene	9.79	75	25979	1.229 ng	99
53) 4-Methyl-2-pentanone	9.80	58	32004	2.754 ng	98
54) trans-1,3-Dichloropropene	10.25	75	23102	1.090 ng	99
55) 1,1,2-Trichloroethane	10.44	97	15632	1.297 ng	98
58) Toluene	10.74	91	66044	1.337 ng	99
59) 2-Hexanone	10.92	43	92301	3.138 ng	100
60) Dibromochloromethane	11.15	129	19149	1.307 ng	100
61) 1,2-Dibromoethane	11.41	107	17630	1.329 ng	100
62) n-Butyl Acetate	11.52	43	102938	3.247 ng	100
63) n-Octane	11.66	57	16354	1.556 ng	97
64) Tetrachloroethene	11.85	166	18971	1.288 ng	99
65) Chlorobenzene	12.50	112	43589	1.285 ng	99
66) Ethylbenzene	12.85	91	76666	1.318 ng	99
67) m- & p-Xylenes	13.02	91	119412	2.557 ng	100
68) Bromoform	13.10	173	15794	1.234 ng	99
69) Styrene	13.36	104	43265	1.244 ng	98
70) o-Xylene	13.47	91	61117	1.288 ng	99
71) n-Nonane	13.66	43	45368	1.709 ng	99
72) 1,1,2,2-Tetrachloroethane	13.43	83	27806	1.439 ng	99
74) Cumene	14.03	105	77379	1.296 ng	100
75) alpha-Pinene	14.41	93	35245	1.250 ng	98
76) n-Propylbenzene	14.51	91	95648	1.362 ng	100
77) 3-Ethyltoluene	13.89	105	224	No Calib #	
78) 4-Ethyltoluene	14.66	105	76310	1.306 ng	100
79) 1,3,5-Trimethylbenzene	14.72	105	63699	1.274 ng	99
80) alpha-Methylstyrene	13.89	118	777	No Calib #	
81) 2-Ethyltoluene	14.03	105	77379	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	63850	1.218 ng	96
83) n-Decane	14.50	58	145	No Calib #	
84) Benzyl Chloride	15.26	91	98292	2.253 ng	99
85) 1,3-Dichlorobenzene	15.28	146	36252	1.217 ng	99
86) 1,4-Dichlorobenzene	15.35	146	35608	1.214 ng	100
87) sec-Butylbenzene	15.39	105	87075	1.321 ng	100
88) 4-Isopropyltoluene (p-...	15.55	119	76202	1.255 ng	98
89) 1,2,3-Trimethylbenzene	14.41	105	3958	No Calib #	
90) 1,2-Dichlorobenzene	15.69	146	35867	1.264 ng	98
91) d-Limonene	15.69	68	21135	1.146 ng	94
92) 1,2-Dibromo-3-Chloropr...	16.12	157	25371	2.393 ng	98
93) n-Undecane	15.13	58	4709	No Calib	
94) 1,2,4-Trichlorobenzene	17.39	180	50057	2.150 ng	100
95) Naphthalene	17.50	128	67279	1.108 ng	99
96) n-Dodecane	15.55	57	1789	No Calib #	
97) Hexachlorobutadiene	17.84	225	19196	1.115 ng	99
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	15.13	119	64800	1.244 ng	100
100) n-Butylbenzene	15.96	91	70426	1.312 ng	99
101) 1,1,1,2-Tetrachloroethane	12.48	131	16070	1.238 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252111.D Vial: 6
Acq On : 25 Oct 2021 20:21 Operator: SC
Sample : 1.0ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:51:31 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252112.D Vial: 6
Acq On : 25 Oct 2021 20:52 Operator: SC
Sample : 5.0ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:48:58 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/26/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.13	130	137583	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	8.49	114	607232	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	12.46	54	132120	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	7.65	65	265956	11.007	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.08%			
57) Toluene-d8 (SS2)	10.65	98	730413	13.407	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.28%			
73) Bromofluorobenzene (SS3)	13.89	174	188689	9.984	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.84%			

Target Compounds							Qvalue
2) Propene	4.03	42	113543	6.842	ng		99
3) Dichlorodifluoromethan...	4.11	85	144315	4.848	ng		99
4) Chloromethane	4.24	50	116660	6.228	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.32	135	66972	5.401	ng		99
6) Vinyl Chloride	4.41	62	98020	5.869	ng		99
7) 1,3-Butadiene	4.50	54	69504	5.055	ng		92
8) Bromomethane	4.70	94	39602	4.186	ng		99
9) Chloroethane	4.81	64	50553	6.040	ng		100
10) Ethanol	4.91	45	267807	24.170	ng		100
11) Acetonitrile	5.05	41	179179	6.793	ng		99
12) Acrolein	5.12	56	101416	12.729	ng		100
13) Acetone	5.19	58	289682	28.655	ng		99
14) Trichlorofluoromethane	5.29	101	134152	4.861	ng		100
15) 2-Propanol (Isopropanol)	5.35	45	465348	12.143	ng		97
16) Acrylonitrile	5.48	53	225310	13.341	ng		97
17) 1,1-Dichloroethene	5.69	96	66699	5.604	ng		98
18) 2-Methyl-2-Propanol (t...	5.72	59	379025	10.503	ng		97
19) Methylene Chloride	5.76	84	68754	5.388	ng		90
20) 3-Chloro-1-propene (Al...	5.83	41	180125	7.148	ng		95
21) Trichlorotrifluoroethane	5.91	151	61471	5.353	ng		100
22) Carbon Disulfide	5.99	76	490772	10.980	ng		100
23) trans-1,2-Dichloroethene	6.34	61	112757	5.801	ng		99
24) 1,1-Dichloroethane	6.47	63	134212	5.519	ng		100
25) Methyl tert-Butyl Ether	6.48	73	222836	5.119	ng		100
26) Vinyl Acetate	6.51	86	52841	18.637	ng	#	96
27) 2-Butanone (MEK)	6.69	72	94113	10.770	ng		99
28) cis-1,2-Dichloroethene	7.01	61	108609	5.586	ng		97
29) Diisopropyl Ether	7.09	87	117132	10.787	ng	#	89
30) Ethyl Acetate	7.08	61	115308	24.137	ng		96
31) n-Hexane	7.13	57	140504	6.160	ng		100
32) Chloroform	7.21	83	125597	5.095	ng		100
34) Tetrahydrofuran (THF)	7.48	72	85061	9.988	ng		97
35) Ethyl tert-Butyl Ether	7.46	87	171257	10.026	ng		96
36) 1,2-Dichloroethane	7.73	62	109782	4.768	ng		99
38) 1,1,1-Trichloroethane	7.93	97	121355	4.884	ng		99
39) Isopropyl Acetate	8.28	61	2182	No Calib		#	
40) 1-Butanol	8.10	56	4680	No Calib		#	
41) Benzene	8.28	78	274108	5.390	ng		99
42) Carbon Tetrachloride	8.40	117	108758	5.052	ng		100
43) Cyclohexane	8.50	84	217589	10.294	ng		97
44) tert-Amyl Methyl Ether	8.68	73	392498	10.013	ng		99
45) 1,2-Dichloropropane	8.91	63	75611	6.191	ng		100
46) Bromodichloromethane	9.05	83	106912	5.322	ng		100
47) Trichloroethene	9.09	130	73527	5.452	ng		100
48) 1,4-Dioxane	9.05	88	54506	5.518	ng		99
49) 2,2,4-Trimethylpentane...	9.12	57	356027	6.517	ng		94
50) Methyl Methacrylate	9.17	100	59060	11.353	ng		98

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252112.D Vial: 6
Acq On : 25 Oct 2021 20:52 Operator: SC
Sample : 5.0ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:48:58 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

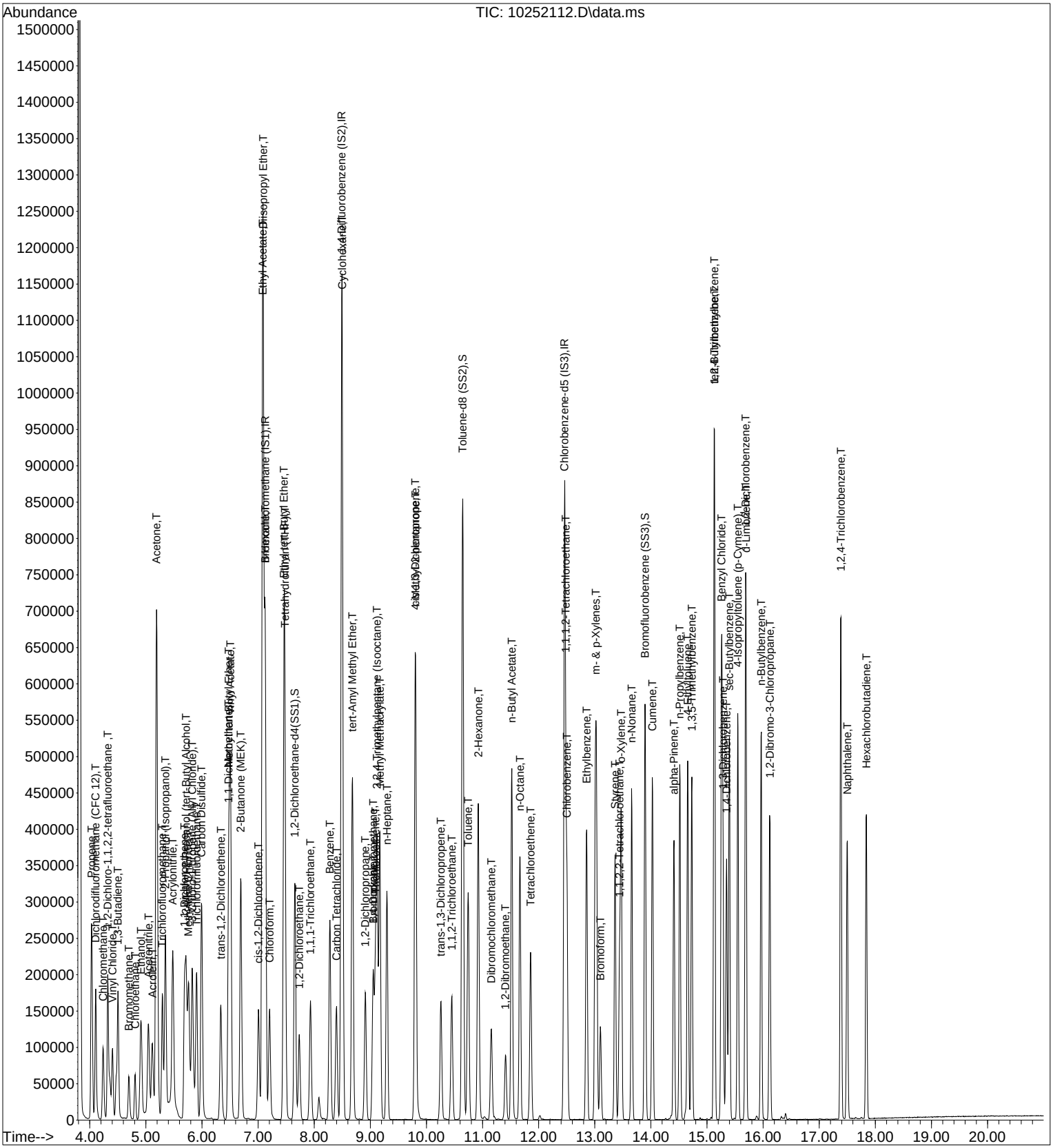
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.30	71	73409	5.765 ng	100
52) cis-1,3-Dichloropropene	9.80	75	117103	5.521 ng	100
53) 4-Methyl-2-pentanone	9.81	58	146273	12.540 ng	100
54) trans-1,3-Dichloropropene	10.25	75	109098	5.127 ng	99
55) 1,1,2-Trichloroethane	10.45	97	68442	5.657 ng	100
58) Toluene	10.74	91	288740	5.689 ng	100
59) 2-Hexanone	10.92	43	419312	13.874 ng	100
60) Dibromochloromethane	11.16	129	87136	5.790 ng	100
61) 1,2-Dibromoethane	11.41	107	79561	5.838 ng	100
62) n-Butyl Acetate	11.52	43	470370	14.439 ng	100
63) n-Octane	11.67	57	73085	6.769 ng	99
64) Tetrachloroethene	11.86	166	82299	5.438 ng	99
65) Chlorobenzene	12.50	112	190105	5.456 ng	100
66) Ethylbenzene	12.86	91	339342	5.676 ng	100
67) m- & p-Xylenes	13.02	91	527728	10.997 ng	99
68) Bromoform	13.10	173	73707	5.606 ng	99
69) Styrene	13.36	104	197579	5.531 ng	99
70) o-Xylene	13.47	91	271029	5.559 ng	99
71) n-Nonane	13.66	43	205252	7.526 ng	100
72) 1,1,2,2-Tetrachloroethane	13.44	83	121441	6.117 ng	100
74) Cumene	14.03	105	344108	5.608 ng	100
75) alpha-Pinene	14.41	93	159884	5.518 ng	99
76) n-Propylbenzene	14.51	91	424469	5.883 ng	100
77) 3-Ethyltoluene	13.90	105	212	No Calib #	
78) 4-Ethyltoluene	14.66	105	344218	5.732 ng	100
79) 1,3,5-Trimethylbenzene	14.73	105	281033	5.469 ng	99
80) alpha-Methylstyrene	13.89	118	843	No Calib #	
81) 2-Ethyltoluene	14.03	105	344108	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	289191	5.369 ng	98
83) n-Decane	14.41	58	1217	No Calib #	
84) Benzyl Chloride	15.26	91	481808	10.748 ng	100
85) 1,3-Dichlorobenzene	15.29	146	161142	5.267 ng	100
86) 1,4-Dichlorobenzene	15.35	146	159660	5.299 ng	100
87) sec-Butylbenzene	15.40	105	387390	5.718 ng	99
88) 4-Isopropyltoluene (p-...	15.55	119	343645	5.508 ng	99
89) 1,2,3-Trimethylbenzene	14.41	105	18067	No Calib	
90) 1,2-Dichlorobenzene	15.69	146	159566	5.474 ng	99
91) d-Limonene	15.69	68	104426	5.513 ng	99
92) 1,2-Dibromo-3-Chloropr...	16.12	157	121124	11.118 ng	99
93) n-Undecane	15.13	58	15260	No Calib	
94) 1,2,4-Trichlorobenzene	17.39	180	235158	9.832 ng	99
95) Naphthalene	17.50	128	321883	5.161 ng	99
96) n-Dodecane	15.69	57	224	No Calib #	
97) Hexachlorobutadiene	17.84	225	88151	4.985 ng	99
98) Cyclohexanone	13.02	55	458	No Calib #	
99) tert-Butylbenzene	15.13	119	288644	5.392 ng	100
100) n-Butylbenzene	15.97	91	320953	5.820 ng	99
101) 1,1,1,2-Tetrachloroethane	12.48	131	72205	5.412 ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252112.D Vial: 6
Acq On : 25 Oct 2021 20:52 Operator: SC
Sample : 5.0ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10142101 (11/12)

Quant Time: Oct 26 08:48:58 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252113.D Vial: 7
Acq On : 25 Oct 2021 21:23 Operator: SC
Sample : 25ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 08:47:26 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/26/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.15	130	138360	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	8.50	114	609832	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	12.46	54	138785	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	7.67	65	274786	11.308	ng	0.00
Spiked Amount 12.500 Range 70 - 130 Recovery = 90.48%						
57) Toluene-d8 (SS2)	10.65	98	756491	13.219	ng	0.00
Spiked Amount 12.500 Range 70 - 130 Recovery = 105.76%						
73) Bromofluorobenzene (SS3)	13.90	174	195308	9.838	ng	0.00
Spiked Amount 12.500 Range 70 - 130 Recovery = 78.72%						

Target Compounds						Qvalue
2) Propene	4.02	42	568013	34.036	ng	100
3) Dichlorodifluoromethan...	4.09	85	747354	24.966	ng	100
4) Chloromethane	4.23	50	644440	34.212	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.32	135	347405	27.859	ng	100
6) Vinyl Chloride	4.40	62	507482	30.217	ng	100
7) 1,3-Butadiene	4.50	54	374772	27.102	ng	100
8) Bromomethane	4.70	94	261832	27.521	ng	100
9) Chloroethane	4.82	64	263091	31.255	ng	100
10) Ethanol	4.95	45	1361587	122.197	ng	100
11) Acetonitrile	5.07	41	912812	34.410	ng	100
12) Acrolein	5.13	56	513756	64.122	ng	100
13) Acetone	5.21	58	1468235	144.419	ng	100
14) Trichlorofluoromethane	5.30	101	687438	24.770	ng	100
15) 2-Propanol (Isopropanol)	5.38	45	2534538	65.765	ng	100
16) Acrylonitrile	5.51	53	1142881	67.290	ng	100
17) 1,1-Dichloroethene	5.70	96	343438	28.695	ng	100
18) 2-Methyl-2-Propanol (t...	5.75	59	2172501	59.863	ng	100
19) Methylene Chloride	5.78	84	352764	27.492	ng	100
20) 3-Chloro-1-propene (Al...	5.84	41	880613	34.750	ng	100
21) Trichlorotrifluoroethane	5.91	151	318531	27.581	ng	100
22) Carbon Disulfide	6.00	76	2520621	56.077	ng	100
23) trans-1,2-Dichloroethene	6.35	61	598154	30.602	ng	100
24) 1,1-Dichloroethane	6.50	63	699236	28.592	ng	100
25) Methyl tert-Butyl Ether	6.49	73	1179219	26.935	ng	100
26) Vinyl Acetate	6.53	86	276796	97.077	ng	100
27) 2-Butanone (MEK)	6.71	72	494909	56.318	ng	100
28) cis-1,2-Dichloroethene	7.02	61	585655	29.952	ng	100
29) Diisopropyl Ether	7.10	87	577662	52.901	ng	100
30) Ethyl Acetate	7.10	61	571686	118.995	ng	100
31) n-Hexane	7.13	57	722393	31.492	ng	100
32) Chloroform	7.22	83	660881	26.658	ng	100
34) Tetrahydrofuran (THF)	7.49	72	444055	51.851	ng	100
35) Ethyl tert-Butyl Ether	7.47	87	897979	52.278	ng	100
36) 1,2-Dichloroethane	7.75	62	576824	24.912	ng	100
38) 1,1,1-Trichloroethane	7.95	97	636326	25.502	ng	100
39) Isopropyl Acetate	8.29	61	11881	No Calib	#	
40) 1-Butanol	8.11	56	19908	No Calib		
41) Benzene	8.29	78	1421766	27.837	ng	100
42) Carbon Tetrachloride	8.41	117	577439	26.708	ng	100
43) Cyclohexane	8.51	84	1110164	52.297	ng	100
44) tert-Amyl Methyl Ether	8.69	73	2135684	54.251	ng	100
45) 1,2-Dichloropropane	8.93	63	394879	32.196	ng	100
46) Bromodichloromethane	9.06	83	564055	27.959	ng	100
47) Trichloroethene	9.10	130	375637	27.732	ng	100
48) 1,4-Dioxane	9.06	88	297208	29.959	ng	100
49) 2,2,4-Trimethylpentane...	9.13	57	1873800	34.154	ng	100
50) Methyl Methacrylate	9.18	100	311491	59.625	ng	100

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252113.D Vial: 7
Acq On : 25 Oct 2021 21:23 Operator: SC
Sample : 25ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 08:47:26 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

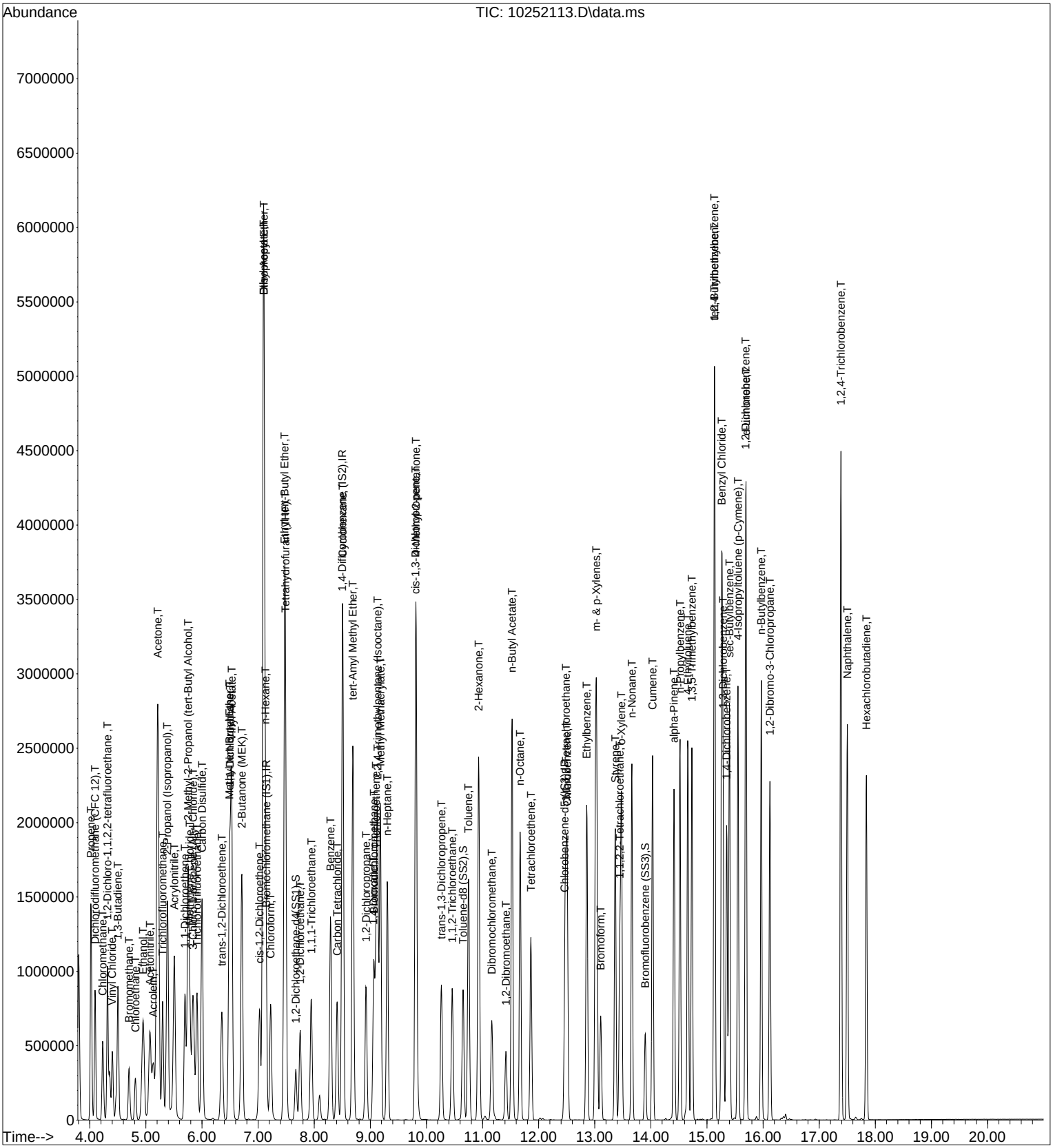
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.30	71	385575	30.150 ng	100
52) cis-1,3-Dichloropropene	9.81	75	616370	28.935 ng	100
53) 4-Methyl-2-pentanone	9.81	58	806768	68.868 ng	100
54) trans-1,3-Dichloropropene	10.27	75	596959	27.935 ng	100
55) 1,1,2-Trichloroethane	10.46	97	357341	29.411 ng	100
58) Toluene	10.75	91	1506889	28.264 ng	100
59) 2-Hexanone	10.93	43	2374669	74.798 ng	100
60) Dibromochloromethane	11.16	129	466411	29.502 ng	100
61) 1,2-Dibromoethane	11.42	107	421066	29.415 ng	100
62) n-Butyl Acetate	11.53	43	2650426	77.455 ng	100
63) n-Octane	11.67	57	388377	34.243 ng	100
64) Tetrachloroethene	11.86	166	434648	27.343 ng	100
65) Chlorobenzene	12.51	112	999023	27.295 ng	100
66) Ethylbenzene	12.86	91	1783886	28.406 ng	100
67) m- & p-Xylenes	13.03	91	2764788	54.849 ng	100
68) Bromoform	13.11	173	413459	29.938 ng	100
69) Styrene	13.37	104	1088001	28.996 ng	100
70) o-Xylene	13.47	91	1429309	27.911 ng	100
71) n-Nonane	13.66	43	1090349	38.062 ng	100
72) 1,1,2,2-Tetrachloroethane	13.45	83	636341	30.515 ng	100
74) Cumene	14.03	105	1784164	27.678 ng	100
75) alpha-Pinene	14.41	93	913191	30.004 ng	100
76) n-Propylbenzene	14.52	91	2207867	29.130 ng	100
77) 3-Ethyltoluene	13.89	105	628	No Calib #	
78) 4-Ethyltoluene	14.66	105	1807532	28.653 ng	100
79) 1,3,5-Trimethylbenzene	14.73	105	1488934	27.585 ng	100
80) alpha-Methylstyrene	13.90	118	873	No Calib #	
81) 2-Ethyltoluene	14.03	105	1784164	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	1529057	27.022 ng	100
83) n-Decane	14.41	58	6801	No Calib #	
84) Benzyl Chloride	15.26	91	2735849	58.100 ng	100
85) 1,3-Dichlorobenzene	15.29	146	872388	27.144 ng	100
86) 1,4-Dichlorobenzene	15.35	146	872484	27.567 ng	100
87) sec-Butylbenzene	15.40	105	1992557	28.000 ng	100
88) 4-Isopropyltoluene (p-...	15.55	119	1771006	27.020 ng	100
89) 1,2,3-Trimethylbenzene	14.41	105	101753	No Calib	
90) 1,2-Dichlorobenzene	15.69	146	834036	27.238 ng	100
91) d-Limonene	15.69	68	641387	32.236 ng	100
92) 1,2-Dibromo-3-Chloropr...	16.12	157	641976	56.099 ng	100
93) n-Undecane	15.13	58	82921	No Calib	
94) 1,2,4-Trichlorobenzene	17.39	180	1469365	58.482 ng	100
95) Naphthalene	17.50	128	2135690	32.599 ng	100
96) n-Dodecane	15.67	57	100	No Calib #	
97) Hexachlorobutadiene	17.84	225	479839	25.832 ng	100
98) Cyclohexanone	13.03	55	2919	No Calib	
99) tert-Butylbenzene	15.13	119	1469460	26.130 ng	100
100) n-Butylbenzene	15.97	91	1704723	29.429 ng	100
101) 1,1,1,2-Tetrachloroethane	12.49	131	383541	27.368 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252113.D Vial: 7
Acq On : 25 Oct 2021 21:23 Operator: SC
Sample : 25ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 08:47:26 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252114.D Vial: 7
Acq On : 25 Oct 2021 21:54 Operator: SC
Sample : 50ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 08:58:52 2021 10/26/21
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.16	130	145507	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	8.51	114	623538	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	12.47	54	147724	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.68	65	287995	11.270	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.16%				
57) Toluene-d8 (SS2)	10.66	98	800626	13.143	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.12%				
73) Bromofluorobenzene (SS3)	13.90	174	207174	9.804	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.40%				
Target Compounds							Qvalue
2) Propene	4.03	42	1220603	69.548	ng		99
3) Dichlorodifluoromethan...	4.11	85	1488240	47.273	ng		100
4) Chloromethane	4.24	50	1204009	60.779	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.33	135	682499	52.043	ng		100
6) Vinyl Chloride	4.41	62	972370	55.054	ng		100
7) 1,3-Butadiene	4.51	54	774029	53.225	ng	#	87
8) Bromomethane	4.71	94	442694	44.245	ng		100
9) Chloroethane	4.83	64	524764	59.280	ng		99
10) Ethanol	4.97	45	2737103	233.578	ng		99
11) Acetonitrile	5.09	41	1889679	67.736	ng		93
12) Acrolein	5.15	56	1037383	123.117	ng		99
13) Acetone	5.23	58	2885837	269.914	ng		100
14) Trichlorofluoromethane	5.31	101	1384587	47.439	ng		100
15) 2-Propanol (Isopropanol)	5.41	45	4805069	118.556	ng		100
16) Acrylonitrile	5.52	53	2313406	129.518	ng		100
17) 1,1-Dichloroethene	5.71	96	692780	55.041	ng		99
18) 2-Methyl-2-Propanol (t...	5.77	59	3829423	100.336	ng		97
19) Methylene Chloride	5.80	84	708974	52.538	ng		99
20) 3-Chloro-1-propene (Al...	5.85	41	1681255	63.086	ng		97
21) Trichlorotrifluoroethane	5.92	151	644624	53.075	ng		99
22) Carbon Disulfide	6.01	76	4994354	105.653	ng		100
23) trans-1,2-Dichloroethene	6.37	61	1218989	59.302	ng		100
24) 1,1-Dichloroethane	6.51	63	1395348	54.255	ng		100
25) Methyl tert-Butyl Ether	6.50	73	2282333	49.571	ng		100
26) Vinyl Acetate	6.54	86	541254	180.502	ng		98
27) 2-Butanone (MEK)	6.72	72	987848	106.890	ng		100
28) cis-1,2-Dichloroethene	7.04	61	1192214	57.979	ng		99
29) Diisopropyl Ether	7.11	87	1087615	94.709	ng		98
30) Ethyl Acetate	7.11	61	1074282	212.626	ng		98
31) n-Hexane	7.14	57	1409389	58.423	ng		100
32) Chloroform	7.24	83	1324169	50.789	ng		100
34) Tetrahydrofuran (THF)	7.50	72	866060	96.161	ng		98
35) Ethyl tert-Butyl Ether	7.48	87	1753286	97.059	ng		98
36) 1,2-Dichloroethane	7.76	62	1159882	47.632	ng		100
38) 1,1,1-Trichloroethane	7.96	97	1280176	50.178	ng		100
39) Isopropyl Acetate	8.30	61	23956	No Calib		#	
40) 1-Butanol	8.11	56	41740	No Calib			
41) Benzene	8.30	78	2839850	54.380	ng		100
42) Carbon Tetrachloride	8.42	117	1164469	52.676	ng		100
43) Cyclohexane	8.52	84	2168638	99.914	ng		99
44) tert-Amyl Methyl Ether	8.70	73	4225251	104.972	ng		99
45) 1,2-Dichloropropane	8.93	63	795623	63.444	ng		100
46) Bromodichloromethane	9.07	83	1134993	55.022	ng		100
47) Trichloroethene	9.11	130	737331	53.238	ng		100
48) 1,4-Dioxane	9.07	88	597183	58.874	ng		97
49) 2,2,4-Trimethylpentane...	9.14	57	3740652	66.683	ng		99
50) Methyl Methacrylate	9.19	100	614743	115.086	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252114.D Vial: 7
Acq On : 25 Oct 2021 21:54 Operator: SC
Sample : 50ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 08:58:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

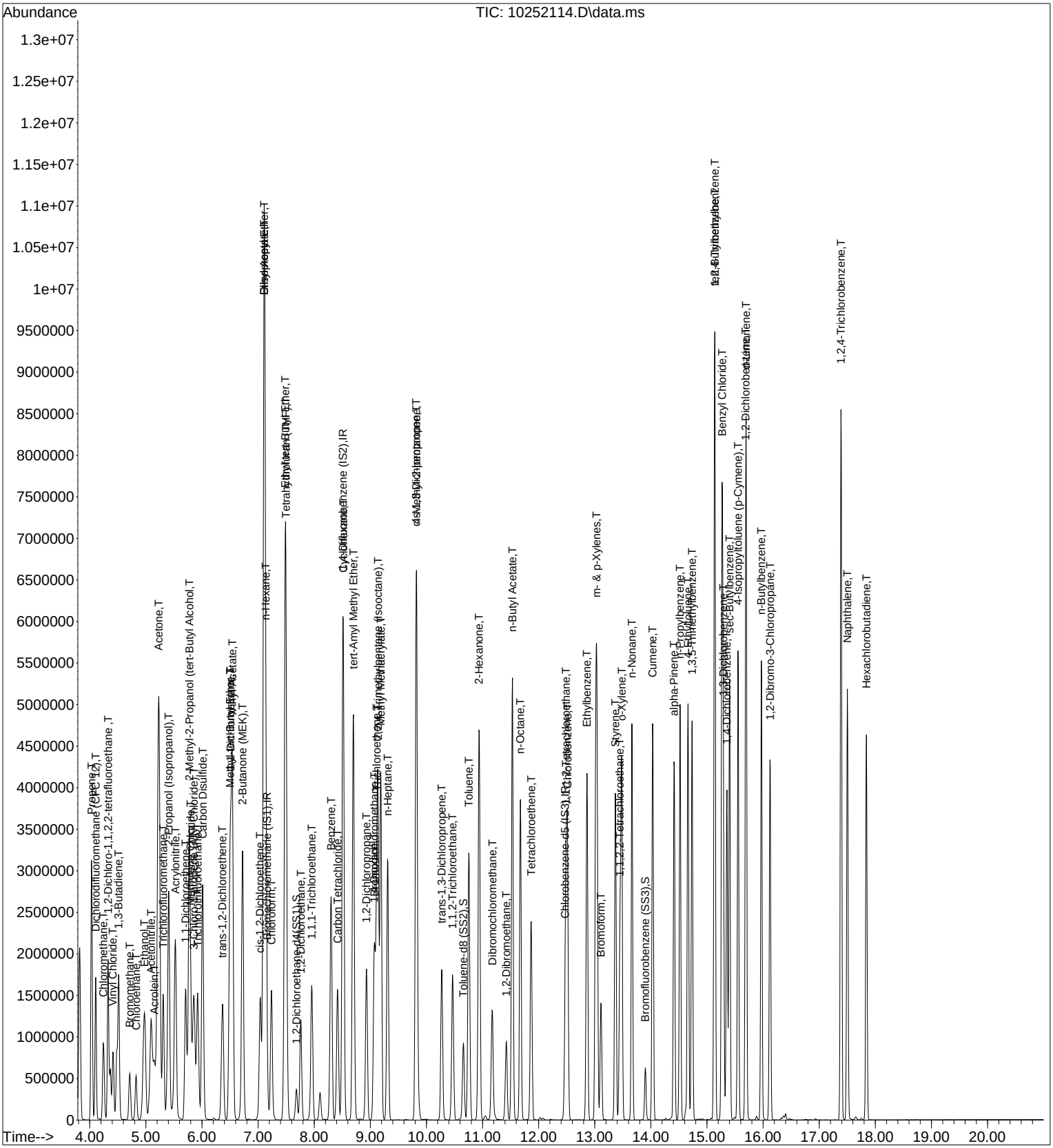
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.31	71	766490	58.618 ng	99
52) cis-1,3-Dichloropropene	9.82	75	1216279	55.842 ng	100
53) 4-Methyl-2-pentanone	9.82	58	1598594	133.460 ng	100
54) trans-1,3-Dichloropropene	10.27	75	1207801	55.276 ng	100
55) 1,1,2-Trichloroethane	10.46	97	713051	57.398 ng	99
58) Toluene	10.75	91	2987649	52.647 ng	99
59) 2-Hexanone	10.94	43	4716696	139.578 ng	100
60) Dibromochloromethane	11.17	129	940015	55.860 ng	100
61) 1,2-Dibromoethane	11.42	107	846682	55.569 ng	100
62) n-Butyl Acetate	11.53	43	5262249	144.477 ng	100
63) n-Octane	11.67	57	776892	64.354 ng	99
64) Tetrachloroethene	11.87	166	876094	51.778 ng	99
65) Chlorobenzene	12.51	112	1958209	50.264 ng	100
66) Ethylbenzene	12.86	91	3505955	52.449 ng	100
67) m- & p-Xylenes	13.03	91	5392735	100.510 ng	99
68) Bromoform	13.11	173	844008	57.415 ng	100
69) Styrene	13.37	104	2139260	53.562 ng	99
70) o-Xylene	13.48	91	2805540	51.469 ng	100
71) n-Nonane	13.66	43	2161563	70.890 ng	100
72) 1,1,2,2-Tetrachloroethane	13.45	83	1256720	56.618 ng	100
74) Cumene	14.03	105	3464527	50.494 ng	100
75) alpha-Pinene	14.41	93	1804985	55.716 ng	99
76) n-Propylbenzene	14.52	91	4273670	52.975 ng	99
77) 3-Ethyltoluene	13.90	105	2279	No Calib #	
78) 4-Ethyltoluene	14.66	105	3491247	51.994 ng	100
79) 1,3,5-Trimethylbenzene	14.73	105	2910868	50.665 ng	99
80) alpha-Methylstyrene	13.90	118	846	No Calib #	
81) 2-Ethyltoluene	14.03	105	3464527	No Calib	
82) 1,2,4-Trimethylbenzene	15.14	105	2916391	48.421 ng	100
83) n-Decane	14.42	58	11765	No Calib #	
84) Benzyl Chloride	15.27	91	5313807	106.018 ng	100
85) 1,3-Dichlorobenzene	15.29	146	1714825	50.127 ng	100
86) 1,4-Dichlorobenzene	15.35	146	1699331	50.442 ng	100
87) sec-Butylbenzene	15.40	105	3789598	50.030 ng	99
88) 4-Isopropyltoluene (p-...	15.55	119	3367899	48.275 ng	99
89) 1,2,3-Trimethylbenzene	14.41	105	200769	No Calib	
90) 1,2-Dichlorobenzene	15.69	146	1607991	49.335 ng	99
91) d-Limonene	15.69	68	1258537	59.426 ng	99
92) 1,2-Dibromo-3-Chloropr...	16.13	157	1254248	102.971 ng	99
93) n-Undecane	15.13	58	154917	No Calib	
94) 1,2,4-Trichlorobenzene	17.39	180	2901392	108.489 ng	100
95) Naphthalene	17.50	128	4116093	59.027 ng	99
96) n-Dodecane	15.68	57	409	No Calib #	
97) Hexachlorobutadiene	17.84	225	947867	47.940 ng	100
98) Cyclohexanone	13.03	55	5705	No Calib #	
99) tert-Butylbenzene	15.14	119	2775639	46.370 ng	100
100) n-Butylbenzene	15.97	91	3266598	52.979 ng	99
101) 1,1,1,2-Tetrachloroethane	12.49	131	758437	50.845 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252114.D Vial: 7
Acq On : 25 Oct 2021 21:54 Operator: SC
Sample : 50ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 08:58:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252115.D Vial: 7
Acq On : 25 Oct 2021 22:24 Operator: SC
Sample : 100ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 09:00:00 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/26/21

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.18	130	147725	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	8.52	114	613591	12.500	ng		0.02
56) Chlorobenzene-d5 (IS3)	12.48	54	157016	12.500	ng		0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.69	65	299848	11.558	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.48%				
57) Toluene-d8 (SS2)	10.66	98	830345	12.825	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.56%				
73) Bromofluorobenzene (SS3)	13.91	174	216422	9.636	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 77.12%				
Target Compounds							Qvalue
2) Propene	4.03	42	2894260	162.433	ng		99
3) Dichlorodifluoromethan...	4.11	85	2945158	92.147	ng		99
4) Chloromethane	4.24	50	1746929	86.862	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.33	135	1372478	103.085	ng		100
6) Vinyl Chloride	4.42	62	1930079	107.637	ng		100
7) 1,3-Butadiene	4.52	54	1558086	105.530	ng	#	75
8) Bromomethane	4.71	94	818807	80.607	ng		99
9) Chloroethane	4.83	64	1046655	116.461	ng		100
10) Ethanol	5.00	45	5422483	455.794	ng		99
11) Acetonitrile	5.11	41	4314396	152.327	ng		97
12) Acrolein	5.16	56	2068801	241.839	ng		99
13) Acetone	5.24	58	5511561	507.760	ng		98
14) Trichlorofluoromethane	5.31	101	2754226	92.950	ng		100
15) 2-Propanol (Isopropanol)	5.43	45	7893511	191.833	ng		100
16) Acrylonitrile	5.54	53	4628842	255.258	ng		99
17) 1,1-Dichloroethene	5.71	96	1382317	108.176	ng		98
18) 2-Methyl-2-Propanol (t...	5.79	59	5075161	130.979	ng		94
19) Methylene Chloride	5.81	84	1386959	101.236	ng		93
20) 3-Chloro-1-propene (Al...	5.87	41	3296840	121.850	ng		96
21) Trichlorotrifluoroethane	5.93	151	1291501	104.740	ng		98
22) Carbon Disulfide	6.01	76	9476624	197.463	ng		99
23) trans-1,2-Dichloroethene	6.38	61	2458419	117.802	ng		99
24) 1,1-Dichloroethane	6.52	63	2715294	103.992	ng		100
25) Methyl tert-Butyl Ether	6.51	73	3831993	81.979	ng		99
26) Vinyl Acetate	6.55	86	1022102	335.742	ng		97
27) 2-Butanone (MEK)	6.73	72	1913438	203.935	ng		100
28) cis-1,2-Dichloroethene	7.05	61	2439385	116.849	ng		96
29) Diisopropyl Ether	7.11	87	2043784	175.301	ng	#	77
30) Ethyl Acetate	7.12	61	1887484	367.969	ng		92
31) n-Hexane	7.14	57	2559164	104.492	ng		99
32) Chloroform	7.25	83	2619192	98.951	ng		100
34) Tetrahydrofuran (THF)	7.51	72	1622697	177.467	ng		97
35) Ethyl tert-Butyl Ether	7.49	87	3315898	180.806	ng		97
36) 1,2-Dichloroethane	7.77	62	2312065	93.522	ng		100
38) 1,1,1-Trichloroethane	7.97	97	2535139	100.979	ng		100
39) Isopropyl Acetate	8.31	61	48382	No Calib		#	
40) 1-Butanol	8.13	56	84103	No Calib			
41) Benzene	8.31	78	5560029	108.195	ng		99
42) Carbon Tetrachloride	8.42	117	2320010	106.649	ng		99
43) Cyclohexane	8.52	84	4061073	190.135	ng		97
44) tert-Amyl Methyl Ether	8.70	73	8095703	204.389	ng		97
45) 1,2-Dichloropropane	8.94	63	1574712	127.606	ng		99
46) Bromodichloromethane	9.09	83	2239941	110.347	ng		100
47) Trichloroethene	9.12	130	1400867	102.788	ng		99
48) 1,4-Dioxane	9.07	88	1155084	115.721	ng		94
49) 2,2,4-Trimethylpentane...	9.14	57	7236533	131.093	ng		99
50) Methyl Methacrylate	9.19	100	1176865	223.892	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252115.D Vial: 7
Acq On : 25 Oct 2021 22:24 Operator: SC
Sample : 100ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 09:00:00 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

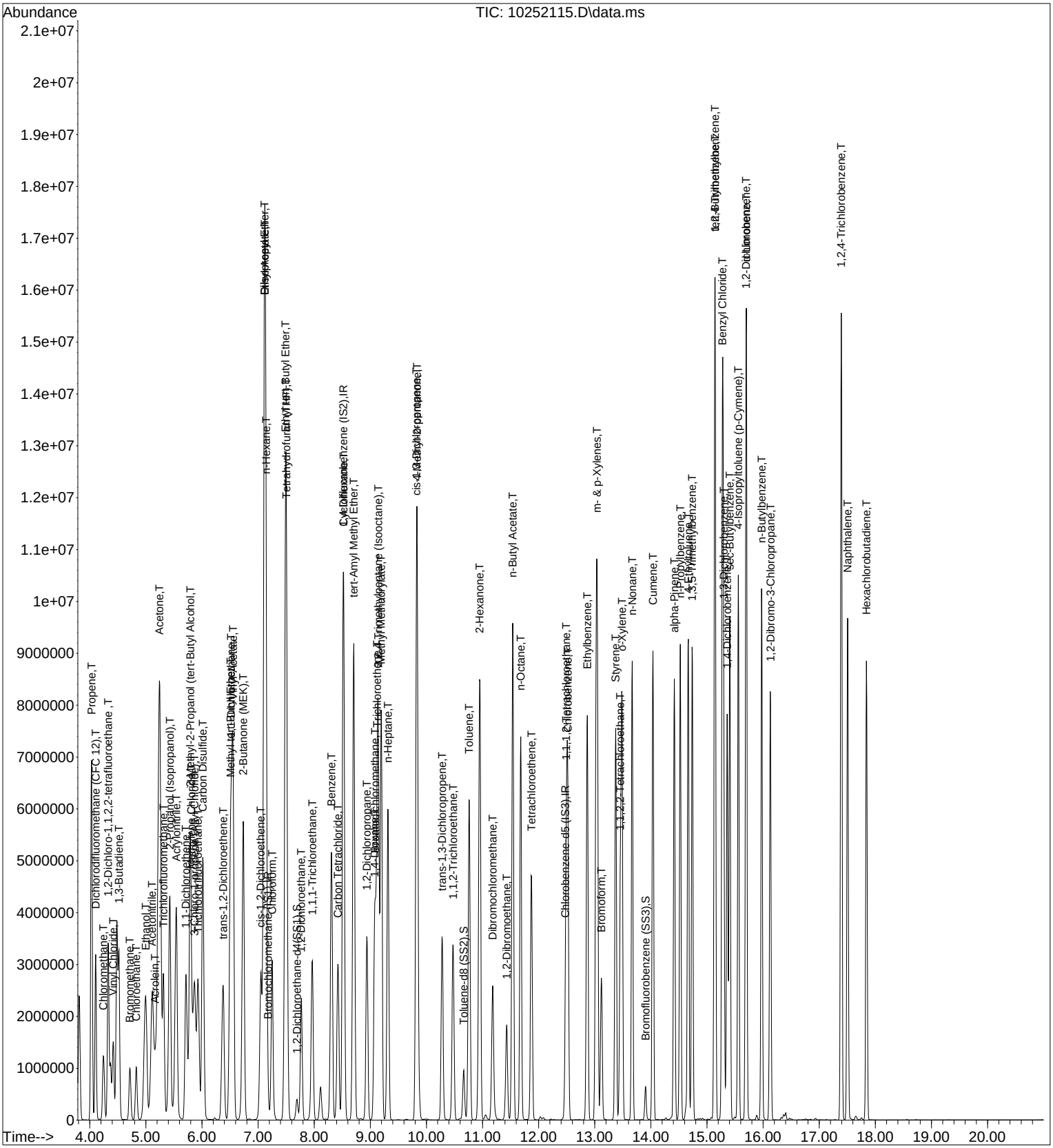
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.31	71	1482899	115.245 ng	98
52) cis-1,3-Dichloropropene	9.82	75	2325263	108.489 ng	99
53) 4-Methyl-2-pentanone	9.83	58	3034844	257.474 ng	99
54) trans-1,3-Dichloropropene	10.28	75	2409141	112.045 ng	100
55) 1,1,2-Trichloroethane	10.48	97	1401324	114.631 ng	99
58) Toluene	10.76	91	5764874	95.574 ng	99
59) 2-Hexanone	10.95	43	9076488	252.700 ng	100
60) Dibromochloromethane	11.18	129	1866338	104.344 ng	100
61) 1,2-Dibromoethane	11.43	107	1676288	103.507 ng	100
62) n-Butyl Acetate	11.54	43	9932223	256.555 ng	99
63) n-Octane	11.68	57	1527917	119.075 ng	97
64) Tetrachloroethene	11.87	166	1762708	98.012 ng	99
65) Chlorobenzene	12.52	112	3741041	90.343 ng	99
66) Ethylbenzene	12.87	91	6699066	94.286 ng	100
67) m- & p-Xylenes	13.04	91	10125072	177.544 ng	99
68) Bromoform	13.12	173	1714140	109.706 ng	100
69) Styrene	13.37	104	4081816	96.152 ng	97
70) o-Xylene	13.49	91	5356821	92.459 ng	99
71) n-Nonane	13.67	43	4186857	129.184 ng	99
72) 1,1,2,2-Tetrachloroethane	13.45	83	2431693	103.070 ng	99
74) Cumene	14.04	105	6469138	88.706 ng	99
75) alpha-Pinene	14.42	93	3460685	100.502 ng	97
76) n-Propylbenzene	14.52	91	7940187	92.599 ng	98
77) 3-Ethyltoluene	13.91	105	1612	No Calib #	
78) 4-Ethyltoluene	14.67	105	6518936	91.339 ng	99
79) 1,3,5-Trimethylbenzene	14.73	105	5474923	89.655 ng	100
80) alpha-Methylstyrene	13.90	118	917	No Calib #	
81) 2-Ethyltoluene	14.04	105	6469138	No Calib	
82) 1,2,4-Trimethylbenzene	15.14	105	5393274	84.246 ng	100
83) n-Decane	14.42	58	23894	No Calib	
84) Benzyl Chloride	15.27	91	9670662	181.525 ng	98
85) 1,3-Dichlorobenzene	15.30	146	3348931	92.101 ng	99
86) 1,4-Dichlorobenzene	15.36	146	3290804	91.902 ng	99
87) sec-Butylbenzene	15.41	105	6957958	86.423 ng	97
88) 4-Isopropyltoluene (p-...	15.56	119	6189289	83.467 ng	96
89) 1,2,3-Trimethylbenzene	14.42	105	397329	No Calib	
90) 1,2-Dichlorobenzene	15.69	146	3089810	89.190 ng	99
91) d-Limonene	15.70	68	2369789	105.276 ng	99
92) 1,2-Dibromo-3-Chloropr...	16.13	157	2446196	188.942 ng	98
93) n-Undecane	15.14	58	288587	No Calib	
94) 1,2,4-Trichlorobenzene	17.39	180	5582475	196.388 ng	99
95) Naphthalene	17.51	128	7624620	102.870 ng	98
96) n-Dodecane	15.75	57	800	No Calib #	
97) Hexachlorobutadiene	17.84	225	1825945	86.885 ng	100
98) Cyclohexanone	13.03	55	11709	No Calib	
99) tert-Butylbenzene	15.14	119	5120575	80.483 ng	98
100) n-Butylbenzene	15.97	91	6059288	92.457 ng	98
101) 1,1,1,2-Tetrachloroethane	12.49	131	1468471	92.619 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252115.D Vial: 7
Acq On : 25 Oct 2021 22:24 Operator: SC
Sample : 100ng TO-15 ICAL STD Inst : MS09
Misc : S34-10072101/S34-10122101 (11/10)

Quant Time: Oct 26 09:00:00 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 08:47:18 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252117.D Vial: 8
Acq On : 25 Oct 2021 23:26 Operator: SC
Sample : 25ng TO-15 ICV STD Inst : MS09
Misc : S34-10072101/S34-10182101 (11/16)

Quant Time: Oct 26 09:03:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 09:02:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/26/21

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.15	130	161525	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	8.51	114	699054	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	12.46	54	153630	12.500	ng	-0.01

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	7.68	65	305626	12.208	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.68%			
57) Toluene-d8 (SS2)	10.65	98	859580	12.695	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%			
73) Bromofluorobenzene (SS3)	13.90	174	221275	12.677	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.44%			

Target Compounds

							Qvalue
2) Propene	4.03	42	661037	22.221	ng		100
3) Dichlorodifluoromethan...	4.10	85	870482	24.476	ng		100
4) Chloromethane	4.24	50	781832	25.864	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.32	135	417138	26.481	ng		100
6) Vinyl Chloride	4.41	62	619862	26.687	ng		100
7) 1,3-Butadiene	4.51	54	457983	26.943	ng		94
8) Bromomethane	4.70	94	340948	26.355	ng		100
9) Chloroethane	4.82	64	323476	25.014	ng		100
10) Ethanol	4.96	45	1974393	98.854	ng		99
11) Acetonitrile	5.08	41	1100782	21.076	ng		100
12) Acrolein	5.14	56	648565	50.835	ng		100
13) Acetone	5.22	58	1791772	118.110	ng		95
14) Trichlorofluoromethane	5.30	101	819743	23.974	ng		100
15) 2-Propanol (Isopropanol)	5.39	45	3135449	51.297	ng		100
16) Acrylonitrile	5.51	53	1367614	49.008	ng		100
17) 1,1-Dichloroethene	5.70	96	415715	25.747	ng		99
18) 2-Methyl-2-Propanol (t...	5.76	59	2648955	56.935	ng		99
19) Methylene Chloride	5.79	84	425129	24.681	ng		98
20) 3-Chloro-1-propene (Al...	5.84	41	971723	21.149	ng		98
21) Trichlorotrifluoroethane	5.91	151	389210	26.067	ng		98
22) Carbon Disulfide	6.00	76	2945043	48.981	ng		100
23) trans-1,2-Dichloroethene	6.35	61	713543	26.167	ng		99
24) 1,1-Dichloroethane	6.50	63	855690	25.818	ng		100
25) Methyl tert-Butyl Ether	6.49	73	1392702	25.973	ng		100
26) Vinyl Acetate	6.53	86	466614	124.432	ng	#	91
27) 2-Butanone (MEK)	6.71	72	592797	51.060	ng		97
28) cis-1,2-Dichloroethene	7.03	61	686313	25.330	ng		98
29) Diisopropyl Ether	7.10	87	703625	50.850	ng	#	59
30) Ethyl Acetate	7.10	61	503381	72.390	ng		100
31) n-Hexane	7.13	57	868612	25.512	ng		100
32) Chloroform	7.23	83	792553	25.772	ng		100
34) Tetrahydrofuran (THF)	7.49	72	557053	50.816	ng		98
35) Ethyl tert-Butyl Ether	7.48	87	1090475	53.343	ng		100
36) 1,2-Dichloroethane	7.75	62	680186	25.187	ng		100
38) 1,1,1-Trichloroethane	7.95	97	760568	25.216	ng		100
39) Isopropyl Acetate	8.30	61	14181	No Calib		#	
40) 1-Butanol	8.11	56	12030	No Calib			
41) Benzene	8.30	78	1738788	24.750	ng		100
42) Carbon Tetrachloride	8.41	117	659686	24.500	ng		100
43) Cyclohexane	8.51	84	1333315	47.843	ng		99
44) tert-Amyl Methyl Ether	8.69	73	2585887	53.286	ng		99
45) 1,2-Dichloropropane	8.93	63	476794	25.167	ng		100
46) Bromodichloromethane	9.07	83	672712	26.090	ng		100
47) Trichloroethene	9.10	130	463466	25.394	ng		100
48) 1,4-Dioxane	9.06	88	361790	27.569	ng		99
49) 2,2,4-Trimethylpentane...	9.13	57	2186509	25.195	ng		96
50) Methyl Methacrylate	9.18	100	376590	55.289	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252117.D Vial: 8
Acq On : 25 Oct 2021 23:26 Operator: SC
Sample : 25ng TO-15 ICV STD Inst : MS09
Misc : S34-10072101/S34-10182101 (11/16)

Quant Time: Oct 26 09:03:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 09:02:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

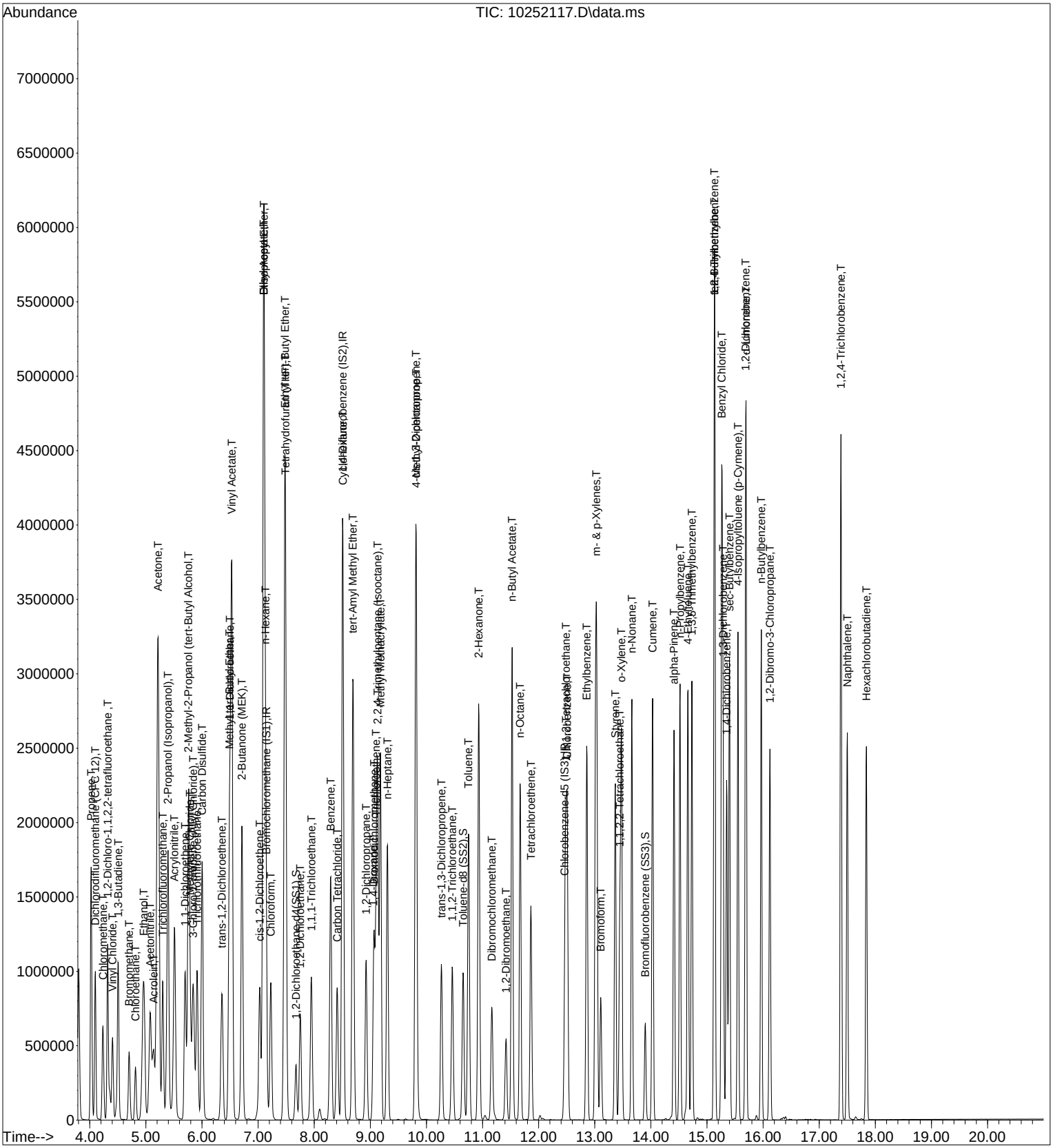
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	9.31	71	455002	25.419 ng	100
52) cis-1,3-Dichloropropene	9.81	75	736637	27.178 ng	100
53) 4-Methyl-2-pentanone	9.82	58	950224	54.257 ng	98
54) trans-1,3-Dichloropropene	10.27	75	702024	26.491 ng	100
55) 1,1,2-Trichloroethane	10.46	97	426029	25.394 ng	100
58) Toluene	10.75	91	1811071	24.960 ng	99
59) 2-Hexanone	10.93	43	2724558	53.046 ng	99
60) Dibromochloromethane	11.16	129	540592	26.062 ng	100
61) 1,2-Dibromoethane	11.42	107	496027	25.886 ng	100
62) n-Butyl Acetate	11.53	43	3090030	54.164 ng	99
63) n-Octane	11.67	57	455627	26.212 ng	99
64) Tetrachloroethene	11.86	166	531631	26.115 ng	100
65) Chlorobenzene	12.51	112	1181944	25.262 ng	100
66) Ethylbenzene	12.86	91	2128268	25.788 ng	100
67) m- & p-Xylenes	13.03	91	3298406	51.700 ng	100
68) Bromoform	13.11	173	489451	27.364 ng	99
69) Styrene	13.37	104	1257583	27.115 ng	100
70) o-Xylene	13.47	91	1699464	26.140 ng	100
71) n-Nonane	13.66	43	1267672	26.120 ng	99
72) 1,1,2,2-Tetrachloroethane	13.45	83	751488	25.330 ng	100
74) Cumene	14.03	105	2096046	25.384 ng	100
75) alpha-Pinene	14.41	93	1087253	30.215 ng	100
76) n-Propylbenzene	14.52	91	2541396	25.519 ng	100
77) 3-Ethyltoluene	13.89	105	2033	No Calib #	
78) 4-Ethyltoluene	14.66	105	2074397	26.334 ng	100
79) 1,3,5-Trimethylbenzene	14.73	105	1762418	26.451 ng	100
80) alpha-Methylstyrene	13.89	118	899	No Calib	
81) 2-Ethyltoluene	14.03	105	2096046	No Calib	
82) 1,2,4-Trimethylbenzene	15.13	105	1784249	26.528 ng	100
83) n-Decane	14.41	58	7460	No Calib #	
84) Benzyl Chloride	15.26	91	3154493	57.588 ng	100
85) 1,3-Dichlorobenzene	15.29	146	1019399	25.629 ng	100
86) 1,4-Dichlorobenzene	15.35	146	1011247	25.642 ng	100
87) sec-Butylbenzene	15.40	105	2272935	25.130 ng	100
88) 4-Isopropyltoluene (p-...	15.55	119	2004600	25.358 ng	100
89) 1,2,3-Trimethylbenzene	14.41	105	121220	No Calib	
90) 1,2-Dichlorobenzene	15.69	146	957793	25.140 ng	99
91) d-Limonene	15.69	68	728024	32.458 ng	100
92) 1,2-Dibromo-3-Chloropr...	16.12	157	724501	49.814 ng	97
93) n-Undecane	15.13	58	94562	No Calib	
94) 1,2,4-Trichlorobenzene	17.39	180	1561049	54.329 ng	100
95) Naphthalene	17.50	128	2137070	28.869 ng	100
96) n-Dodecane	15.71	57	324	No Calib #	
97) Hexachlorobutadiene	17.84	225	516833	24.066 ng	100
98) Cyclohexanone	13.03	55	3265	No Calib	
99) tert-Butylbenzene	15.13	119	1707238	25.550 ng	100
100) n-Butylbenzene	15.97	91	1902844	25.704 ng	99
101) 1,1,1,2-Tetrachloroethane	12.49	131	449198	25.562 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 10\25\10252117.D Vial: 8
Acq On : 25 Oct 2021 23:26 Operator: SC
Sample : 25ng TO-15 ICV STD Inst : MS09
Misc : S34-10072101/S34-10182101 (11/16)

Quant Time: Oct 26 09:03:52 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 26 09:02:55 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

10/26/21

Data File Name: **10252117.D**
Data File Path: **I:\MS09\Data\2021_10\25**
Operator: **SC**
Date Acquired: **10/25/2021 23:26**

Acq. Method File: **TO15.M**
Sample Name: **25ng TO-15 ICV STD**
Misc Info: **S34-10072101/S34-10182101 (**
Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.03	22.2	25.75	86	56	128	*	*
3)	Dichlorodifluoromethane (CFC 1	4.10	24.5	26.00	94	71	112	*	*
4)	Chloromethane	4.24	25.9	25.75	101	53	126	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroet	4.32	26.5	26.00	102	62	121	*	*
6)	Vinyl Chloride	4.41	26.7	26.00	103	63	123	*	*
7)	1,3-Butadiene	4.51	26.9	25.75	104	63	135	*	*
8)	Bromomethane	4.70	26.4	25.75	103	71	112	*	*
9)	Chloroethane	4.82	25.0	25.75	97	66	117	*	*
10)	Ethanol	4.96	99	104.00	95	57	117	*	*
11)	Acetonitrile	5.08	21.1	25.25	84	59	131	*	*
12)	Acrolein	5.14	50.8	52.00	98	71	123	*	*
13)	Acetone	5.22	118	128.00	92	60	117	*	*
14)	Trichlorofluoromethane	5.30	24.0	25.25	95	71	114	*	*
15)	2-Propanol (Isopropanol)	5.39	51.3	50.00	103	61	124	*	*
16)	Acrylonitrile	5.51	49.0	50.25	98	65	130	*	*
17)	1,1-Dichloroethene	5.70	25.7	26.25	98	74	114	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	5.76	56.9	51.00	112	56	135	*	*
19)	Methylene Chloride	5.79	24.7	26.00	95	75	112	*	*
20)	3-Chloro-1-propene (Allyl Chloric	5.84	21.1	25.50	83	57	127	*	*
21)	Trichlorotrifluoroethane	5.91	26.1	27.00	97	73	114	*	*
22)	Carbon Disulfide	6.00	49.0	51.75	95	70	113	*	*
23)	trans-1,2-Dichloroethene	6.35	26.2	26.00	101	76	119	*	*
24)	1,1-Dichloroethane	6.50	25.8	26.75	96	70	114	*	*
25)	Methyl tert-Butyl Ether	6.49	26.0	25.75	101	72	118	*	*
26)	Vinyl Acetate	6.53	124	117.75	105	56	137	*	*
27)	2-Butanone (MEK)	6.71	51.1	51.00	100	74	121	*	*
28)	cis-1,2-Dichloroethene	7.03	25.3	25.75	98	73	117	*	*
29)	Diisopropyl Ether	7.10	50.8	52.25	97	58	124	*	*
30)	Ethyl Acetate	7.10	72.4	72.50	100	59	161	*	*
31)	n-Hexane	7.13	25.5	26.00	98	55	130	*	*
32)	Chloroform	7.23	25.8	26.25	98	71	114	*	*
34)	Tetrahydrofuran (THF)	7.49	50.8	50.50	101	73	114	*	*
35)	Ethyl tert-Butyl Ether	7.48	53.3	51.75	103	76	119	*	*
36)	1,2-Dichloroethane	7.75	25.2	26.25	96	71	119	*	*
38)	1,1,1-Trichloroethane	7.95	25.2	26.00	97	73	119	*	*
41)	Benzene	8.30	24.7	26.00	95	72	113	*	*
42)	Carbon Tetrachloride	8.41	24.5	25.25	97	67	123	*	*
43)	Cyclohexane	8.51	47.8	51.50	93	70	119	*	*
44)	tert-Amyl Methyl Ether	8.69	53.3	51.50	103	74	120	*	*
45)	1,2-Dichloropropane	8.93	25.2	25.75	98	70	118	*	*
46)	Bromodichloromethane	9.07	26.1	26.00	100	74	119	*	*
47)	Trichloroethene	9.10	25.4	25.50	100	74	115	*	*
48)	1,4-Dioxane	9.06	27.6	25.75	107	77	124	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	9.13	25.2	26.25	96	65	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10252117.D** **TO15.M**
Data File Path: **I:\MS09\Data\2021_10\25** Sample Name: **25ng TO-15 ICV STD**
Operator: **SC** Misc Info: **S34-10072101/S34-10182101 (**
Date Acquired: **10/25/2021 23:26** Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**9.18**	**55.3**	**51.25**	108	**78**	**126**	*	*
51)	**n-Heptane**	**9.31**	**25.4**	**25.75**	99	**70**	**119**	*	*
52)	**cis-1,3-Dichloropropene**	**9.81**	**27.2**	**26.00**	105	**81**	**126**	*	*
53)	**4-Methyl-2-pentanone**	**9.82**	**54.3**	**51.50**	105	**73**	**129**	*	*
54)	**trans-1,3-Dichloropropene**	**10.27**	**26.5**	**25.00**	106	**80**	**127**	*	*
55)	**1,1,2-Trichloroethane**	**10.46**	**25.4**	**26.00**	98	**78**	**117**	*	*
58)	**Toluene**	**10.75**	**25.0**	**25.75**	97	**70**	**118**	*	*
59)	**2-Hexanone**	**10.93**	**53.0**	**50.75**	104	**74**	**132**	*	*
60)	**Dibromochloromethane**	**11.16**	**26.1**	**26.25**	99	**69**	**137**	*	*
61)	**1,2-Dibromoethane**	**11.42**	**25.9**	**26.00**	100	**76**	**128**	*	*
62)	**n-Butyl Acetate**	**11.53**	**54.2**	**50.75**	107	**75**	**134**	*	*
63)	**n-Octane**	**11.67**	**26.2**	**26.00**	101	**68**	**120**	*	*
64)	**Tetrachloroethene**	**11.86**	**26.1**	**26.50**	98	**63**	**130**	*	*
65)	**Chlorobenzene**	**12.51**	**25.3**	**25.75**	98	**70**	**118**	*	*
66)	**Ethylbenzene**	**12.86**	**25.8**	**25.75**	100	**71**	**123**	*	*
67)	**m- & p-Xylenes**	**13.03**	**51.7**	**52.00**	99	**67**	**127**	*	*
68)	**Bromoform**	**13.11**	**27.4**	**26.25**	104	**65**	**149**	*	*
69)	**Styrene**	**13.37**	**27.1**	**25.25**	107	**76**	**132**	*	*
70)	**o-Xylene**	**13.47**	**26.1**	**26.00**	100	**69**	**124**	*	*
71)	**n-Nonane**	**13.66**	**26.1**	**26.00**	100	**64**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**13.45**	**25.3**	**26.00**	97	**69**	**128**	*	*
74)	**Cumene**	**14.03**	**25.4**	**25.75**	99	**69**	**125**	*	*
75)	**alpha-Pinene**	**14.41**	**30.2**	**26.25**	115	**68**	**129**	*	*
76)	**n-Propylbenzene**	**14.52**	**25.5**	**26.00**	98	**70**	**127**	*	*
78)	**4-Ethyltoluene**	**14.66**	**26.3**	**26.00**	**101**	**69**	**127**	*	*
79)	**1,3,5-Trimethylbenzene**	**14.73**	**26.5**	**26.00**	**102**	**66**	**129**	*	*
82)	**1,2,4-Trimethylbenzene**	**15.13**	**26.5**	**25.75**	**103**	**63**	**142**	*	*
84)	**Benzyl Chloride**	**15.26**	**57.6**	**52.00**	**111**	**73**	**145**	*	*
85)	**1,3-Dichlorobenzene**	**15.29**	**25.6**	**26.00**	**98**	**67**	**136**	*	*
86)	**1,4-Dichlorobenzene**	**15.35**	**25.6**	**26.25**	**98**	**63**	**134**	*	*
87)	sec-Butylbenzene	15.40	25.1	25.50	**98**	68	130	*	*
88)	4-Isopropyltoluene (p-Cymene)	15.55	25.4	25.75	**99**	60	139	*	*
90)	**1,2-Dichlorobenzene**	**15.69**	**25.1**	**26.25**	**96**	**64**	**139**	*	*
91)	**d-Limonene**	**15.69**	**32.5**	**25.75**	**126**	**63**	**137**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**16.12**	**49.8**	**50.50**	**99**	**72**	**145**	*	*
94)	**1,2,4-Trichlorobenzene**	**17.39**	**54.3**	**52.50**	**103**	**62**	**154**	*	*
95)	**Naphthalene**	**17.50**	**28.9**	**26.25**	**110**	**62**	**156**	*	*
97)	**Hexachlorobutadiene**	**17.84**	**24.1**	**26.50**	**91**	55	142	*	*
99)	tert-Butylbenzene	15.13	25.5	25.75	99	61	140	*	*
100)	n-Butylbenzene	15.97	25.7	26.00	99	70	131	*	*
101)	1,1,1,2-Tetrachloroethane	12.49	25.6	25.75	99	70	130	*	*

Bold = 75 Compound List
*** = Pass**

Evaluate Continuing Calibration Report

01115503

Data File : I:\MS09\Data\2021 12\08\12082102.D Vial: 2
Acq On : 7 Dec 2021 23:44 Operator: SC
Sample : CCV R9120821 5.0ng Inst : MS09
Misc : S34-10072101/S35-11152103 (12/14)

Quant Time: Dec 08 08:14:25 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

12/8/21

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	106	-0.03
2	T	Propene	2.302	1.913	16.9	103	0.00
3	T	Dichlorodifluoromethane (CF	2.752	2.853	-3.7	122	0.00
4	T	Chloromethane	2.339	2.180	6.8	112	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.219	1.175	3.6	111	0.00
6	T	Vinyl Chloride	1.797	1.755	2.3	109	0.00
7	T	1,3-Butadiene	1.315	1.411	-7.3	124	0.00
8	T	Bromomethane	1.001	1.003	-0.2	151	0.00
9	T	Chloroethane	1.001	0.937	6.4	111	0.00
10	T	Ethanol	1.546	1.439	6.9	114	-0.05
11	T	Acetonitrile	4.042	3.710	8.2	113	-0.03
12	T	Acrolein	0.987	0.932	5.6	108	-0.02
13	T	Acetone	1.174	1.057	10.0	111	-0.03
14	T	Trichlorofluoromethane	2.646	2.718	-2.7	122	0.00
15	T	2-Propanol (Isopropanol)	4.730	4.937	-4.4	126	-0.05
16	T	Acrylonitrile	2.160	2.111	2.3	111	-0.03
17	T	1,1-Dichloroethene	1.250	1.156	7.5	109	-0.01
18	T	2-Methyl-2-Propanol (tert-B	3.601	4.440	-23.3	144	-0.05
19	T	Methylene Chloride	1.333	1.250	6.2	111	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.556	3.191	10.3	109	-0.02
21	T	Trichlorotrifluoroethane	1.155	1.070	7.4	110	-0.01
22	T	Carbon Disulfide	4.653	4.534	2.6	114	-0.01
23	T	trans-1,2-Dichloroethene	2.110	2.130	-0.9	117	-0.02
24	T	1,1-Dichloroethane	2.565	2.593	-1.1	119	-0.03
25	T	Methyl tert-Butyl Ether	4.150	4.759	-14.7	131	-0.02
26	T	Vinyl Acetate	0.290	0.290	0.0	110	-0.03
27	T	2-Butanone (MEK)	0.898	0.901	-0.3	116	-0.03
28	T	cis-1,2-Dichloroethene	2.097	2.037	2.9	114	-0.02
29	T	Diisopropyl Ether	1.071	1.092	-2.0	116	-0.02
30	T	Ethyl Acetate	0.538	0.538	0.0	111	-0.02
31	T	n-Hexane	2.635	2.513	4.6	110	0.00
32	T	Chloroform	2.380	2.451	-3.0	122	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.937	2.308	-19.2	127	-0.02
34	T	Tetrahydrofuran (THF)	0.848	0.862	-1.7	117	-0.02
35	T	Ethyl tert-Butyl Ether	1.582	1.717	-8.5	123	-0.02
36	T	1,2-Dichloroethane	2.090	2.331	-11.5	132	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	104	-0.02
38	T	1,1,1-Trichloroethane	0.539	0.559	-3.7	121	-0.02
39	T	Isopropyl Acetate	0.000	0.000	0.0	138	-0.09
40	T	1-Butanol	0.000	0.000	0.0	98	-0.08
41	T	Benzene	1.256	1.190	5.3	114	-0.02
42	T	Carbon Tetrachloride	0.481	0.470	2.3	115	-0.02
43	T	Cyclohexane	0.498	0.460	7.6	111	-0.02
44	T	tert-Amyl Methyl Ether	0.868	0.990	-14.1	133	-0.02
45	T	1,2-Dichloropropane	0.339	0.315	7.1	109	-0.02
46	T	Bromodichloromethane	0.461	0.489	-6.1	122	-0.02
47	T	Trichloroethene	0.326	0.310	4.9	110	-0.02
48	T	1,4-Dioxane	0.235	0.242	-3.0	117	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.552	1.459	6.0	110	-0.01
50	T	Methyl Methacrylate	0.122	0.128	-4.9	114	-0.02
51	T	n-Heptane	0.320	0.309	3.4	112	-0.01
52	T	cis-1,3-Dichloropropene	0.485	0.523	-7.8	119	-0.02
53	T	4-Methyl-2-pentanone	0.313	0.321	-2.6	115	-0.02
54	T	trans-1,3-Dichloropropene	0.474	0.539	-13.7	126	-0.01
55	T	1,1,2-Trichloroethane	0.300	0.282	6.0	108	-0.01

Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2021 12\08\12082102.D Vial: 2
Acq On : 7 Dec 2021 23:44 Operator: SC
Sample : CCV R9120821 5.0ng Inst : MS09
Misc : S34-10072101/S35-11152103 (12/14)

Quant Time: Dec 08 08:14:25 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	113	0.00
57	S	Toluene-d8 (SS2)	5.509	5.074	7.9	104	-0.01
58	T	Toluene	5.904	5.326	9.8	113	-0.01
59	T	2-Hexanone	4.179	4.256	-1.8	124	-0.01
60	T	Dibromochloromethane	1.688	1.524	9.7	110	-0.01
61	T	1,2-Dibromoethane	1.559	1.408	9.7	110	-0.01
62	T	n-Butyl Acetate	4.642	4.649	-0.2	120	-0.01
63	T	n-Octane	1.414	1.294	8.5	111	0.00
64	T	Tetrachloroethene	1.656	1.438	13.2	109	-0.01
65	T	Chlorobenzene	3.807	3.392	10.9	111	0.00
66	T	Ethylbenzene	6.715	6.393	4.8	116	0.00
67	T	m- & p-Xylenes	5.191	5.062	2.5	118	-0.01
68	T	Bromoform	1.455	1.245	14.4	105	0.00
69	T	Styrene	3.774	3.707	1.8	115	-0.01
70	T	o-Xylene	5.290	5.142	2.8	118	0.00
71	T	n-Nonane	3.949	3.679	6.8	111	0.00
72	T	1,1,2,2-Tetrachloroethane	2.414	2.159	10.6	110	-0.01
73	S	Bromofluorobenzene (SS3)	1.420	1.117	21.3	88	0.00
74	T	Cumene	6.719	6.301	6.2	114	0.00
75	T	alpha-Pinene	2.928	3.161	-8.0	128	0.00
76	T	n-Propylbenzene	8.103	7.797	3.8	115	0.00
77	T	3-Ethyltoluene	0.000	0.000	0.0	184965#	0.00
78	T	4-Ethyltoluene	6.409	6.225	2.9	115	0.00
79	T	1,3,5-Trimethylbenzene	5.421	5.277	2.7	117	0.00
80	T	alpha-Methylstyrene	0.000	0.000	0.0	80	0.00
81	T	2-Ethyltoluene	0.000	0.000	0.0	115	0.00
82	T	1,2,4-Trimethylbenzene	5.473	5.501	-0.5	117	0.00
83	T	n-Decane	0.000	0.000	0.0	119	0.01
84	T	Benzyl Chloride	4.457	5.121	-14.9	131	0.00
85	T	1,3-Dichlorobenzene	3.236	3.007	7.1	116	0.00
86	T	1,4-Dichlorobenzene	3.209	2.975	7.3	116	0.00
87	T	sec-Butylbenzene	7.359	6.973	5.2	112	0.00
88	T	4-Isopropyltoluene (p-Cymen	6.432	6.200	3.6	112	0.00
89	T	1,2,3-Trimethylbenzene	0.000	0.000	0.0	146	0.00
90	T	1,2-Dichlorobenzene	3.100	2.827	8.8	111	0.00
91	T	d-Limonene	1.825	2.133	-16.9	128	0.00
92	T	1,2-Dibromo-3-Chloropropane	1.183	1.085	8.3	107	0.00
93	T	n-Undecane	0.000	0.000	0.0	105	0.00
94	T	1,2,4-Trichlorobenzene	2.338	2.410	-3.1	125	0.00
95	T	Naphthalene	6.023	7.399	-22.8	143	0.00
96	T	n-Dodecane	0.000	0.000	0.0	292#	-0.05
97	T	Hexachlorobutadiene	1.747	1.450	17.0	101	0.00
98	T	Cyclohexanone	0.000	0.000	0.0	58	0.00
99	T	tert-Butylbenzene	5.437	5.232	3.8	113	0.00
100	T	n-Butylbenzene	6.023	6.007	0.3	116	0.00
101	T	1,1,1,2-Tetrachloroethane	1.430	1.303	8.9	112	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082102.D Vial: 2
Acq On : 7 Dec 2021 23:44 Operator: SC
Sample : CCV R9120821 5.0ng Inst : MS09
Misc : S34-10072101/S35-11152103 (12/14)

Quant Time: Dec 08 08:14:25 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

12/8/21

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.13	130	146489	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	8.49	114	633133	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	12.46	54	149339	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	7.65	65	338142	14.893	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.12%				
57) Toluene-d8 (SS2)	10.64	98	757819	11.513	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.08%				
73) Bromofluorobenzene (SS3)	13.89	174	166781	9.830	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.64%				
Target Compounds							Qvalue
2) Propene	4.03	42	116586	4.321	ng		92
3) Dichlorodifluoromethan...	4.11	85	175525	5.442	ng		100
4) Chloromethane	4.24	50	130267	4.752	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.32	135	74348	5.204	ng		98
6) Vinyl Chloride	4.41	62	106947	5.077	ng		98
7) 1,3-Butadiene	4.50	54	86010	5.579	ng		91
8) Bromomethane	4.70	94	59973	5.112	ng		98
9) Chloroethane	4.81	64	55980	4.773	ng		99
10) Ethanol	4.92	45	305341	16.857	ng		98
11) Acetonitrile	5.05	41	202168	4.268	ng		98
12) Acrolein	5.12	56	109251	9.442	ng		96
13) Acetone	5.19	58	321592	23.375	ng	#	75
14) Trichlorofluoromethane	5.30	101	164032	5.290	ng		100
15) 2-Propanol (Isopropanol)	5.35	45	584317	10.541	ng		92
16) Acrylonitrile	5.48	53	251104	9.922	ng		99
17) 1,1-Dichloroethene	5.69	96	72460	4.948	ng	#	83
18) 2-Methyl-2-Propanol (t...	5.72	59	546366	12.949	ng		94
19) Methylene Chloride	5.76	84	76203	4.878	ng		100
20) 3-Chloro-1-propene (Al...	5.83	41	196325	4.712	ng		93
21) Trichlorotrifluoroethane	5.91	151	67723	5.001	ng		92
22) Carbon Disulfide	5.99	76	557939	10.232	ng		100
23) trans-1,2-Dichloroethene	6.34	61	132327	5.351	ng		93
24) 1,1-Dichloroethane	6.47	63	159556	5.308	ng		100
25) Methyl tert-Butyl Ether	6.47	73	292799	6.021	ng		97
26) Vinyl Acetate	6.51	86	57871	17.017	ng	#	50
27) 2-Butanone (MEK)	6.69	72	108792	10.333	ng		93
28) cis-1,2-Dichloroethene	7.01	61	124113	5.051	ng		94
29) Diisopropyl Ether	7.09	87	135652	10.810	ng	#	92
30) Ethyl Acetate	7.08	61	128527	20.380	ng		89
31) n-Hexane	7.13	57	154601	5.007	ng		99
32) Chloroform	7.21	83	153675	5.510	ng		99
34) Tetrahydrofuran (THF)	7.47	72	99452	10.004	ng		95
35) Ethyl tert-Butyl Ether	7.46	87	211283	11.396	ng		97
36) 1,2-Dichloroethane	7.73	62	144770	5.911	ng		99
38) 1,1,1-Trichloroethane	7.93	97	147132	5.386	ng		98
39) Isopropyl Acetate	8.27	61	3006	No Calib		#	
40) 1-Butanol	8.10	56	4565	No Calib			
41) Benzene	8.28	78	313355	4.925	ng		98
42) Carbon Tetrachloride	8.39	117	125078	5.129	ng		100
43) Cyclohexane	8.49	84	241362	9.563	ng		96
44) tert-Amyl Methyl Ether	8.68	73	523949	11.921	ng		99
45) 1,2-Dichloropropane	8.91	63	82205	4.791	ng		98
46) Bromodichloromethane	9.05	83	129970	5.566	ng		96
47) Trichloroethene	9.09	130	80799	4.888	ng		99
48) 1,4-Dioxane	9.05	88	63819	5.370	ng		97
49) 2,2,4-Trimethylpentane...	9.12	57	391619	4.982	ng		98
50) Methyl Methacrylate	9.16	100	67621	10.961	ng		95

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082102.D Vial: 2
Acq On : 7 Dec 2021 23:44 Operator: SC
Sample : CCV R9120821 5.0ng Inst : MS09
Misc : S34-10072101/S35-11152103 (12/14)

Quant Time: Dec 08 08:14:25 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M

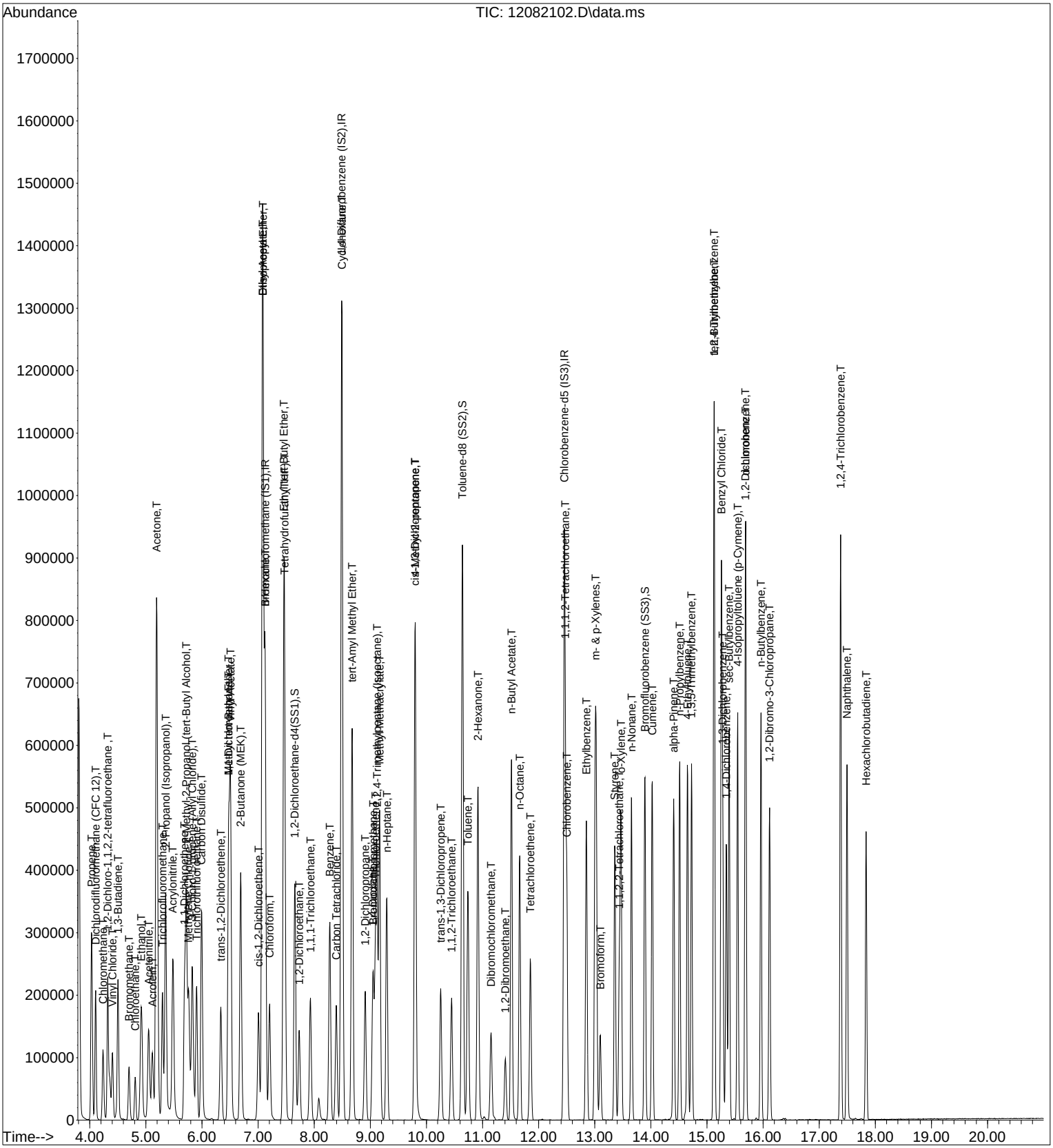
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	9.30	71	82143	5.067 ng		99
52) cis-1,3-Dichloropropene	9.79	75	138990	5.662 ng		100
53) 4-Methyl-2-pentanone	9.80	58	168884	10.647 ng		93
54) trans-1,3-Dichloropropene	10.25	75	137990	5.749 ng		100
55) 1,1,2-Trichloroethane	10.45	97	74158	4.880 ng		100
58) Toluene	10.74	91	327718	4.646 ng		99
59) 2-Hexanone	10.92	43	521148	10.438 ng		96
60) Dibromochloromethane	11.15	129	95565	4.740 ng		99
61) 1,2-Dibromoethane	11.41	107	87494	4.697 ng		98
62) n-Butyl Acetate	11.52	43	566537	10.216 ng		97
63) n-Octane	11.66	57	81179	4.804 ng		99
64) Tetrachloroethene	11.85	166	89311	4.513 ng		99
65) Chlorobenzene	12.50	112	210736	4.633 ng		99
66) Ethylbenzene	12.85	91	393356	4.903 ng		98
67) m- & p-Xylenes	13.01	91	622909	10.044 ng		96
68) Bromoform	13.10	173	77344	4.448 ng		100
69) Styrene	13.36	104	228089	5.059 ng		95
70) o-Xylene	13.47	91	319475	5.055 ng		96
71) n-Nonane	13.66	43	228531	4.844 ng		99
72) 1,1,2,2-Tetrachloroethane	13.43	83	134100	4.650 ng		100
74) Cumene	14.03	105	391420	4.876 ng		98
75) alpha-Pinene	14.41	93	203935	5.830 ng		93
76) n-Propylbenzene	14.51	91	489073	5.052 ng		97
77) 3-Ethyltoluene	14.03	105	392125	No Calib		
78) 4-Ethyltoluene	14.65	105	394150	5.147 ng		98
79) 1,3,5-Trimethylbenzene	14.72	105	327837	5.062 ng		98
80) alpha-Methylstyrene	13.88	118	674	No Calib	#	
81) 2-Ethyltoluene	14.65	105	394150	No Calib		
82) 1,2,4-Trimethylbenzene	15.13	105	338479	5.177 ng		99
83) n-Decane	14.42	58	1452	No Calib	#	
84) Benzyl Chloride	15.26	91	630195	11.835 ng		96
85) 1,3-Dichlorobenzene	15.28	146	186784	4.831 ng		99
86) 1,4-Dichlorobenzene	15.34	146	184809	4.821 ng		100
87) sec-Butylbenzene	15.39	105	433220	4.927 ng		97
88) 4-Isopropyltoluene (p-...	15.55	119	385193	5.013 ng		97
89) 1,2,3-Trimethylbenzene	14.41	105	26341	No Calib		
90) 1,2-Dichlorobenzene	15.68	146	177322	4.788 ng		99
91) d-Limonene	15.69	68	133778	6.136 ng		100
92) 1,2-Dibromo-3-Chloropr...	16.11	157	129685	9.173 ng	#	75
93) n-Undecane	15.13	58	15959	No Calib		
94) 1,2,4-Trichlorobenzene	17.38	180	293701	10.515 ng		99
95) Naphthalene	17.49	128	459634	6.387 ng		99
96) n-Dodecane	15.69	57	655	No Calib	#	
97) Hexachlorobutadiene	17.84	225	89190	4.272 ng		99
98) Cyclohexanone	13.01	55	267	No Calib	#	
99) tert-Butylbenzene	15.13	119	325059	5.004 ng		98
100) n-Butylbenzene	15.96	91	373201	5.186 ng		98
101) 1,1,1,2-Tetrachloroethane	12.48	131	80932	4.738 ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2021 12\08\12082102.D Vial: 2
Acq On : 7 Dec 2021 23:44 Operator: SC
Sample : CCV R9120821 5.0ng Inst : MS09
Misc : S34-10072101/S35-11152103 (12/14)

Quant Time: Dec 08 08:14:25 2021
Quant Method : I:\MS09\Methods\R9102521.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Nov 01 09:09:48 2021
Response via : Initial Calibration
DataAcq Meth:TO15.M



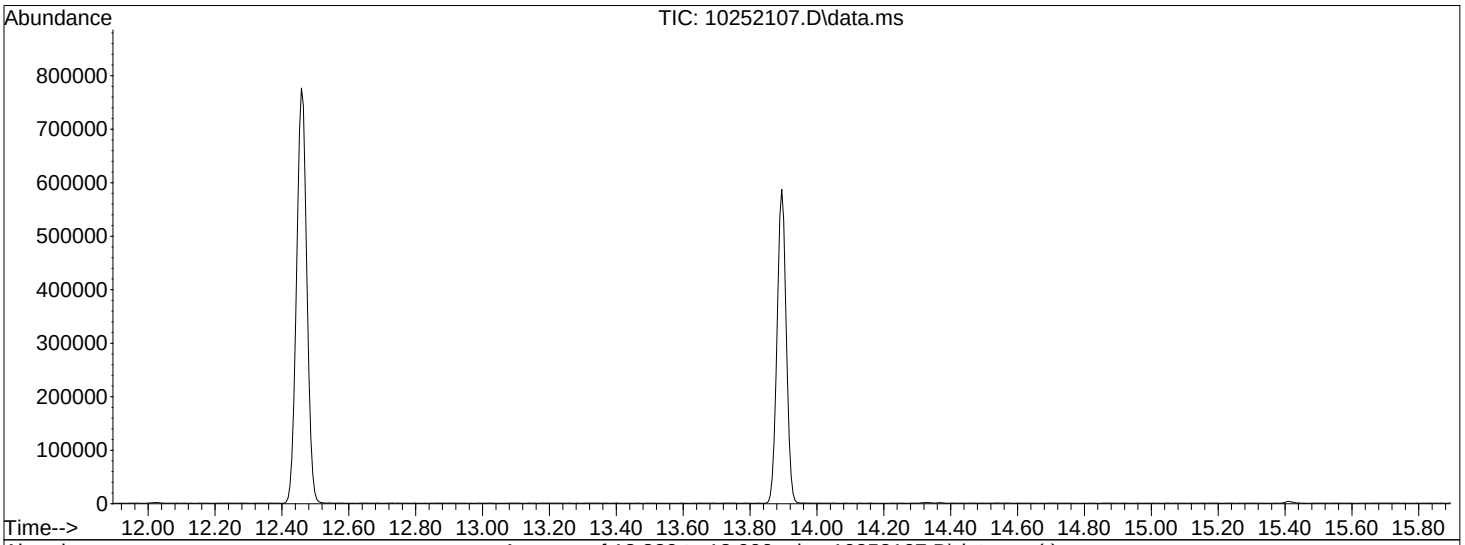
01115508

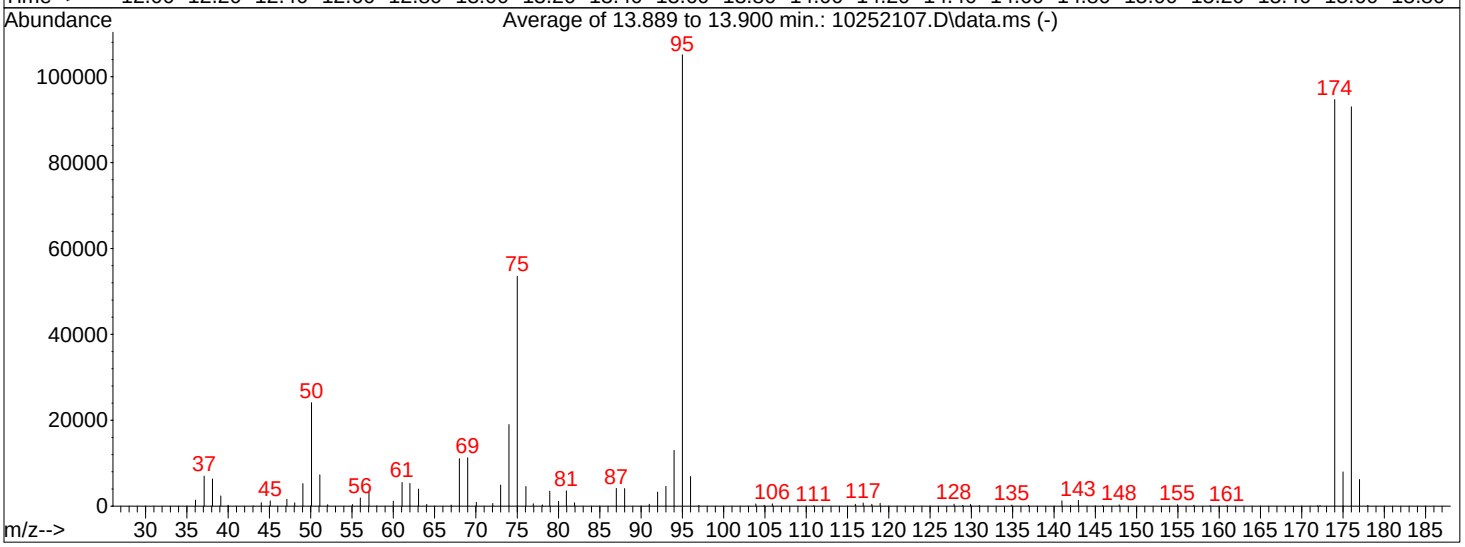
Data Path : I:\MS09\Data\2021 10\25\
Data File : 10252107.D
Acq On : 25 Oct 2021 18:17
Operator : SC
Sample : 12.5ng TO-15 BFB STD
Misc : S34-10072101
ALS Vial : 2 Sample Multiplier: 1

10/26/21

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9102521.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 26 08:47:18 2021





AutoFind: Scans 1780, 1781, 1782; Background Corrected with Scan 1772

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	22.9	24120	PASS
75	95	30	66	50.9	53517	PASS
95	95	100	100	100.0	105107	PASS
96	95	5	9	6.6	6908	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	90.1	94685	PASS
175	174	4	9	8.4	7994	PASS
176	174	93	101	98.2	93019	PASS
177	176	5	9	6.7	6227	PASS

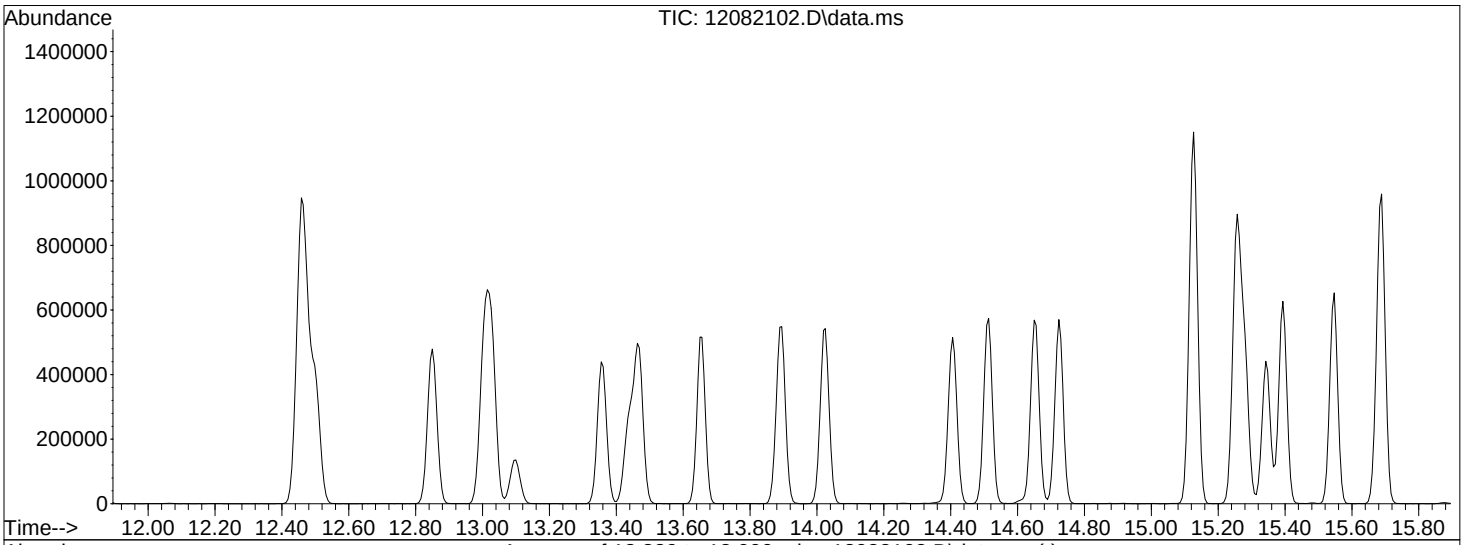
01115509

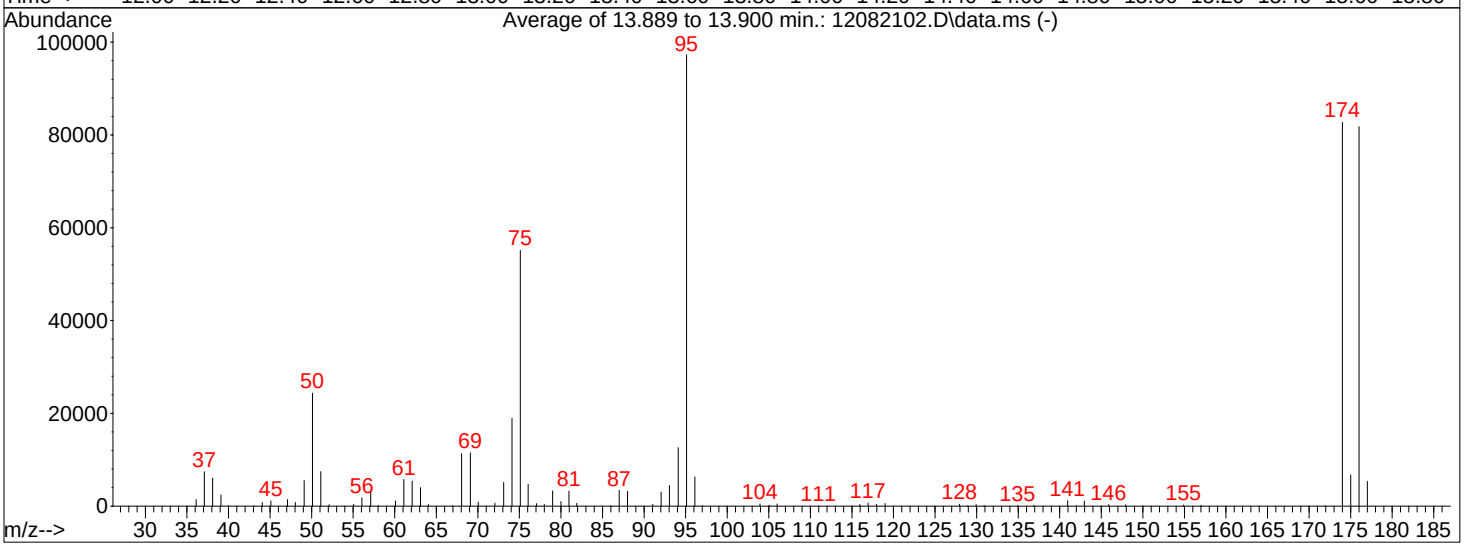
Data Path : I:\MS09\Data\2021 12\08\
Data File : 12082102.D
Acq On : 7 Dec 2021 23:44
Operator : SC
Sample : CCV R9120821 5.0ng
Misc : S34-10072101/S35-11152103 (12/14)
ALS Vial : 2 Sample Multiplier: 1

12/8/21

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9102521.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Nov 01 09:09:48 2021





AutoFind: Scans 1780, 1781, 1782; Background Corrected with Scan 1772

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	25.0	24336	PASS
75	95	30	66	56.7	55149	PASS
95	95	100	100	100.0	97288	PASS
96	95	5	9	6.5	6312	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	85.1	82755	PASS
175	174	4	9	8.2	6761	PASS
176	174	93	101	98.8	81795	PASS
177	176	5	9	6.5	5342	PASS

Injection Log

Directory: J:\MS09\Data\2021_10\25\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/25/21 14:35	10252101.D	Blank	S34-10072101	SC	2	
2	10/25/21 15:11	10252102.D	Blank	S34-10072101	SC	2	
3	10/25/21 15:56	10252103.D	Blank	S34-10072101	SC	2	
4	10/25/21 16:35	10252104.D	Blank	S34-10072101	SC	2	
5	10/25/21 17:09	10252105.D	Blank	S34-10072101	SC	2	
6	10/25/21 17:46	10252106.D	Blank	S34-10072101	SC	2	
7	10/25/21 18:17	10252107.D	12.5ng TO-15 BFB STD	S34-10072101	SC	2	pass
8	10/25/21 18:48	10252108.D	0.1ng TO-15 ICAL STD	S34-10072101/S34-10142102 (11/12)	SC	5	
9	10/25/21 19:19	10252109.D	0.2ng TO-15 ICAL STD	S34-10072101/S34-10142102 (11/12)	SC	5	
10	10/25/21 19:50	10252110.D	0.5ng TO-15 ICAL STD	S34-10072101/S34-10142101 (11/12)	SC	6	
11	10/25/21 20:21	10252111.D	1.0ng TO-15 ICAL STD	S34-10072101/S34-10142101 (11/12)	SC	6	
12	10/25/21 20:52	10252112.D	5.0ng TO-15 ICAL STD	S34-10072101/S34-10142101 (11/12)	SC	6	
13	10/25/21 21:23	10252113.D	25ng TO-15 ICAL STD	S34-10072101/S34-10122101 (11/10)	SC	7	
14	10/25/21 21:54	10252114.D	50ng TO-15 ICAL STD	S34-10072101/S34-10122101 (11/10)	SC	7	
15	10/25/21 22:24	10252115.D	100ng TO-15 ICAL STD	S34-10072101/S34-10122101 (11/10)	SC	7	
16	10/25/21 22:55	10252116.D	Blank	S34-10072101	SC	2	
17	10/25/21 23:26	10252117.D	25ng TO-15 ICV STD	S34-10072101/S34-10182101 (11/16)	SC	8	pass
18	10/25/21 23:56	10252118.D	25ng TO-15 ICV STD	S34-10072101/S34-10182101 (11/16)	SC	8	
19							
20							
21							10/26/21
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							pass
32							cf
33							cf
34							
35							
36							
37							
38							
39						6	
40						7	
41						8	
42						9	
43						10	
44						11	
45						12	

46						13	
47						14	
48						15	pass
49						16	
50						17	
51						18	
52						19	
53						20	
54						21	
55						22	
56						23	
57						24	

Injection Log

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	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	12/7/21 23:14	12082101.D	System	S34-10072101/S35-11152103 (12/14)	SC	2	
2	12/7/21 23:44	12082102.D	CCV R9120821_5.0ng	S34-10072101/S35-11152103 (12/14)	SC	2	pass
3	12/8/21 0:14	12082103.D	Blank	S34-10072101	SC	1	
4	12/8/21 0:45	12082104.D	MB R9120821_1000mL	S34-10072101	SC	2	pass
5	12/8/21 1:15	12082105.D	LCS R9120821_25ng	S34-10072101/S35-12032102 (1/2)	SC	2	pass
6	12/8/21 1:45	12082106.D	LCSD R9120821_25ng	S34-10072101/S35-12032102 (1/2)	SC	2	pass
7	12/8/21 2:16	12082107.D	RL R9120821_0.5ng	S34-10072101/S35-11242101 (12/10)	SC	3	pass
8	12/8/21 2:46	12082108.D	120721_1SS00696	S34-10072101	SC	5	pass
9	12/8/21 3:16	12082109.D	120721_1SS01149	S34-10072101	SC	6	pass
10	12/8/21 3:46	12082110.D	120721_1SS00168	S34-10072101	SC	7	pass
11	12/8/21 4:17	12082111.D	120721_1SS00240	S34-10072101	SC	8	pass
12	12/8/21 9:04	12082112.D	P2106301-002 (200mL)	S34-10072101	SC	14	
13	12/8/21 9:35	12082113.D	P2106266-001 (40mL)	S34-10072101	SC	5	
14	12/8/21 10:05	12082114.D	P2106266-002 (40mL)	S34-10072101	SC	6	
15	12/8/21 10:36	12082115.D	P2106266-003 (1000mL)	S34-10072101	SC	7	
16	12/8/21 11:07	12082116.D	P2106266-004 (1000mL)	S34-10072101	SC	8	
17	12/8/21 11:38	12082117.D	P2106301-001Dil (100mL)	S34-10072101	SC	13	
18	12/8/21 12:09	12082118.D	P2106266-002Dil (20mL)	S34-10072101	SC	6	
19	12/8/21 12:40	12082119.D	System	S34-10072101	SC	2	
20	12/8/21 13:11	12082120.D	120821_1SS00855_28652	S34-10072101	SC	9	pass
21	12/8/21 13:42	12082121.D	120821_1SC00962_28641	S34-10072101	SC	10	pass
22	12/8/21 14:14	12082122.D	P2106291-001 (1000mL)	S34-10072101	SC	11	
23	12/8/21 14:45	12082123.D	P2106302-001 (1000mL)	S34-10072101	SC	12	
24	12/8/21 15:16	12082124.D	P2106302-001dup (1000mL)	S34-10072101	SC	12	
25	12/8/21 15:47	12082125.D	P2106302-001Dil (100mL)	S34-10072101	SC	12	
26	12/8/21 16:18	12082126.D	P2106302-001dupDil (100mL)	S34-10072101	SC	12	
27	12/8/21 16:54	12082127.D	P2106386-001 (0.2mL)	S34-10072101	SC	1	not used
28	12/8/21 17:25	12082128.D	P2106386-001 (15mL)	S34-10072101	SC	11	not used
29	12/8/21 18:10	12082129.D	P2106386-001 (100mL)	S34-10072101	SC	11	
30	12/8/21 18:41	12082130.D	P2106352-001 (1000mL)	S34-10072101	SC	4	
31	12/8/21 19:11	12082131.D	P2106352-002 (1000mL)	S34-10072101	SC	5	
32	12/8/21 19:42	12082132.D	P2106352-003 (1000mL)	S34-10072101	SC	6	
33	12/8/21 20:13	12082133.D	P2106352-004 (1000mL)	S34-10072101	SC	7	
34	12/8/21 20:44	12082134.D	P2106352-005 (1000mL)	S34-10072101	SC	8	
35	12/8/21 21:15	12082135.D	P2106372-001 (1000mL)	S34-10072101	SC	9	
36	12/8/21 21:46	12082136.D	P2106372-002 (1000mL)	S34-10072101	SC	10	
37	12/8/21 22:17	12082137.D	120821_1SS00702	S34-10072101	SC	13	pass
38	12/8/21 22:48	12082138.D	120821_1SS00769	S34-10072101	SC	14	pass
39	12/8/21 23:19	12082139.D	120821_1SS00744	S34-10072101	SC	15	pass

Injection Log

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	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
40	12/8/21 23:50	12082140.D	120821_1SC00730	S34-10072101	SC	16	pass
							12/9/21

APPENDIX I
PROTOCOL FOR DISCHARGING GWTP EFFLUENT

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MEMORANDUM

DATE: August 28, 2017

PROJECT NAME: Remediation of Multiple Sites, Longhorn Army Ammunition Plant, Karnack, TX

TO:	Richard Mayer	Senior Project Engineer US Environmental Protection Agency Federal Facilities Section (6PD-F)
	April Palmie	Project and Grant Manager Superfund Section, Remediation Division Texas Commission on Environmental Quality
FROM:	Rose M. Zeiler, Ph.D.	Longhorn AAP Site Manager

SUBJECT: **Protocol for Discharging GWTP Effluent**
Longhorn Army Ammunition Plant, Karnack, TX
(Contract: W912DY-09-D-0059, Task Order DS01)

INTRODUCTION

The purpose of this memo is to document the protocol for discharging Longhorn Army Ammunition Plant groundwater treatment plant (GWTP) effluent to Harrison Bayou, the INF-Pond, or LHAAP-18/24.

The GWTP is designed to:

- Extract groundwater from LHAAP-18/24 and LHAAP-16 for hydraulic control;
- Remove metals by pH adjustment, polymer addition, and gravity separation;
- Remove volatile organic compounds (VOCs) by air stripping;
- Remove perchlorate in a fluidized bed reactor (FBR) and an ion exchange scavenger system; and
- Discharge the effluent continuously.

DISCHARGE CRITERIA

The discharge criteria established for discharge to Harrison Bayou are:

Parameter	Discharge Criteria (µg/L)	
	Daily Average	Daily Maximum
Volatiles		
1,1,1-Trichloroethane	3,417	7,230
1,1,2-Trichloroethane	102.5	216.9
1,1-Dichloroethane	6,633	14,032
1,1-Dichloroethene	119	253
1,2-Dichloroethane	85	181
Acetone	1,132	2,395
Benzene	85	181
Carbon Tetrachloride	85	181
Chlorobenzene	22,300	47,180
Chloroform	1,708	3,615
Ethylbenzene	26,954	57,025
Xylenes	39.5	83.6
Methylene Chloride	803	1,699
Styrene	2,829	5,987
Tetrachloroethene	85.4	180.7
Toluene	1,980	4,189
Trichloroethene	85	181
Vinyl Chloride	34	72
Anions		
Chloride	*	*
Sulfate	*	*
Perchlorate**	278	589
Metals		
Aluminum	777	1,644
Arsenic	365	772
Barium	1,000	2,000
Cadmium	1.6	3.4
Chromium, Total	355	752
Chromium, Hexavalent	58	124
Cobalt	5,433	11,495
Iron	1,132	2,395
Lead	2.2	4.6
Nickel	87	184
Manganese	7,323	15,494
Silver	1.4	3
Selenium	5.7	12
Vanadium	1,698	3,592
Zinc	146	310
Other		
Hexachlorobenzene	0.22	0.47
1,4-Dioxane		134.2
Oil and Grease		15
Chemical Oxygen Demand		200

* - Based upon flow in Harrison Bayou
** - Discharge criteria, when diverted to the INF Pond, is 17 µg/L

PROTOCOL FOR DISCHARGING GWTP EFFLUENT

In accordance with the *Sampling and Analysis Plan, Groundwater Treatment Plant and Well Fields* (SAP) Table 2-2, indicator parameters for the FBR, such as temperature, pH and oxidation reduction potential (ORP), are monitored in real time to predict FBR performance and perchlorate removal. Based upon these indicator parameters, the operator of the GWTP can make adjustments such as:

- Bring the ion exchange system online;
- Increase or decrease the addition rate of electron donor (acetic acid);
- Increase or decrease the nutrient addition rate (urea or phosphoric acid); or
- Increase or decrease the FBR recirculation rate

Samples of the GWTP effluent are collected weekly, analyzed for perchlorate, nutrients (ammonia-nitrogen and ortho-phosphate), total organic carbon (TOC), chloride, and sulfate, with the results received from the laboratory 14 days later. Other parameters (e.g. Record of Decision metals and volatiles) are collected and analyzed in GWTP effluent samples according to the frequencies listed in Table 2-1 of the SAP.

As shown in Figure 1, groundwater is continuously extracted, treated, and discharged. If Harrison Bayou is flowing and indicator parameters are within their historical optimal ranges, then the ion exchange vessels can be bypassed and the GWTP effluent sample will be collected after the FBR. If Harrison Bayou is not flowing or the indicator parameters are not within historical optimal ranges, then the ion exchange vessels will be put on line, and the GWTP effluent sample will be collected between the lead and lag ion exchange vessel. Professional judgement may also be used as to when to bring the ion exchange vessels online, such as after a power outage or during anticipated cold temperatures when the FBR has historically not performed optimally.

If a parameter is measured in the effluent at a concentration above the discharge criteria, then a confirmation sample and an effluent sample after the lag ion exchange vessel will be collected and analyzed for the parameter with a 24-hour turnaround time. Corrective measures (e.g. increased nutrient or electron donor addition rates, bring ion exchange vessels on line) will be implemented as appropriate to bring the parameter back within the discharge criteria. ***If an upset condition in the FBR leads to high concentrations of perchlorate going into the lead ion exchange vessel and breaking through at the sample location between the vessels, the lag vessel will still remove perchlorate before it is discharged to Harrison Bayou, the INF Pond, or LHAAP-18/24.*** It is estimated that the lag ion exchange vessel can remove all of the perchlorate from two weeks of typical groundwater extraction at a concentration of 920 μg/L. If the residual perchlorate concentration after the FBR and lead ion exchange vessel is only 600 μg/L, the lag ion exchange vessel could last almost 2.5 years before perchlorate would be detected in the discharged effluent.

If a parameter exceeds the discharge criteria by more than 40% (see Appendix A-2, SAP, Section 7c of Monitoring and Reporting Requirements) or reaches 920 μg/L of perchlorate, then the GWTP will be put into full recycle mode (no discharge) until the parameter is below the discharge criteria again. Appendix A-2 of the SAP requires GWTP data to be provided to TCEQ monthly including a list of noncompliance(s), if applicable.

Discharge to Harrison Bayou

As shown in Figure 1, the GWTP effluent will be discharged to Harrison Bayou as long as it has a measurable flow. The flowrate in Harrison Bayou is estimated by measuring the height of water with a staff gauge and velocity in feet/sec at intervals along the width as described in the Installation-Wide Work Plan, Standard Operating Procedures, Attachment 18 – Water Depth and Velocity Measurements (AECOM, July 2014).

The allowable flow rate of GWTP effluent that can be discharged to Harrison Bayou is given by:

$$QE \leq \frac{QS\ (CC - CA)}{(CE - CC)}$$

where Q_E = GWTP effluent flow Q_S = Harrison Bayou flow

C_C = Criteria concentration (100 mg/L for chloride, 50 mg/L for sulfate)

C_A = Ambient concentration = 10 mg/L

C_E = Chloride or sulfate concentration in GWTP effluent

The allowable GWTP effluent flow will be the lower of the calculated values given the measured concentrations of chloride and sulfate in the discharge stream. For each day that GWTP effluent is discharged to Harrison Bayou, the measured Harrison Bayou flow, the allowable effluent flow, and the actual effluent flow are recorded.

Discharge to INF Pond

If Harrison Bayou is not flowing, then GWTP effluent will be discharged to the Intermediate-Range Nuclear Forces (INF) Pond for temporary storage until Harrison Bayou flow resumes. Perchlorate concentration detected in the effluent must be 17 µg/L or less, when this occurs.

The INF Pond has a flexible membrane liner protected by a soil cover with a gravity discharge pipe (and valve) to Harrison Bayou. The INF Pond has a nominal capacity of 3 million gallons with a staff gage to measure the height of water stored in the pond. The GWTP operator maintains the INF Pond by visually inspecting for erosion, vegetative growth including tree growth along the anchor trench, and liner integrity and making necessary repairs. Periodically, accumulated debris must be removed from the influent and effluent piping to the INF Pond.

Prior to discharging to the INF Pond, a lead and lag ion exchange vessel will be brought online. The GWTP Operator will also confirm that the discharge valve is closed, will record the reading on the effluent totalizer, and will record the height of water using the staff gage. The GWTP Operator will then configure valves and pumps to direct GWTP effluent to the INF Pond. The height of water in the INF Pond and totalizer reading will be recorded at the beginning and end of each shift for the duration of active discharge. When the height of water in the pond reaches 3 feet below the height of the berm (freeboard), the GWTP Operator will stop discharging to the INF Pond and TCEQ will be notified. After the TCEQ acknowledges the INF Pond level, GWTP effluent may be discharged to the INF Pond again until 2 feet of freeboard is reached. The GWTP Operator will stop discharging to the INF Pond and TCEQ will be notified again. After the TCEQ acknowledges 2 feet of freeboard in the INF Pond,GWTP effluent may be discharged again until 1 foot of freeboard remains. No additional GWTP effluent can be accepted at the INF Pond until greater than 1 foot of freeboard is measured.

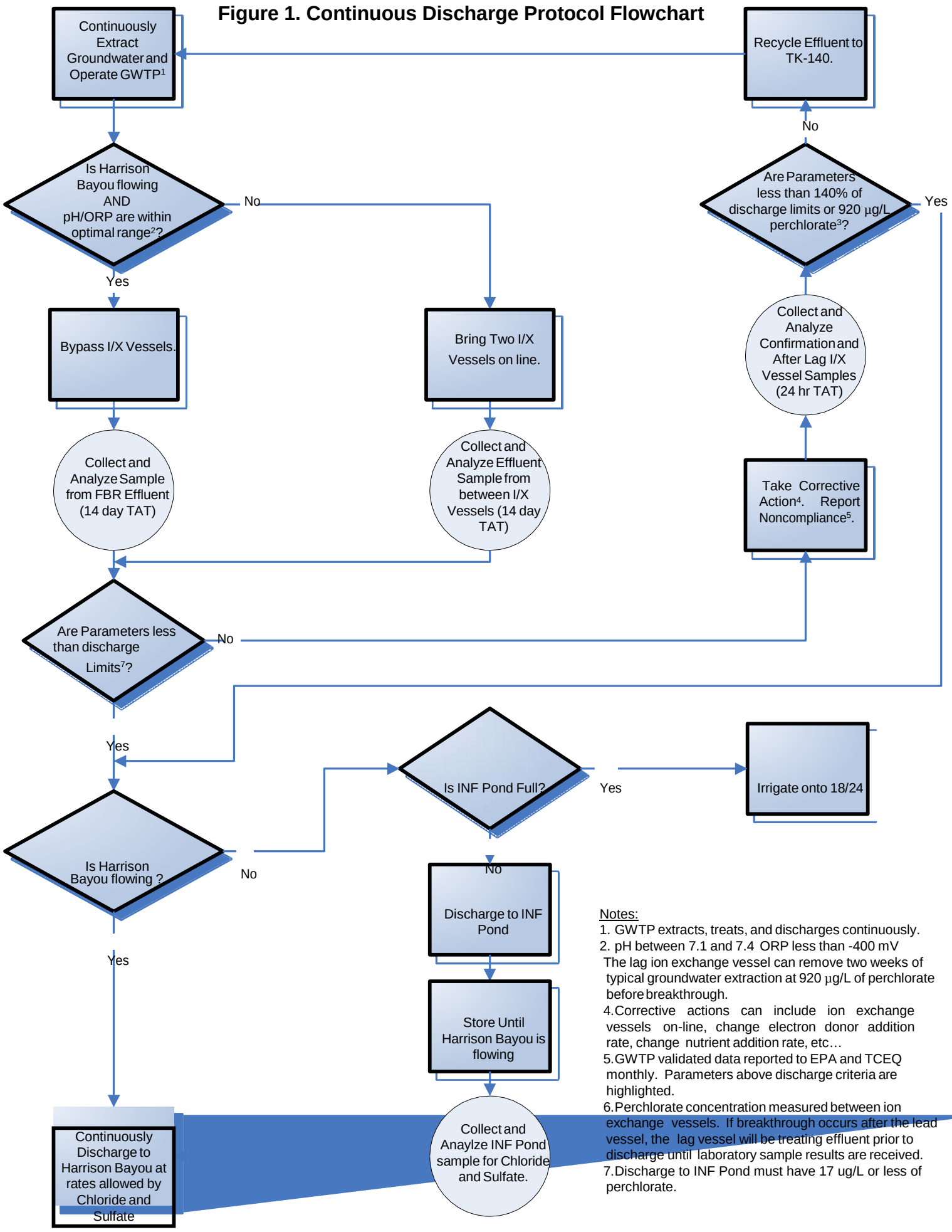
As soon as flow in Harrison Bayou returns, stored GWTP effluent from the INF Pond will be discharged. As with direct discharges from the GWTP to Harrison Bayou, the allowable flowrate of effluent from the INF Pond is calculated based upon the chloride and sulfate concentrations in the pond and the flow in Harrison Bayou. If effluent from the INF Pond and the GWTP are discharged simultaneously, total flow of both streams together should not exceed the calculated discharge level for either discharge location. For each day that INF Pond contents are discharged to Harrison Bayou, the measured Harrison Bayou flow, the allowable effluent flow, and the actual effluent flow are recorded.

Irrigation onto LHAAP-18/24

If Harrison Bayou is not flowing and the INF Pond has less than 1 foot of freeboard, then GWTP effluent will be irrigated onto LHAAP-18/24 using one of the three main sprinkler lines. To avoid pooling and runoff of irrigation water, only one line will be used for half a day at a time, with a separate line being used the second half of the day. If needed, the irrigation will occur 5 days a week for 8 hours each day (using 3 sprinklers in each line). If conditions are wet due to rain events, irrigation will not be conducted to avoid ponding and potential runoff, the GWTP will be put into recycle mode, and groundwater extraction will be interrupted if storage space is not available.

While irrigating, site inspections will be performed to ensure pooling and runoff are not occurring. During the irrigation activities, inspections will be performed twice a day, once approximately three hours and again approximately six hours into the 8-hour irrigation shift. The system will be inspected to ensure that the sprinkler heads are operating properly and not leaking large amounts of water. If ponding or runoff is observed, irrigation at that sprinkler line will cease, and irrigation at another sprinkler line will be started if possible. Volumes of GWTP effluent and twice daily inspections will be recorded daily and reported monthly until flow resumes in Harrison Bayou or greater than 1 foot of freeboard is available in the INF Pond.

Figure 1. Continuous Discharge Protocol Flowchart



Notes:

1. GWTP extracts, treats, and discharges continuously.
2. pH between 7.1 and 7.4 ORP less than -400 mV
The lag ion exchange vessel can remove two weeks of typical groundwater extraction at 920 µg/L of perchlorate before breakthrough.
4. Corrective actions can include ion exchange vessels on-line, change electron donor addition rate, change nutrient addition rate, etc…
5. GWTP validated data reported to EPA and TCEQ monthly. Parameters above discharge criteria are highlighted.
6. Perchlorate concentration measured between ion exchange vessels. If breakthrough occurs after the lead vessel, the lag vessel will be treating effluent prior to discharge until laboratory sample results are received.
7. Discharge to INF Pond must have 17 ug/L or less of perchlorate.

APPENDIX J
AIR DATA TABLES, PID READINGS, AND CALIBRATION LOGS

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Appendix J Table 1. Ambient Air Data - November 2021
Longhorn Army Ammunition Plant
Groundwater Treatment Plant

Pollutant	CAS #	Short Term ESL March 2012	AMCVs (Short Term Health)	GWTP Ambient Air Concentrations (1)		Status (3)	Downwind Ambient Air Concentrations (2)		Status (3)
		µg/m^3	µg/m^3	µg/m^3			µg/m^3		
1,1-Dichloroethane	75-34-3	4,000	4,047	0.66	U	PASS	0.64	U	PASS
1,1-Dichloroethene	75-35-4	210	714	0.68	U	PASS	0.65	U	PASS
1,2-Dichloroethane	107-06-2	160	162	0.66	U	PASS	0.64	U	PASS
Acetone	67-64-1	5,900	NA	**13**		PASS	**11**		PASS
Benzene	71-43-2	170	575	0.63	U	PASS	0.61	U	PASS
Carbon disulfide	75-15-0	30	NA	1.4	U	PASS	1.3	U	PASS
Chloroform	67-66-3	100	98	0.68	U	PASS	0.65	U	PASS
cis-1,2-Dichloroethene	156-59-2	7,900	NA	**0.70**		PASS	0.63	U	PASS
Methylene chloride	75-09-2	3,600	12,158	0.65	U	PASS	0.63	U	PASS
Tetrachloroethene	127-18-4	2,000	6,782	0.65	U	PASS	0.63	U	PASS
trans-1,2-Dichloroethene	156-60-5	7,900	NA	0.66	U	PASS	0.64	U	PASS
Trichloroethene	79-01-6	540	537	**3.0**		PASS	0.63	U	PASS
Vinyl chloride	75-01-4	20,000	66,460	0.65	U	PASS	0.63	U	PASS
n-Hexane	110-54-3	5,300	6,336	**5.7**		PASS	**3.5**		PASS
Styrene	100-42-5	110	21,725	0.63	U	PASS	0.61	U	PASS
Toluene	108-88-3	640	15,074	**2.0**		PASS	**1.0**		PASS
Ethylbenzene	100-41-4	740	86,844	0.65	U	PASS	0.63	U	PASS
m,p-Xylenes	179601-23-1	180	7,382	1.4	U	PASS	1.3	U	PASS
o-Xylene	95-47-6	1,600	7,382	0.65	U	PASS	0.63	U	PASS
1,3-Dichlorobenzene	541-73-1	720	NA	0.65	U	PASS	0.63	U	PASS
Propene (C3 H6)	115-07-1	Asphyxiant	Asphyxiant	**2.6**		NA	0.63	U	NA
Dichlorodifluoromethane (CFC 12)	75-71-8	50,000	49,452	**2.4**		PASS	**2.3**		PASS
Ethanol	64-17-5	18,800	NA	**12**		PASS	**8.2**		PASS
Trichlorofluoromethane (CFC 11)	75-69-4	28,000	56,184	**1.9**		PASS	**1.6**		PASS
Trichlorotrifluoroethane (CFC 113)	76-13-1	38,000	NA	**1.1**		PASS	**0.75**		PASS
alpha-Pinene	80-56-8	60	3,499	**2.2**		PASS	**5.2**		PASS
d-Limonene	5989-27-5	1,100	NA	**1.0**		PASS	**3.6**		PASS

Notes:

(1) Sample collected over an 8-hour period on November 22, 2021, between 6:15 AM and 2:15 PM

(2) Sample collected over a 24-hour period beginning on November 22, 2021, at 6:30 AM and ending on November 23, 2021 at 6:30 AM

(3) Status based on comparison of air sample result to Air Monitoring Comparison Values (AMCVs). When there is no AMCV value for a chemical, the air sample concentration is compared to the short-term Effects Screening Level (ESL).

CAS # = Chemical Abstracts Service Number

GWTP = Groundwater Treatment Plant

U = non-detect

µg/m^3 = micrograms per cubic meter

g/mole = gram/mole

mol/m3 = mole per cubic meter

Appendix J Table 2. Emission Stack Air Data - November 2021
Longhorn Army Ammunition Plant
Groundwater Treatment Plant

Pollutant	CAS #	Measured Air Stripper Stack Concentrations (1)		Air Stripper Emission Rates (2)		Air Stripper Emission Rates (2a)		Allowable Annual Emission (3)	Status (4)	TLV (L)	TLV Reference	Compliance section	Distance Downwind to nearest off-site Receptor (D)	(K) conversion value	Allowable Maximum Hourly Emission Limit at Nearest off-site Receptor (6)(7) (E) = L/K	Status (8)
		µg/m^3		lb/hr		tpy		tpy		mg/m^3			feet		lb/hr	
1,1-Dichloroethane	75-34-3	18	U	1.48E-04	U	9.59E-05	U	5	PASS	405	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
1,1-Dichloroethene	75-35-4	**22**		3.61E-04		2.34E-04		5	PASS	20	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.4	PASS
1,2-Dichloroethane	107-06-2	**42**		6.89E-04		4.48E-04		5	PASS	40	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	2.9	PASS
Acetone	67-64-1	180	U	1.48E-03	U	9.59E-04	U	5	PASS	590	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Benzene	71-43-2	17	U	1.39E-04	U	9.06E-05	U	5	PASS	3	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	0.21	PASS
Carbon disulfide	75-15-0	37	U	3.03E-04	U	1.97E-04	U	5	PASS	31	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	2.2	PASS
Chloroform	67-66-3	18	U	1.48E-04	U	9.59E-05	U	5	PASS	10	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	0.71	PASS
cis-1,2-Dichloroethene	156-59-2	**1,000**		1.64E-02		1.07E-02		5	PASS	793	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Methylene chloride	75-09-2	18	U	1.48E-04	U	9.59E-05	U	5	PASS	26	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.9	PASS
Tetrachloroethene	127-18-4	18	**U**	1.48E-04	U	9.59E-05	U	5	PASS	33.5	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	2.4	PASS
trans-1,2-Dichloroethene	156-60-5	18	U	1.48E-04	U	9.59E-05	U	5	PASS	793	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Trichloroethene	79-01-6	**4,300**		7.05E-02		4.58E-02		5	PASS	135	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	6.0	PASS
Vinyl chloride	75-01-4	18	U	1.48E-04	U	9.59E-05	U	5	PASS	2	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	0.14	PASS
n-Hexane	110-54-3	18	U	1.48E-04	U	9.59E-05	U	5	PASS	1,800	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Styrene	100-42-5	17	U	1.39E-04	U	9.06E-05	U	5	PASS	21	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.5	PASS
Toluene	108-88-3	18	U	1.48E-04	U	9.59E-05	U	5	PASS	188	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	6.0	PASS
Ethylbenzene	100-41-4	18	U	1.48E-04	U	9.59E-05	U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
m,p-Xylenes	179601-23-1	37	U	3.03E-04	U	1.97E-04	U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
o-Xylene	95-47-6	18	U	1.48E-04	U	9.59E-05	U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
1,3-Dichlorobenzene	541-73-1	18	U	1.48E-04	U	9.59E-05	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2,000	14	1.0	PASS
Propene (C3 H6)	115-07-1	18	U	1.48E-04	U	9.59E-05	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2,000	14	6.0	PASS
Dichlorodifluoromethane (CFC 12)	75-71-8	18	U	1.48E-04	U	9.59E-05	U	5	PASS	4,950	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Ethanol	64-17-5	170	U	1.39E-03	U	9.06E-04	U	5	PASS	1,880	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Trichlorofluoromethane (CFC 11)	75-69-4	18	U	1.48E-04	U	9.59E-05	U	5	PASS	5,620	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
Trichlorotrifluoroethane (CFC 113)	76-13-1	**460**		7.54E-03		4.90E-03		5	PASS	7,670	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2,000	14	1.0	PASS
alpha-Pinene	80-56-8	18	U	1.48E-04	U	9.59E-05	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2,000	14	1.0	PASS
d-Limonene	5989-27-5	17	U	1.39E-04	U	9.06E-05	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2,000	14	1.0	PASS
		TOTAL		0.102												

Notes:

(1) Sample collected on November 22, 2021. The higher value of the sample or duplicate is reported.

(2) Based on a blower flow rate of 4,390 cubic feet per minute (cfm). Note that plant operates less than or equal to 25 hours per week. 1/2 of detection limit was used for estimating mass rate

(2a) Based on operation of 25 hours per week, 52 weeks per year.

(3) Per 30TAC 106.533(f)(1)(B)

(4) Based on comparing the calculated air stripper stack sample emission rate in tons per year (tpy) to the allowable annual emission limit per chemical of 5 tpy.

(5) No Threshold Limit Values (TLVs) for these chemicals

(6) The maximum hourly limit allowed by 30 Texas Administrative Code (TAC) 106.262, per pollutant, is 6 pounds per hour (lb/hr) per "Figure 1: 30 TAC 106.262(a)". The E value was overridden with 6 lb/hr when the calculated E was higher.

(7) The maximum hourly emission rate allowed by 30 TAC 106.261(a)(3) for chemicals with a limit value (L) greater than 200 mg/m^3 is 1 lb/hr.

(8) Based on comparing the calculated air stripper stack sample emission rate in lb/hr to the allowable maximum emission limit per chemical based on distance downwind to nearest off-site receptor.

CAS # = Chemical Abstracts Service Number

mg/m^3 = milligrams per cubic meter

µg/m^3 = micrograms per cubic meter

ACGIH = American Conference of Governmental Industrial Hygienists

U = non-detect

Appendix G Table 3. PID Readings - 4th Quarter 2021
Longhorn Army Ammunition Plant
Groundwater Treatment Plant

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
10/18/2021	8:00	Outside GWTP Office	3221 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 52°F
10/18/2021	8:00	Downwind	3221 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 52°F
10/18/2021	8:00	Stripper	3221 ACFM	MiniRAE 3000	Kennie Moore	Max. 23.1 ppm Steady State 6.7 ppm	Clear 52°F
10/18/2021	14:00	Outside GWTP Office	3074 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 81°F
10/18/2021	14:00	Downwind	3074 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 81°F
10/18/2021	14:00	Stripper	3074 ACFM	MiniRAE 3000	Scott Beesinger	Max. 21.7 ppm Steady State 5.1 ppm	Clear 81°F
10/19/2021	8:00	Outside GWTP Office	3223 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 50°F
10/19/2021	8:00	Downwind	3223 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 50°F
10/19/2021	8:00	Stripper	3223 ACFM	MiniRAE 3000	Kennie Moore	Max. 23.6 ppm Steady State 6.1 ppm	Clear 50°F
10/19/2021	13:00	Outside GWTP Office	3061 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 74°F
10/19/2021	13:00	Downwind	3061 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 74°F
10/19/2021	13:00	Stripper	3061 ACFM	MiniRAE 3000	Scott Beesinger	Max. 21.9 ppm Steady State 5.2 ppm	Clear 74°F
11/1/2021	8:00	Outside GWTP Office	3233 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 46°F
11/1/2021	8:00	Downwind	3233 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 46°F
11/1/2021	8:00	Stripper	3233 ACFM	MiniRAE 3000	Scott Beesinger	Max. 23.2 ppm Steady State 5.9 ppm	Clear 46°F
11/1/2021	14:00	Outside GWTP Office	3051 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 77°F
11/1/2021	14:00	Downwind	3051 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 77°F
11/1/2021	14:00	Stripper	3051 ACFM	MiniRAE 3000	Scott Beesinger	Max. 24.9 ppm Steady State 7.5 ppm	Clear 77°F
11/8/2021	8:00	Outside GWTP Office	3265 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 43°F
11/8/2021	8:00	Downwind	3265 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 43°F
11/8/2021	8:00	Stripper	3265 ACFM	MiniRAE 3000	Scott Beesinger	Max. 25.6 ppm Steady State 8.4 ppm	Clear 43°F
11/8/2021	14:00	Outside GWTP Office	3072 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73°F
11/8/2021	14:00	Downwind	3072 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73°F
11/8/2021	14:00	Stripper	3072 ACFM	MiniRAE 3000	Scott Beesinger	Max. 23.2 ppm Steady State 7.8 ppm	Clear 73°F
11/22/2021	8:00	Outside GWTP Office	3256 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 52°F
11/22/2021	8:00	Downwind	3256 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 52°F
11/22/2021	8:00	Stripper	3256 ACFM	MiniRAE 3000	Kennie Moore	Max. 21.1 ppm Steady State 6.2 ppm	Clear 52°F
11/22/2021	14:00	Outside GWTP Office	3008 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71°F
11/22/2021	14:00	Downwind	3008 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71°F
11/22/2021	14:00	Stripper	3008 ACFM	MiniRAE 3000	Kennie Moore	Max. 23.6 ppm Steady State 7.6 ppm	Clear 71°F
12/3/2021	8:00	Outside GWTP Office	3269 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 61°F
12/3/2021	8:00	Downwind	3269 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 61°F
12/3/2021	8:00	Stripper	3269 ACFM	MiniRAE 3000	Scott Beesinger	Max. 24.5 ppm Steady State 6.9 ppm	Cloudy 61°F
12/3/2021	12:00	Outside GWTP Office	3110 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70°F
12/3/2021	12:00	Downwind	3110 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70°F
12/3/2021	12:00	Stripper	3110 ACFM	MiniRAE 3000	Scott Beesinger	Max. 22.2 ppm Steady State 6.1 ppm	Cloudy 70°F

Appendix G Table 3. PID Readings - 4th Quarter 2021
Longhorn Army Ammunition Plant
Groundwater Treatment Plant

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
12/13/2021	8:00	Outside GWTP Office	3542 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 40°F
12/13/2021	8:00	Downwind	3542 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 40°F
12/13/2021	8:00	Stripper	3542 ACFM	MiniRAE 3000	Kennie Moore	Max. 22.1 ppm Steady State 6.6 ppm	Cloudy 40°F
12/13/2021	14:00	Outside GWTP Office	3116 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 66°F
12/13/2021	14:00	Downwind	3116 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 66°F
12/13/2021	14:00	Stripper	3116 ACFM	MiniRAE 3000	Kennie Moore	Max. 24.1 ppm Steady State 7.3 ppm	Cloudy 66°F
12/16/2021	8:00	Outside GWTP Office	3251 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 72°F
12/16/2021	8:00	Downwind	3251 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 72°F
12/16/2021	8:00	Stripper	3251 ACFM	MiniRAE 3000	Scott Beesinger	Max. 21.0 ppm Steady State 5.4 ppm	Overcast 72°F
12/16/2021	11:30	Outside GWTP Office	3101 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 76°F
12/16/2021	11:30	Downwind	3101 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 76°F
12/16/2021	11:30	Stripper	3101 ACFM	MiniRAE 3000	Kennie Moore	Max. 23.2 ppm Steady State 6.0 ppm	Overcast 76°F
12/21/2021	8:00	Outside GWTP Office	3337 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 33°F
12/21/2021	8:00	Downwind	3337 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 33°F
12/21/2021	8:00	Stripper	3337 ACFM	MiniRAE 3000	Scott Beesinger	Max. 25.6 ppm Steady State 8.2 ppm	Cloudy 33°F
12/21/2021	13:00	Outside GWTP Office	3190 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 60°F
12/21/2021	13:00	Downwind	3190 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 60°F
12/21/2021	13:00	Stripper	3190 ACFM	MiniRAE 3000	Scott Beesinger	Max. 21.1 ppm Steady State 6.0 ppm	Clear 60°F
12/27/2021	8:00	Outside GWTP Office	3229 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70°F
12/27/2021	8:00	Downwind	3229 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70°F
12/27/2021	8:00	Stripper	3229 ACFM	MiniRAE 3000	Scott Beesinger	Max. 22.5 ppm Steady State 5.7 ppm	Cloudy 70°F
12/27/2021	14:00	Outside GWTP Office	3078 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 77°F
12/27/2021	14:00	Downwind	3078 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 77°F
12/27/2021	14:00	Stripper	3078 ACFM	MiniRAE 3000	Scott Beesinger	Max. 24.9 ppm Steady State 6.6 ppm	Cloudy 77°F
12/29/2021	8:00	Outside GWTP Office	3265 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 69°F
12/29/2021	8:00	Downwind	3265 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 69°F
12/29/2021	8:00	Stripper	3265 ACFM	MiniRAE 3000	Scott Beesinger	Max. 22.7 ppm Steady State 5.3 ppm	Cloudy 69°F
12/29/2021	11:00	Outside GWTP Office	3047 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 75°F
12/29/2021	11:00	Downwind	3047 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 75°F
12/29/2021	11:00	Stripper	3047 ACFM	MiniRAE 3000	Scott Beesinger	Max. 23.8 ppm Steady State 5.5 ppm	Cloudy 75°F

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/18/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

PID					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
Model: Mini RAE 3000		Bulb: ~~10.6~~ 11.7 meV					
Equipment ID #:							
	Parameter	Standard	Exp. Date	Lot#	Time: 0625	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
Model:							
Equipment ID #:							
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
Model:							
Equipment ID #:							
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115530

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/19/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

PID

Model: Mini RAE 3000 Bulb: ~~10.6~~ 11.7 meV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time: 0630	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O_2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/1/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: SCOTT BEGSINGER

PID

Model: MINI RAE 3000

Equipment ID #:

Bulb: ~~10.6~~ 11.7 meV

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0630	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	9.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/8/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

PID

Model: Mini RAE 3000 Bulb: ~~10.6~~ 11.7 meV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0640	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
First Point Calibration (Auto)					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.3-8.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115533

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/15/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

PID

Model: Mini RAE 3000 | Bulb: ~~10.6~~ 11.7 eV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0615	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115534

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/22/21

Project Number: NW01312.0150

Project Name: LHAAP-GWTP

Recorded By: SCOTT BEGGINGER

PID

Model: MINI RAE 3000 Bulb: ~~10.6~~ 11.7 meV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0620	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115535

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/3/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: Mini RAE 3000		Bulb: ~~10.6~~ 11.7 meV				
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#			
First Point Calibration					Time: 0645	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#			
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115536

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/13/21

Project Number: NW0132.0150

Project Name: LHAAP - GWTP

Recorded By: SCOTT BAGSINGER

PID

Model: MINI RAE 3000

Bulb: ~~10.6~~ 11.7 meV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0625	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115537

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/16/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

PID

Model: Mini RAE 3000

Equipment ID #:

Bulb: ~~10.6~~ 11.7 meV

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0620	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/21/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

PID

Model: MiniRAE 3000 Bulb: ~~10.6~~ 11.7 meV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0630	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
First Point Calibration (Auto)					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/27/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Bassinger

PID

Model: MiniRAE 3000 Bulb: ~~10.6~~ 11.7 meV

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time: 0630	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
First Point Calibration (Auto)					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01115540

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/29/21

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Baggenger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: Mini RAE 3000		Bulb: ~~10.6~~ 11.7 meV				
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#			
First Point Calibration					Time: 0620	Time:	Time:
					Initials: SB	Initials:	Initials:
	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: To zero SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	11/12/22	JBH-250-100-20	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#			
First Point Calibration					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#			
First Point Calibration (Auto)					Time:	Time:	Time:
					Initials:	Initials:	Initials:
	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.3-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

January 26, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120428**

Laboratory Results for: **LHAAP / Site 18/24**

Dear Marcia Olive,

ALS Environmental received 8 sample(s) on Dec 07, 2021 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

Generated By: COREY.GRANDITS

Ragen Giga
Project Manager

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Work Order: HS21120428

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120428-01	MW5_120621	Water		06-Dec-2021 08:10	07-Dec-2021 11:05	☐
HS21120428-02	18CPTMW08DW_120621	Water		06-Dec-2021 08:55	07-Dec-2021 11:05	☐
HS21120428-03	18CPTMW08SW_120621	Water		06-Dec-2021 09:40	07-Dec-2021 11:05	☐
HS21120428-04	18CPTMW12SW_120621	Water		06-Dec-2021 10:30	07-Dec-2021 11:05	☐
HS21120428-05	18CPTMW12DW_120621	Water		06-Dec-2021 11:15	07-Dec-2021 11:05	☐
HS21120428-06	MW7_120621	Water		06-Dec-2021 12:05	07-Dec-2021 11:05	☐
HS21120428-07	MW23_120621	Water		06-Dec-2021 12:50	07-Dec-2021 11:05	☐
HS21120428-08	Trip Blank	Water	CG-111221-80	06-Dec-2021 00:00	07-Dec-2021 11:05	☐

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Work Order: HS21120428

CASE NARRATIVE

Work Order Comments

- Revision I - This report was revised to include Copper data originally missing from the ICP-MS data.
- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173430

Sample ID: 18CPTMW08DW_120621 (HS21120428-02)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18CPTMW08SW_120621 (HS21120428-03)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18CPTMW12DW_120621 (HS21120428-05)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18CPTMW12SW_120621 (HS21120428-04)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: MW5_120621 (HS21120428-01)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: MW7_120621 (HS21120428-06)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Work Order: HS21120428

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R397962

Sample ID: VSTD050

- Acetone, Bromomethane and Chloromethane exceeded %D limits for CCV .Samples are ND for these compounds.

Sample ID: MW23_120621 (HS21120428-07MS)

- MS and/or MSD recovered outside control limits

Sample ID: HS21120469-06MS

- MS and MSD are for an unrelated sample

Batch ID: R397414

Sample ID: VSTD050

- Chloromethane, Bromomethane, Acetone and 2,2-Dichloropropane exceeded %D limits for CCV .Samples are ND for these compounds.

Sample ID: HS21120370-03MS

- MS and MSD are for an unrelated sample

Metals by Method SW6020A

Batch ID: 173565

Sample ID: HS21120092-05MS

- MS and MSD are for an unrelated sample

Metals by Method SW7470A

Batch ID: 173516

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW5_120621
Collection Date: 06-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,1-Dichloroethane	**1.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:19
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 21:19
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	16-Dec-2021 21:19
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	16-Dec-2021 21:19
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 21:19
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	16-Dec-2021 21:19
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW5_120621
Collection Date: 06-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
cis-1,2-Dichloroethene	**5.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:19
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 21:19
Methylene chloride	**1.9**	J	**0.40**	**2.0**	**2.0**	**ug/L**	1	16-Dec-2021 21:19
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:19
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:19
Trichloroethene	**18**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:19
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:19
Vinyl chloride	**1.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:19
Surr: 1,2-Dichloroethane-d4	*106*			**0**	*81-118*	*%REC*	*1*	*16-Dec-2021 21:19*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*1*	*16-Dec-2021 21:19*
Surr: Dibromofluoromethane	*98.6*			**0**	*80-119*	*%REC*	*1*	*16-Dec-2021 21:19*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*16-Dec-2021 21:19*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.96**	a	**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 12:40
Surr: 2-Fluorobiphenyl	*88.8*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 12:40*
Surr: 4-Terphenyl-d14	*42.4*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 12:40*
Surr: Nitrobenzene-d5	*65.0*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 12:40*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW5_120621
Collection Date: 06-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JHD
Aluminum	**0.00396**	J	**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	21-Dec-2021 15:50
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	21-Dec-2021 15:50
Arsenic	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	21-Dec-2021 15:50
Barium	**0.698**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:50
Cadmium	**0.000671**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	21-Dec-2021 15:50
Calcium	**15.5**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	21-Dec-2021 15:50
Chromium	**0.0771**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Cobalt	**0.00228**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Copper	**0.00121**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Iron	**0.392**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:50
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	21-Dec-2021 15:50
Magnesium	**16.5**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:50
Manganese	**0.0644**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Nickel	**0.0599**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Potassium	**1.89**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:50
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	21-Dec-2021 15:50
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	21-Dec-2021 15:50
Sodium	**87.2**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:50
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:50
Vanadium	**0.00234**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
Zinc	**0.0175**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:50
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.0000990**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:19
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW08DW_120621
Collection Date: 06-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.86**	a	**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 12:58
Surr: 2-Fluorobiphenyl	*49.0*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 12:58*
Surr: 4-Terphenyl-d14	*54.5*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 12:58*
Surr: Nitrobenzene-d5	*75.5*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 12:58*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW08SW_120621
Collection Date: 06-Dec-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,1-Dichloroethane	**4.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:42
1,1-Dichloroethene	**0.74**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:42
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 21:42
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	16-Dec-2021 21:42
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	16-Dec-2021 21:42
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 21:42
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	16-Dec-2021 21:42
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW08SW_120621
Collection Date: 06-Dec-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
cis-1,2-Dichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:42
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 21:42
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 21:42
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 21:42
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 21:42
Trichloroethene	**38**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:42
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 21:42
Vinyl chloride	**1.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 21:42
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*1*	*16-Dec-2021 21:42*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*16-Dec-2021 21:42*
Surr: Dibromofluoromethane	*99.4*			**0**	*80-119*	*%REC*	*1*	*16-Dec-2021 21:42*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*16-Dec-2021 21:42*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**2.2**	a	**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 13:16
Surr: 2-Fluorobiphenyl	*67.9*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:16*
Surr: 4-Terphenyl-d14	*89.2*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:16*
Surr: Nitrobenzene-d5	*52.3*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:16*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW12SW_120621
Collection Date: 06-Dec-2021 10:30

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 22:04
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	16-Dec-2021 22:04
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	16-Dec-2021 22:04
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 22:04
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	16-Dec-2021 22:04
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW12SW_120621
Collection Date: 06-Dec-2021 10:30

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 22:04
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 22:04
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:04
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Trichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	16-Dec-2021 22:04
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:04
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*1*	*16-Dec-2021 22:04*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*1*	*16-Dec-2021 22:04*
Surr: Dibromofluoromethane	*98.2*			**0**	*80-119*	*%REC*	*1*	*16-Dec-2021 22:04*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*16-Dec-2021 22:04*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**1.8**	a	**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 13:34
Surr: 2-Fluorobiphenyl	*44.9*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:34*
Surr: 4-Terphenyl-d14	*55.1*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:34*
Surr: Nitrobenzene-d5	*71.0*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:34*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW12SW_120621
Collection Date: 06-Dec-2021 10:30

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JHD
Aluminum	**0.0123**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	21-Dec-2021 15:52
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	21-Dec-2021 15:52
Arsenic	**0.000813**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Barium	**0.901**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:52
Cadmium	**0.000311**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	21-Dec-2021 15:52
Calcium	**56.6**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	21-Dec-2021 15:52
Chromium	**0.00295**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Cobalt	**0.0126**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	21-Dec-2021 15:52
Iron	**0.613**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:52
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	21-Dec-2021 15:52
Magnesium	**32.5**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:52
Manganese	**1.46**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Nickel	**0.0132**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Potassium	**36.1**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:52
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	21-Dec-2021 15:52
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	21-Dec-2021 15:52
Sodium	**225**		**0.140**	**0.500**	**2.00**	**mg/L**	10	21-Dec-2021 16:35
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:52
Vanadium	**0.00161**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
Zinc	**0.0169**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:52
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.000130**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:20
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW12DW_120621
Collection Date: 06-Dec-2021 11:15

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 22:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	16-Dec-2021 22:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	16-Dec-2021 22:26
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 22:26
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	16-Dec-2021 22:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW12DW_120621
Collection Date: 06-Dec-2021 11:15

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	16-Dec-2021 22:26
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	16-Dec-2021 22:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	16-Dec-2021 22:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	16-Dec-2021 22:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	16-Dec-2021 22:26
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*1*	*16-Dec-2021 22:26*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*16-Dec-2021 22:26*
Surr: Dibromofluoromethane	*98.8*			**0**	*80-119*	*%REC*	*1*	*16-Dec-2021 22:26*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-Dec-2021 22:26*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**1.7**	a	**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 13:51
Surr: 2-Fluorobiphenyl	*51.7*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:51*
Surr: 4-Terphenyl-d14	*67.0*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:51*
Surr: Nitrobenzene-d5	*94.2*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 13:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: 18CPTMW12DW_120621
Collection Date: 06-Dec-2021 11:15

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JHD
Aluminum	0.00500	U	0.00180	0.00500	0.0100	mg/L	1	21-Dec-2021 15:54
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	21-Dec-2021 15:54
Arsenic	**0.00264**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Barium	**0.327**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:54
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:54
Calcium	**27.4**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	21-Dec-2021 15:54
Chromium	**0.00329**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Cobalt	**0.000326**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	21-Dec-2021 15:54
Iron	**6.45**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:54
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	21-Dec-2021 15:54
Magnesium	**8.60**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:54
Manganese	**0.201**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Nickel	**0.000774**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Potassium	**55.1**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:54
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	21-Dec-2021 15:54
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	21-Dec-2021 15:54
Sodium	**160**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	21-Dec-2021 15:54
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	21-Dec-2021 15:54
Vanadium	**0.000991**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
Zinc	**0.00268**	J	**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	21-Dec-2021 15:54
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	0.000000100	U	0.0000300	0.000000100	0.000200	mg/L	1	14-Dec-2021 11:22
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW7_120621
Collection Date: 06-Dec-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
1,1-Dichloroethene	**6.6**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Dec-2021 22:49
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,2-Dichloroethane	**25**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Dec-2021 22:49
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,3,5-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	16-Dec-2021 22:49
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
2-Hexanone	10	U	5.0	10	10	ug/L	5	16-Dec-2021 22:49
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
4-Isopropyltoluene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	16-Dec-2021 22:49
Acetone	10	U	2.0	10	10	ug/L	5	16-Dec-2021 22:49
Benzene	**5.4**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Dec-2021 22:49
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Carbon disulfide	10	U	3.0	10	10	ug/L	5	16-Dec-2021 22:49
Carbon tetrachloride	**9.0**		**2.5**	**5.0**	**5.0**	**ug/L**	5	16-Dec-2021 22:49
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Chloroform	**13**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Dec-2021 22:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW7_120621
Collection Date: 06-Dec-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
cis-1,2-Dichloroethene	**19**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Dec-2021 22:49
cis-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	16-Dec-2021 22:49
Methylene chloride	**9.2**	J	**2.0**	**10**	**10**	**ug/L**	5	16-Dec-2021 22:49
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	16-Dec-2021 22:49
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
Trichloroethene	**1,700**		**5.0**	**12**	**25**	**ug/L**	25	18-Dec-2021 17:27
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	16-Dec-2021 22:49
Vinyl chloride	2.5	U	1.0	2.5	5.0	ug/L	5	16-Dec-2021 22:49
Surr: 1,2-Dichloroethane-d4	*108*			**0**	*81-118*	*%REC*	*5*	*16-Dec-2021 22:49*
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*25*	*18-Dec-2021 17:27*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*5*	*16-Dec-2021 22:49*
Surr: 4-Bromofluorobenzene	*97.5*			**0**	*85-114*	*%REC*	*25*	*18-Dec-2021 17:27*
Surr: Dibromofluoromethane	*100*			**0**	*80-119*	*%REC*	*5*	*16-Dec-2021 22:49*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*25*	*18-Dec-2021 17:27*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*16-Dec-2021 22:49*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*25*	*18-Dec-2021 17:27*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**4.0**	a	**0.50**	**0.50**	**0.50**	**ug/L**	50	18-Dec-2021 14:09
Surr: 2-Fluorobiphenyl	*40.6*			**0**	*40-140*	*%REC*	*50*	*18-Dec-2021 14:09*
Surr: 4-Terphenyl-d14	*96.0*			**0**	*40-140*	*%REC*	*50*	*18-Dec-2021 14:09*
Surr: Nitrobenzene-d5	*58.9*			**0**	*40-140*	*%REC*	*50*	*18-Dec-2021 14:09*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client:	Bhate Environmental Associates, Inc.		**ANALYTICAL REPORT**
Project:	LHAAP / Site 18/24	WorkOrder:	HS21120428
Sample ID:	MW7_120621	Lab ID:	HS21120428-06
Collection Date:	06-Dec-2021 12:05	Matrix:	Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW23_120621
Collection Date: 06-Dec-2021 12:50

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,2-Dichloroethane	**69**		**1.0**	**2.5**	**5.0**	**ug/L**	5	18-Dec-2021 14:51
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,3,5-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	18-Dec-2021 14:51
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
2-Hexanone	10	U	5.0	10	10	ug/L	5	18-Dec-2021 14:51
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
4-Isopropyltoluene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	18-Dec-2021 14:51
Acetone	10	U	2.0	10	10	ug/L	5	18-Dec-2021 14:51
Benzene	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Carbon disulfide	10	U	3.0	10	10	ug/L	5	18-Dec-2021 14:51
Carbon tetrachloride	5.0	U	2.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Chloroform	**10**		**1.0**	**2.5**	**5.0**	**ug/L**	5	18-Dec-2021 14:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: MW23_120621
Collection Date: 06-Dec-2021 12:50

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
cis-1,2-Dichloroethene	**21**		**1.0**	**2.5**	**5.0**	**ug/L**	5	18-Dec-2021 14:51
cis-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	18-Dec-2021 14:51
Methylene chloride	**6.7**	J	**2.0**	**10**	**10**	**ug/L**	5	18-Dec-2021 14:51
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	18-Dec-2021 14:51
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
trans-1,2-Dichloroethene	**2.2**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	18-Dec-2021 14:51
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Trichloroethene	**3,100**		**5.0**	**12**	**25**	**ug/L**	25	18-Dec-2021 14:28
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	18-Dec-2021 14:51
Vinyl chloride	2.5	U	1.0	2.5	5.0	ug/L	5	18-Dec-2021 14:51
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*25*	*18-Dec-2021 14:28*
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*5*	*18-Dec-2021 14:51*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*25*	*18-Dec-2021 14:28*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*5*	*18-Dec-2021 14:51*
Surr: Dibromofluoromethane	*91.1*			**0**	*80-119*	*%REC*	*25*	*18-Dec-2021 14:28*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*5*	*18-Dec-2021 14:51*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*25*	*18-Dec-2021 14:28*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*5*	*18-Dec-2021 14:51*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: Trip Blank
Collection Date: 06-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-Dec-2021 18:34
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	18-Dec-2021 18:34
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	18-Dec-2021 18:34
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	18-Dec-2021 18:34
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	18-Dec-2021 18:34
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
Sample ID: Trip Blank
Collection Date: 06-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120428
Lab ID:HS21120428-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-Dec-2021 18:34
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	18-Dec-2021 18:34
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2021 18:34
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2021 18:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2021 18:34
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*1*	*18-Dec-2021 18:34*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*18-Dec-2021 18:34*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*18-Dec-2021 18:34*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*18-Dec-2021 18:34*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

Batch ID: 173430 **Start Date:** 10 Dec 2021 11:30 **End Date:** 10 Dec 2021 15:00
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120428-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120428-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120428-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120428-04	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120428-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120428-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173516 **Start Date:** 14 Dec 2021 08:00 **End Date:** 14 Dec 2021 10:30
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120428-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120428-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120428-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 173565 **Start Date:** 15 Dec 2021 09:30 **End Date:** 15 Dec 2021 13:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120428-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120428-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120428-05		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173430 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS21120428-01	MW5_120621	06 Dec 2021 08:10		10 Dec 2021 16:47	18 Dec 2021 12:40	25
HS21120428-02	18CPTMW08DW_120621	06 Dec 2021 08:55		10 Dec 2021 16:47	18 Dec 2021 12:58	25
HS21120428-03	18CPTMW08SW_120621	06 Dec 2021 09:40		10 Dec 2021 16:47	18 Dec 2021 13:16	25
HS21120428-04	18CPTMW12SW_120621	06 Dec 2021 10:30		10 Dec 2021 16:47	18 Dec 2021 13:34	25
HS21120428-05	18CPTMW12DW_120621	06 Dec 2021 11:15		10 Dec 2021 16:47	18 Dec 2021 13:51	25
HS21120428-06	MW7_120621	06 Dec 2021 12:05		10 Dec 2021 16:47	18 Dec 2021 14:09	50
Batch ID: 173516 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS21120428-01	MW5_120621	06 Dec 2021 08:10		14 Dec 2021 08:00	14 Dec 2021 11:19	1
HS21120428-04	18CPTMW12SW_120621	06 Dec 2021 10:30		14 Dec 2021 08:00	14 Dec 2021 11:20	1
HS21120428-05	18CPTMW12DW_120621	06 Dec 2021 11:15		14 Dec 2021 08:00	14 Dec 2021 11:22	1
Batch ID: 173565 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS21120428-01	MW5_120621	06 Dec 2021 08:10		15 Dec 2021 13:30	21 Dec 2021 15:50	1
HS21120428-04	18CPTMW12SW_120621	06 Dec 2021 10:30		15 Dec 2021 13:30	21 Dec 2021 16:35	10
HS21120428-04	18CPTMW12SW_120621	06 Dec 2021 10:30		15 Dec 2021 13:30	21 Dec 2021 15:52	1
HS21120428-05	18CPTMW12DW_120621	06 Dec 2021 11:15		15 Dec 2021 13:30	21 Dec 2021 15:54	1
Batch ID: R397414 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120428-01	MW5_120621	06 Dec 2021 08:10			16 Dec 2021 21:19	1
HS21120428-03	18CPTMW08SW_120621	06 Dec 2021 09:40			16 Dec 2021 21:42	1
HS21120428-04	18CPTMW12SW_120621	06 Dec 2021 10:30			16 Dec 2021 22:04	1
HS21120428-05	18CPTMW12DW_120621	06 Dec 2021 11:15			16 Dec 2021 22:26	1
HS21120428-06	MW7_120621	06 Dec 2021 12:05			16 Dec 2021 22:49	5
Batch ID: R397962 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120428-06	MW7_120621	06 Dec 2021 12:05			18 Dec 2021 17:27	25
HS21120428-07	MW23_120621	06 Dec 2021 12:50			18 Dec 2021 14:51	5
HS21120428-07	MW23_120621	06 Dec 2021 12:50			18 Dec 2021 14:28	25
HS21120428-08	Trip Blank	06 Dec 2021 00:00			18 Dec 2021 18:34	1
Batch ID: R398029 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21120428-01	MW5_120621	06 Dec 2021 08:10			20 Dec 2021 17:32	1
HS21120428-02	18CPTMW08DW_120621	06 Dec 2021 08:55			20 Dec 2021 17:32	1
HS21120428-03	18CPTMW08SW_120621	06 Dec 2021 09:40			20 Dec 2021 17:32	1
HS21120428-04	18CPTMW12SW_120621	06 Dec 2021 10:30			20 Dec 2021 17:32	1
HS21120428-05	18CPTMW12DW_120621	06 Dec 2021 11:15			20 Dec 2021 17:32	1
HS21120428-06	MW7_120621	06 Dec 2021 12:05			20 Dec 2021 17:32	1
HS21120428-07	MW23_120621	06 Dec 2021 12:50			20 Dec 2021 17:32	1

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173516 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173516** Units: **mg/L** Analysis Date: **14-Dec-2021 10:52**
Client ID: Run ID: **HG03_397541** SeqNo: **6419855** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173516** Units: **mg/L** Analysis Date: **14-Dec-2021 10:54**
Client ID: Run ID: **HG03_397541** SeqNo: **6419856** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.000200	0.005	0	105	82 - 119				

MS Sample ID: **HS21120092-05MS** Units: **mg/L** Analysis Date: **14-Dec-2021 10:58**
Client ID: Run ID: **HG03_397541** SeqNo: **6419858** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.000200	0.005	0.00007100	93.6	82 - 119				

MSD Sample ID: **HS21120092-05MSD** Units: **mg/L** Analysis Date: **14-Dec-2021 10:59**
Client ID: Run ID: **HG03_397541** SeqNo: **6419859** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00497	0.000200	0.005	0.00007100	98.0	82 - 119	0.004750	4.53	20	

The following samples were analyzed in this batch: HS21120428-01 HS21120428-04 HS21120428-05

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-173565** Units: **mg/L** Analysis Date: **15-Dec-2021 21:25**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424041** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003659	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

LCS Sample ID: **LCS-173565** Units: **mg/L** Analysis Date: **16-Dec-2021 16:19**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6425387** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.108	0.0100	0.1	0	108	84 - 117				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-173565** Units: **mg/L** Analysis Date: **15-Dec-2021 21:27**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424042** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05129	0.00500	0.05	0	103	85 - 117				
Arsenic	0.05307	0.00500	0.05	0	106	84 - 116				
Barium	0.05344	0.00500	0.05	0	107	86 - 114				
Beryllium	0.05193	0.00200	0.05	0	104	83 - 121				
Cadmium	0.05468	0.00200	0.05	0	109	87 - 115				
Calcium	5.164	0.500	5	0	103	87 - 118				
Chromium	0.05209	0.00500	0.05	0	104	85 - 116				
Cobalt	0.05234	0.00500	0.05	0	105	86 - 115				
Copper	0.05504	0.00500	0.05	0	110	85 - 118				
Iron	5.194	0.200	5	0	104	87 - 118				
Lead	0.05226	0.00500	0.05	0	105	88 - 115				
Magnesium	5.392	0.200	5	0	108	83 - 118				
Manganese	0.05339	0.00500	0.05	0	107	87 - 115				
Nickel	0.05396	0.00500	0.05	0	108	85 - 117				
Potassium	5.231	0.200	5	0	105	87 - 115				
Selenium	0.05563	0.00500	0.05	0	111	80 - 120				
Silver	0.05363	0.00500	0.05	0	107	85 - 116				
Sodium	5.278	0.200	5	0	106	85 - 117				
Thallium	0.05319	0.00200	0.05	0	106	82 - 116				
Vanadium	0.05225	0.00500	0.05	0	105	86 - 115				
Zinc	0.05685	0.00500	0.05	0	114	83 - 119				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21120092-05MS** Units: **mg/L** Analysis Date: **15-Dec-2021 21:33**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424045** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	23.07	0.0100	0.1	23.06	5.63	84 - 117				SEO
Antimony	0.0513	0.00500	0.05	0.000123	102	85 - 117				
Arsenic	0.05642	0.00500	0.05	0.001712	109	84 - 116				
Barium	0.06419	0.00500	0.05	0.01164	105	86 - 114				
Beryllium	0.06172	0.00200	0.05	0.009363	105	83 - 121				
Cadmium	0.06048	0.00200	0.05	0.009242	102	87 - 115				
Calcium	517.8	0.500	5	514.2	73.0	87 - 118				SEO
Chromium	0.05154	0.00500	0.05	0.000979	101	85 - 116				
Cobalt	0.2334	0.00500	0.05	0.18	107	86 - 115				
Copper	0.05655	0.00500	0.05	0.006004	101	85 - 118				
Iron	5.28	0.200	5	0.2562	100	87 - 118				
Lead	0.05274	0.00500	0.05	0.000788	104	88 - 115				
Magnesium	225.7	0.200	5	219.7	118	83 - 118				SEO
Manganese	3.342	0.00500	0.05	3.294	96.9	87 - 115				EO
Nickel	0.9313	0.00500	0.05	0.8808	101	85 - 117				O
Potassium	14.33	0.200	5	9.331	99.9	87 - 115				
Selenium	0.09932	0.00500	0.05	0.04332	112	80 - 120				
Silver	0.04744	0.00500	0.05	0.000041	94.8	85 - 116				
Sodium	180.4	0.200	5	176.3	81.4	85 - 117				SEO
Thallium	0.05414	0.00200	0.05	0.000372	108	82 - 116				
Vanadium	0.05317	0.00500	0.05	0.000932	104	86 - 115				
Zinc	0.5828	0.00500	0.05	0.531	103	83 - 119				O

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21120092-05MSD** Units: **mg/L** Analysis Date: **15-Dec-2021 21:35**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424046** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	23.36	0.0100	0.1	23.06	301	84 - 117	23.07	1.27	20	SEO
Antimony	0.05202	0.00500	0.05	0.000123	104	85 - 117	0.0513	1.39	20	
Arsenic	0.05688	0.00500	0.05	0.001712	110	84 - 116	0.05642	0.809	20	
Barium	0.06676	0.00500	0.05	0.01164	110	86 - 114	0.06419	3.93	20	
Beryllium	0.06333	0.00200	0.05	0.009363	108	83 - 121	0.06172	2.56	20	
Cadmium	0.06277	0.00200	0.05	0.009242	107	87 - 115	0.06048	3.71	20	
Calcium	529.4	0.500	5	514.2	305	87 - 118	517.8	2.22	20	SEO
Chromium	0.05131	0.00500	0.05	0.000979	101	85 - 116	0.05154	0.439	20	
Cobalt	0.237	0.00500	0.05	0.18	114	86 - 115	0.2334	1.54	20	
Copper	0.05691	0.00500	0.05	0.006004	102	85 - 118	0.05655	0.635	20	
Iron	5.343	0.200	5	0.2562	102	87 - 118	5.28	1.19	20	
Lead	0.05366	0.00500	0.05	0.000788	106	88 - 115	0.05274	1.72	20	
Magnesium	228.4	0.200	5	219.7	173	83 - 118	225.7	1.21	20	SEO
Manganese	3.393	0.00500	0.05	3.294	199	87 - 115	3.342	1.52	20	SEO
Nickel	0.9411	0.00500	0.05	0.8808	121	85 - 117	0.9313	1.04	20	SO
Potassium	14.58	0.200	5	9.331	105	87 - 115	14.33	1.73	20	
Selenium	0.1008	0.00500	0.05	0.04332	115	80 - 120	0.09932	1.49	20	
Silver	0.04877	0.00500	0.05	0.000041	97.5	85 - 116	0.04744	2.76	20	
Sodium	183.9	0.200	5	176.3	151	85 - 117	180.4	1.91	20	SEO
Thallium	0.05489	0.00200	0.05	0.000372	109	82 - 116	0.05414	1.38	20	
Vanadium	0.05346	0.00500	0.05	0.000932	105	86 - 115	0.05317	0.555	20	
Zinc	0.5906	0.00500	0.05	0.531	119	83 - 119	0.5828	1.34	20	SO

PDS Sample ID: **HS21120092-05PDS** Units: **mg/L** Analysis Date: **16-Dec-2021 17:27**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6426423** PrepDate: **15-Dec-2021** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	30.38	1.00	10	20.73	96.5	80 - 120				
Calcium	1475	50.0	1000	474.9	100	80 - 120				
Magnesium	1244	20.0	1000	220.9	102	80 - 120				
Manganese	13.4	0.500	10	3.157	102	80 - 120				

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ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21120092-05PDS** Units: **mg/L** Analysis Date: **15-Dec-2021 21:37**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424047** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	1.01	0.00500	0.1	0.8808	129	80 - 120				SO
Potassium	21.14	0.200	10	9.331	118	80 - 120				
Silver	0.08753	0.00500	0.1	0.000041	87.5	80 - 120				
Zinc	0.653	0.00500	0.1	0.531	122	80 - 120				SO

PDS Sample ID: **HS21120092-05PDS** Units: **mg/L** Analysis Date: **17-Dec-2021 15:05**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427886** PrepDate: **15-Dec-2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	292.8	2.00	100	191.4	101	80 - 120				

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **17-Dec-2021 12:15**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427336** PrepDate: **15-Dec-2021** DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	19.06	5.00					20.73	8.05	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **15-Dec-2021 21:31**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424044** PrepDate: **15-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0.000123	0	10	U
Arsenic	0.00500	0.0250					0.001712	0	10	U
Barium	0.0106	0.0250					0.01164	0	10	J
Beryllium	0.007326	0.0100					0.009363	0	10	J
Cadmium	0.007303	0.0100					0.009242	0	10	J
Chromium	0.00500	0.0250					0.000979	0	10	U
Copper	0.0125	0.0250					0.006004	0	10	U
Iron	0.2155	1.00					0.2562	0	10	J
Lead	0.00500	0.0250					0.000788	0	10	U
Silver	0.00250	0.0250					0.000041	0	10	U
Thallium	0.00250	0.0100					0.000372	0	10	U
Vanadium	0.004421	0.0250					0.000932	0	10	J

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ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **16-Dec-2021 17:25**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6426422** PrepDate: **15-Dec-2021** DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Calcium	457.2	250					474.9	3.71	10	
Magnesium	222.1	100					220.9	0.522	10	
Manganese	3.081	2.50					3.157	2.42	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **16-Dec-2021 16:25**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6425390** PrepDate: **15-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Cobalt	0.178	0.0250					0.18	1.12	10	
Nickel	0.8457	0.0250					0.8808	3.98	10	
Potassium	9.665	1.00					9.331	3.58	10	
Selenium	0.03996	0.0250					0.04332	7.74	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **17-Dec-2021 15:03**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427885** PrepDate: **15-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Sodium	202	10.0					191.4	5.56	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **17-Dec-2021 12:17**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427337** PrepDate: **15-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Zinc	0.5623	0.0250					0.531	5.89	10	

The following samples were analyzed in this batch: HS21120428-01 HS21120428-04 HS21120428-05

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ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: 173430 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 14:17**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437290** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.06631*	*0*	*0.08*	*0*	*82.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08801*	*0*	*0.08*	*0*	*110*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.0668*	*0*	*0.08*	*0*	*83.5*	*40 - 140*				

LCS Sample ID: **LCS-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 14:34**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437291** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08377	0.010	0.08	0	105	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07207*	*0*	*0.08*	*0*	*90.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.07597*	*0*	*0.08*	*0*	*95.0*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08181*	*0*	*0.08*	*0*	*102*	*40 - 140*				

LCSD Sample ID: **LCSD-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 15:03**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437292** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.0729	0.010	0.08	0	91.1	40 - 140	0.08377	13.9	20	
Surr: 2-Fluorobiphenyl	*0.07341*	*0*	*0.08*	*0*	*91.8*	*40 - 140*	*0.07207*	*1.84*	*20*	
Surr: 4-Terphenyl-d14	*0.07482*	*0*	*0.08*	*0*	*93.5*	*40 - 140*	*0.07597*	*1.52*	*20*	
Surr: Nitrobenzene-d5	*0.07738*	*0*	*0.08*	*0*	*96.7*	*40 - 140*	*0.08181*	*5.56*	*20*	

The following samples were analyzed in this batch: HS21120428-01 HS21120428-02 HS21120428-03 HS21120428-04 HS21120428-05 HS21120428-06

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211216** Units: **ug/L** Analysis Date: **16-Dec-2021 14:14**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

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ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211216** Units: **ug/L** Analysis Date: **16-Dec-2021 14:14**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*52.45*	*1.0*	*50*	*0*	*105*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.65*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*48.38*	*1.0*	*50*	*0*	*96.8*	*80 - 119*				
Surr: Toluene-d8	*52.04*	*1.0*	*50*	*0*	*104*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211216** Units: **ug/L** Analysis Date: **16-Dec-2021 13:52**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.91	1.0	20	0	94.5	78 - 124				
1,1,1-Trichloroethane	20.14	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	21.04	1.0	20	0	105	71 - 121				
1,1,2-Trichloroethane	21.7	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	22.05	1.0	20	0	110	77 - 125				
1,1-Dichloroethene	19.77	1.0	20	0	98.8	71 - 131				
1,1-Dichloropropene	20.47	1.0	20	0	102	78 - 125				
1,2,3-Trichlorobenzene	19.39	1.0	20	0	96.9	69 - 129				
1,2,3-Trichloropropane	20.35	1.0	20	0	102	73 - 122				
1,2,4-Trichlorobenzene	19.92	1.0	20	0	99.6	69 - 130				
1,2,4-Trimethylbenzene	21.75	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	15.99	1.0	20	0	80.0	62 - 128				
1,2-Dibromoethane	21.19	1.0	20	0	106	77 - 121				
1,2-Dichlorobenzene	20.61	1.0	20	0	103	80 - 119				
1,2-Dichloroethane	21.56	1.0	20	0	108	73 - 128				
1,2-Dichloropropane	21.9	1.0	20	0	109	78 - 122				
1,3,5-Trimethylbenzene	21.19	1.0	20	0	106	75 - 124				
1,3-Dichlorobenzene	20.24	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	21.84	1.0	20	0	109	80 - 119				
1,4-Dichlorobenzene	20.58	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	21.33	1.0	20	0	107	60 - 139				
2-Butanone	44.29	2.0	40	0	111	56 - 143				
2-Chlorotoluene	21.81	1.0	20	0	109	79 - 122				
2-Hexanone	45.35	2.0	40	0	113	57 - 139				
4-Chlorotoluene	22.22	1.0	20	0	111	78 - 122				
4-Isopropyltoluene	20.58	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	40.72	2.0	40	0	102	67 - 130				
Acetone	58.04	2.0	40	0	145	39 - 160				
Benzene	21.26	1.0	20	0	106	79 - 120				
Bromobenzene	20.14	1.0	20	0	101	80 - 120				
Bromochloromethane	21.41	1.0	20	0	107	78 - 123				
Bromodichloromethane	19.11	1.0	20	0	95.5	79 - 125				
Bromoform	15.39	1.0	20	0	77.0	66 - 130				
Bromomethane	27.48	1.0	20	0	137	53 - 141				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211216** Units: **ug/L** Analysis Date: **16-Dec-2021 13:52**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	39.25	2.0	40	0	98.1	64 - 133				
Carbon tetrachloride	16.87	1.0	20	0	84.3	72 - 136				
Chlorobenzene	19.99	1.0	20	0	99.9	82 - 118				
Chloroethane	21.47	1.0	20	0	107	60 - 138				
Chloroform	21.77	1.0	20	0	109	79 - 124				
Chloromethane	25.06	1.0	20	0	125	50 - 139				
cis-1,2-Dichloroethene	21.07	1.0	20	0	105	78 - 123				
cis-1,3-Dichloropropene	18.57	1.0	20	0	92.8	75 - 124				
Dibromochloromethane	17.37	1.0	20	0	86.9	74 - 126				
Dibromomethane	20.62	1.0	20	0	103	79 - 123				
Dichlorodifluoromethane	21.06	1.0	20	0	105	32 - 152				
Ethylbenzene	20.05	1.0	20	0	100	79 - 121				
Hexachlorobutadiene	21.32	1.0	20	0	107	66 - 134				
Isopropylbenzene	20.09	1.0	20	0	100	72 - 131				
m,p-Xylene	41.39	2.0	40	0	103	80 - 121				
Methylene chloride	20.39	2.0	20	0	102	74 - 124				
Naphthalene	18.65	1.0	20	0	93.2	61 - 128				
n-Butylbenzene	21.83	1.0	20	0	109	75 - 128				
n-Propylbenzene	21.65	1.0	20	0	108	76 - 126				
o-Xylene	20.67	1.0	20	0	103	78 - 122				
sec-Butylbenzene	20.22	1.0	20	0	101	77 - 126				
Styrene	21.31	1.0	20	0	107	78 - 123				
tert-Butylbenzene	19.64	1.0	20	0	98.2	78 - 124				
Tetrachloroethene	17.72	1.0	20	0	88.6	74 - 129				
Toluene	20.99	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	20.1	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	18	1.0	20	0	90.0	73 - 127				
Trichloroethene	19.66	1.0	20	0	98.3	79 - 123				
Trichlorofluoromethane	20.5	1.0	20	0	103	65 - 141				
Vinyl chloride	21.24	1.0	20	0	106	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.99*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.39*	*1.0*	*50*	*0*	*98.8*	*85 - 114*				
Surr: Dibromofluoromethane	*48.9*	*1.0*	*50*	*0*	*97.8*	*80 - 119*				
Surr: Toluene-d8	*47.14*	*1.0*	*50*	*0*	*94.3*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120370-03MS** Units: **ug/L** Analysis Date: **16-Dec-2021 15:21**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426568** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	16.62	1.0	20	0	83.1	78 - 124				
1,1,1-Trichloroethane	18.75	1.0	20	0	93.7	74 - 131				
1,1,2,2-Tetrachloroethane	18.95	1.0	20	0	94.8	71 - 121				
1,1,2-Trichloroethane	18.9	1.0	20	0	94.5	80 - 119				
1,1-Dichloroethane	19.7	1.0	20	0	98.5	77 - 125				
1,1-Dichloroethene	18.22	1.0	20	0	91.1	71 - 131				
1,1-Dichloropropene	20.31	1.0	20	0	102	78 - 125				
1,2,3-Trichlorobenzene	14.99	1.0	20	0	75.0	69 - 129				
1,2,3-Trichloropropane	17.89	1.0	20	0	89.4	73 - 122				
1,2,4-Trichlorobenzene	15.36	1.0	20	0	76.8	69 - 130				
1,2,4-Trimethylbenzene	18.72	1.0	20	0	93.6	76 - 124				
1,2-Dibromo-3-chloropropane	12.99	1.0	20	0	65.0	62 - 128				
1,2-Dibromoethane	18.12	1.0	20	0	90.6	77 - 121				
1,2-Dichlorobenzene	17.37	1.0	20	0	86.9	80 - 119				
1,2-Dichloroethane	18.82	1.0	20	0	94.1	73 - 128				
1,2-Dichloropropane	19.75	1.0	20	0	98.7	78 - 122				
1,3,5-Trimethylbenzene	18.6	1.0	20	0	93.0	75 - 124				
1,3-Dichlorobenzene	17.29	1.0	20	0	86.5	80 - 119				
1,3-Dichloropropane	19.16	1.0	20	0	95.8	80 - 119				
1,4-Dichlorobenzene	17.39	1.0	20	0	87.0	79 - 118				
2,2-Dichloropropane	19.51	1.0	20	0	97.5	60 - 139				
2-Butanone	33.74	2.0	40	0	84.4	56 - 143				
2-Chlorotoluene	19.08	1.0	20	0	95.4	79 - 122				
2-Hexanone	38.08	2.0	40	0	95.2	57 - 139				
4-Chlorotoluene	19.23	1.0	20	0	96.1	78 - 122				
4-Isopropyltoluene	18.7	1.0	20	0	93.5	77 - 127				
4-Methyl-2-pentanone	36.02	2.0	40	0	90.0	67 - 130				
Acetone	32.61	2.0	40	0	81.5	39 - 160				
Benzene	19.26	1.0	20	0	96.3	79 - 120				
Bromobenzene	17.47	1.0	20	0	87.3	80 - 120				
Bromochloromethane	17.98	1.0	20	0	89.9	78 - 123				
Bromodichloromethane	16.51	1.0	20	0	82.5	79 - 125				
Bromoform	12.67	1.0	20	0	63.4	66 - 130				S
Bromomethane	21.73	1.0	20	0	109	53 - 141				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120370-03MS** Units: **ug/L** Analysis Date: **16-Dec-2021 15:21**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426568** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.49	2.0	40	0	88.7	64 - 133				
Carbon tetrachloride	21.8	1.0	20	4.841	84.8	72 - 136				
Chlorobenzene	18.24	1.0	20	0	91.2	82 - 118				
Chloroethane	17.07	1.0	20	0	85.4	60 - 138				
Chloroform	26.37	1.0	20	6.664	98.5	79 - 124				
Chloromethane	17.25	1.0	20	0	86.3	50 - 139				
cis-1,2-Dichloroethene	18.27	1.0	20	0	91.4	78 - 123				
cis-1,3-Dichloropropene	15.71	1.0	20	0	78.6	75 - 124				
Dibromochloromethane	14.76	1.0	20	0	73.8	74 - 126				S
Dibromomethane	18.22	1.0	20	0	91.1	79 - 123				
Dichlorodifluoromethane	9.276	1.0	20	0	46.4	32 - 152				
Ethylbenzene	18.78	1.0	20	0	93.9	79 - 121				
Hexachlorobutadiene	19.52	1.0	20	0	97.6	66 - 134				
Isopropylbenzene	19.31	1.0	20	0	96.5	72 - 131				
m,p-Xylene	38.79	2.0	40	0	97.0	80 - 121				
Methylene chloride	17.2	2.0	20	0	86.0	74 - 124				
Naphthalene	14.58	1.0	20	0	72.9	61 - 128				
n-Butylbenzene	19.6	1.0	20	0	98.0	75 - 128				
n-Propylbenzene	20.14	1.0	20	0	101	76 - 126				
o-Xylene	18.51	1.0	20	0	92.6	78 - 122				
sec-Butylbenzene	19.33	1.0	20	0	96.7	77 - 126				
Styrene	19.02	1.0	20	0	95.1	78 - 123				
tert-Butylbenzene	18.57	1.0	20	0	92.9	78 - 124				
Tetrachloroethene	17.76	1.0	20	0	88.8	74 - 129				
Toluene	19.25	1.0	20	0	96.2	80 - 121				
trans-1,2-Dichloroethene	18.17	1.0	20	0	90.9	75 - 124				
trans-1,3-Dichloropropene	14.8	1.0	20	0	74.0	73 - 127				
Trichloroethene	22.36	1.0	20	3.343	95.1	79 - 123				
Trichlorofluoromethane	19.03	1.0	20	0	95.1	65 - 141				
Vinyl chloride	16.56	1.0	20	0	82.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.7*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.37*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*49.94*	*1.0*	*50*	*0*	*99.9*	*80 - 119*				
Surr: Toluene-d8	*52.52*	*1.0*	*50*	*0*	*105*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120370-03MSD** Units: **ug/L** Analysis Date: **16-Dec-2021 15:44**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426569** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	15.8	1.0	20	0	79.0	78 - 124	16.62	5.06	20	
1,1,1-Trichloroethane	17.85	1.0	20	0	89.2	74 - 131	18.75	4.93	20	
1,1,2,2-Tetrachloroethane	18.45	1.0	20	0	92.3	71 - 121	18.95	2.67	20	
1,1,2-Trichloroethane	18.53	1.0	20	0	92.7	80 - 119	18.9	1.99	20	
1,1-Dichloroethane	18.79	1.0	20	0	93.9	77 - 125	19.7	4.73	20	
1,1-Dichloroethene	17.5	1.0	20	0	87.5	71 - 131	18.22	4.04	20	
1,1-Dichloropropene	19.54	1.0	20	0	97.7	78 - 125	20.31	3.9	20	
1,2,3-Trichlorobenzene	15.21	1.0	20	0	76.1	69 - 129	14.99	1.47	20	
1,2,3-Trichloropropane	17.42	1.0	20	0	87.1	73 - 122	17.89	2.65	20	
1,2,4-Trichlorobenzene	15.27	1.0	20	0	76.3	69 - 130	15.36	0.576	20	
1,2,4-Trimethylbenzene	18.38	1.0	20	0	91.9	76 - 124	18.72	1.86	20	
1,2-Dibromo-3-chloropropane	13.56	1.0	20	0	67.8	62 - 128	12.99	4.27	20	
1,2-Dibromoethane	18.1	1.0	20	0	90.5	77 - 121	18.12	0.0938	20	
1,2-Dichlorobenzene	17.02	1.0	20	0	85.1	80 - 119	17.37	2.03	20	
1,2-Dichloroethane	18.24	1.0	20	0	91.2	73 - 128	18.82	3.1	20	
1,2-Dichloropropane	18.94	1.0	20	0	94.7	78 - 122	19.75	4.18	20	
1,3,5-Trimethylbenzene	18.25	1.0	20	0	91.3	75 - 124	18.6	1.89	20	
1,3-Dichlorobenzene	16.73	1.0	20	0	83.6	80 - 119	17.29	3.32	20	
1,3-Dichloropropane	18.71	1.0	20	0	93.5	80 - 119	19.16	2.41	20	
1,4-Dichlorobenzene	16.99	1.0	20	0	85.0	79 - 118	17.39	2.32	20	
2,2-Dichloropropane	18.45	1.0	20	0	92.2	60 - 139	19.51	5.59	20	
2-Butanone	33.05	2.0	40	0	82.6	56 - 143	33.74	2.08	20	
2-Chlorotoluene	18.75	1.0	20	0	93.7	79 - 122	19.08	1.78	20	
2-Hexanone	39.1	2.0	40	0	97.7	57 - 139	38.08	2.62	20	
4-Chlorotoluene	19.02	1.0	20	0	95.1	78 - 122	19.23	1.07	20	
4-Isopropyltoluene	18.26	1.0	20	0	91.3	77 - 127	18.7	2.43	20	
4-Methyl-2-pentanone	35.66	2.0	40	0	89.1	67 - 130	36.02	0.997	20	
Acetone	33.46	2.0	40	0	83.6	39 - 160	32.61	2.55	20	
Benzene	18.64	1.0	20	0	93.2	79 - 120	19.26	3.26	20	
Bromobenzene	16.99	1.0	20	0	84.9	80 - 120	17.47	2.8	20	
Bromochloromethane	17.3	1.0	20	0	86.5	78 - 123	17.98	3.87	20	
Bromodichloromethane	16.16	1.0	20	0	80.8	79 - 125	16.51	2.12	20	
Bromoform	12.86	1.0	20	0	64.3	66 - 130	12.67	1.44	20	S
Bromomethane	19.92	1.0	20	0	99.6	53 - 141	21.73	8.67	20	

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397414 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120370-03MSD** Units: **ug/L** Analysis Date: **16-Dec-2021 15:44**
Client ID: Run ID: **VOA9_397414** SeqNo: **6426569** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	34.51	2.0	40	0	86.3	64 - 133	35.49	2.79	20	
Carbon tetrachloride	21.05	1.0	20	4.841	81.0	72 - 136	21.8	3.53	20	
Chlorobenzene	17.53	1.0	20	0	87.7	82 - 118	18.24	3.95	20	
Chloroethane	16.8	1.0	20	0	84.0	60 - 138	17.07	1.6	20	
Chloroform	25.6	1.0	20	6.664	94.7	79 - 124	26.37	2.97	20	
Chloromethane	16.24	1.0	20	0	81.2	50 - 139	17.25	6.03	20	
cis-1,2-Dichloroethene	17.62	1.0	20	0	88.1	78 - 123	18.27	3.63	20	
cis-1,3-Dichloropropene	15.48	1.0	20	0	77.4	75 - 124	15.71	1.49	20	
Dibromochloromethane	14.53	1.0	20	0	72.6	74 - 126	14.76	1.58	20	S
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	18.22	2.31	20	
Dichlorodifluoromethane	8.81	1.0	20	0	44.0	32 - 152	9.276	5.15	20	
Ethylbenzene	18.2	1.0	20	0	91.0	79 - 121	18.78	3.13	20	
Hexachlorobutadiene	17.87	1.0	20	0	89.3	66 - 134	19.52	8.83	20	
Isopropylbenzene	18.83	1.0	20	0	94.1	72 - 131	19.31	2.52	20	
m,p-Xylene	37.11	2.0	40	0	92.8	80 - 121	38.79	4.43	20	
Methylene chloride	16.6	2.0	20	0	83.0	74 - 124	17.2	3.53	20	
Naphthalene	14.97	1.0	20	0	74.8	61 - 128	14.58	2.64	20	
n-Butylbenzene	19.09	1.0	20	0	95.4	75 - 128	19.6	2.63	20	
n-Propylbenzene	19.6	1.0	20	0	98.0	76 - 126	20.14	2.72	20	
o-Xylene	18.28	1.0	20	0	91.4	78 - 122	18.51	1.28	20	
sec-Butylbenzene	18.85	1.0	20	0	94.2	77 - 126	19.33	2.55	20	
Styrene	18.44	1.0	20	0	92.2	78 - 123	19.02	3.07	20	
tert-Butylbenzene	17.89	1.0	20	0	89.5	78 - 124	18.57	3.73	20	
Tetrachloroethene	17.19	1.0	20	0	85.9	74 - 129	17.76	3.25	20	
Toluene	18.5	1.0	20	0	92.5	80 - 121	19.25	3.95	20	
trans-1,2-Dichloroethene	17.62	1.0	20	0	88.1	75 - 124	18.17	3.09	20	
trans-1,3-Dichloropropene	14.55	1.0	20	0	72.7	73 - 127	14.8	1.71	20	S
Trichloroethene	21.3	1.0	20	3.343	89.8	79 - 123	22.36	4.84	20	
Trichlorofluoromethane	18.18	1.0	20	0	90.9	65 - 141	19.03	4.53	20	
Vinyl chloride	15.7	1.0	20	0	78.5	58 - 137	16.56	5.36	20	
Surr: 1,2-Dichloroethane-d4	*53.12*	*1.0*	*50*	*0*	*106*	*81 - 118*	*51.7*	*2.71*	*20*	
Surr: 4-Bromofluorobenzene	*53.23*	*1.0*	*50*	*0*	*106*	*85 - 114*	*53.37*	*0.256*	*20*	
Surr: Dibromofluoromethane	*51.36*	*1.0*	*50*	*0*	*103*	*80 - 119*	*49.94*	*2.81*	*20*	
Surr: Toluene-d8	*52.06*	*1.0*	*50*	*0*	*104*	*89 - 112*	*52.52*	*0.865*	*20*	

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID:	**R397414 (0)**	**Instrument:**	**VOA9**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:

HS21120428-01	HS21120428-03	HS21120428-04	HS21120428-05
HS21120428-06			

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211218** Units: **ug/L** Analysis Date: **18-Dec-2021 14:06**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429834** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211218** Units: **ug/L** Analysis Date: **18-Dec-2021 14:06**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429834** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.69*	*1.0*	*50*	*0*	*91.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.69*	*1.0*	*50*	*0*	*99.4*	*85 - 114*				
Surr: Dibromofluoromethane	*45.45*	*1.0*	*50*	*0*	*90.9*	*80 - 119*				
Surr: Toluene-d8	*51.22*	*1.0*	*50*	*0*	*102*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211218** Units: **ug/L** Analysis Date: **18-Dec-2021 13:21**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429833** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.45	1.0	20	0	92.2	78 - 124				
1,1,1-Trichloroethane	17.2	1.0	20	0	86.0	74 - 131				
1,1,2,2-Tetrachloroethane	18.95	1.0	20	0	94.8	71 - 121				
1,1,2-Trichloroethane	20.17	1.0	20	0	101	80 - 119				
1,1-Dichloroethane	20.9	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	18.31	1.0	20	0	91.6	71 - 131				
1,1-Dichloropropene	19.29	1.0	20	0	96.5	78 - 125				
1,2,3-Trichlorobenzene	17.06	1.0	20	0	85.3	69 - 129				
1,2,3-Trichloropropane	18.43	1.0	20	0	92.2	73 - 122				
1,2,4-Trichlorobenzene	17.8	1.0	20	0	89.0	69 - 130				
1,2,4-Trimethylbenzene	18.2	1.0	20	0	91.0	76 - 124				
1,2-Dibromo-3-chloropropane	14.95	1.0	20	0	74.8	62 - 128				
1,2-Dibromoethane	20.22	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	18.51	1.0	20	0	92.5	80 - 119				
1,2-Dichloroethane	19.07	1.0	20	0	95.4	73 - 128				
1,2-Dichloropropane	20.96	1.0	20	0	105	78 - 122				
1,3,5-Trimethylbenzene	17.72	1.0	20	0	88.6	75 - 124				
1,3-Dichlorobenzene	18.29	1.0	20	0	91.4	80 - 119				
1,3-Dichloropropane	20.21	1.0	20	0	101	80 - 119				
1,4-Dichlorobenzene	18.87	1.0	20	0	94.3	79 - 118				
2,2-Dichloropropane	20.07	1.0	20	0	100	60 - 139				
2-Butanone	37.4	2.0	40	0	93.5	56 - 143				
2-Chlorotoluene	18.47	1.0	20	0	92.3	79 - 122				
2-Hexanone	39.36	2.0	40	0	98.4	57 - 139				
4-Chlorotoluene	18.87	1.0	20	0	94.3	78 - 122				
4-Isopropyltoluene	17.41	1.0	20	0	87.0	77 - 127				
4-Methyl-2-pentanone	36.23	2.0	40	0	90.6	67 - 130				
Acetone	52.13	2.0	40	0	130	39 - 160				
Benzene	20.29	1.0	20	0	101	79 - 120				
Bromobenzene	19.65	1.0	20	0	98.3	80 - 120				
Bromochloromethane	20.13	1.0	20	0	101	78 - 123				
Bromodichloromethane	17.72	1.0	20	0	88.6	79 - 125				
Bromoform	15.19	1.0	20	0	76.0	66 - 130				
Bromomethane	26.63	1.0	20	0	133	53 - 141				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211218** Units: **ug/L** Analysis Date: **18-Dec-2021 13:21**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429833** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.74	2.0	40	0	91.9	64 - 133				
Carbon tetrachloride	16.31	1.0	20	0	81.6	72 - 136				
Chlorobenzene	19.29	1.0	20	0	96.4	82 - 118				
Chloroethane	19.12	1.0	20	0	95.6	60 - 138				
Chloroform	19.2	1.0	20	0	96.0	79 - 124				
Chloromethane	23.14	1.0	20	0	116	50 - 139				
cis-1,2-Dichloroethene	19.54	1.0	20	0	97.7	78 - 123				
cis-1,3-Dichloropropene	17.67	1.0	20	0	88.4	75 - 124				
Dibromochloromethane	16.67	1.0	20	0	83.3	74 - 126				
Dibromomethane	19.53	1.0	20	0	97.7	79 - 123				
Dichlorodifluoromethane	17.2	1.0	20	0	86.0	32 - 152				
Ethylbenzene	18.72	1.0	20	0	93.6	79 - 121				
Hexachlorobutadiene	20.55	1.0	20	0	103	66 - 134				
Isopropylbenzene	17.97	1.0	20	0	89.8	72 - 131				
m,p-Xylene	38.17	2.0	40	0	95.4	80 - 121				
Methylene chloride	21.85	2.0	20	0	109	74 - 124				
Naphthalene	15.53	1.0	20	0	77.7	61 - 128				
n-Butylbenzene	17.45	1.0	20	0	87.3	75 - 128				
n-Propylbenzene	17.74	1.0	20	0	88.7	76 - 126				
o-Xylene	19.27	1.0	20	0	96.3	78 - 122				
sec-Butylbenzene	16.91	1.0	20	0	84.6	77 - 126				
Styrene	20.13	1.0	20	0	101	78 - 123				
tert-Butylbenzene	17.13	1.0	20	0	85.6	78 - 124				
Tetrachloroethene	17.85	1.0	20	0	89.3	74 - 129				
Toluene	19.72	1.0	20	0	98.6	80 - 121				
trans-1,2-Dichloroethene	18.9	1.0	20	0	94.5	75 - 124				
trans-1,3-Dichloropropene	16.81	1.0	20	0	84.1	73 - 127				
Trichloroethene	19.67	1.0	20	0	98.3	79 - 123				
Trichlorofluoromethane	18.19	1.0	20	0	90.9	65 - 141				
Vinyl chloride	19.35	1.0	20	0	96.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.24*	*1.0*	*50*	*0*	*90.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.83*	*1.0*	*50*	*0*	*95.7*	*85 - 114*				
Surr: Dibromofluoromethane	*46.11*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				
Surr: Toluene-d8	*47.43*	*1.0*	*50*	*0*	*94.9*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120469-06MS** Units: **ug/L** Analysis Date: **18-Dec-2021 16:43**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429841** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2150	100	2000	0	107	78 - 124				
1,1,1-Trichloroethane	2173	100	2000	0	109	74 - 131				
1,1,2,2-Tetrachloroethane	2059	100	2000	0	103	71 - 121				
1,1,2-Trichloroethane	2248	100	2000	0	112	80 - 119				
1,1-Dichloroethane	2425	100	2000	0	121	77 - 125				
1,1-Dichloroethene	2332	100	2000	0	117	71 - 131				
1,1-Dichloropropene	2524	100	2000	0	126	78 - 125				S
1,2,3-Trichlorobenzene	2105	100	2000	0	105	69 - 129				
1,2,3-Trichloropropane	2012	100	2000	0	101	73 - 122				
1,2,4-Trichlorobenzene	2145	100	2000	0	107	69 - 130				
1,2,4-Trimethylbenzene	2272	100	2000	0	114	76 - 124				
1,2-Dibromo-3-chloropropane	1549	100	2000	0	77.4	62 - 128				
1,2-Dibromoethane	2214	100	2000	0	111	77 - 121				
1,2-Dichlorobenzene	2199	100	2000	0	110	80 - 119				
1,2-Dichloroethane	2091	100	2000	0	105	73 - 128				
1,2-Dichloropropane	2388	100	2000	0	119	78 - 122				
1,3,5-Trimethylbenzene	2262	100	2000	0	113	75 - 124				
1,3-Dichlorobenzene	2234	100	2000	0	112	80 - 119				
1,3-Dichloropropane	2210	100	2000	0	111	80 - 119				
1,4-Dichlorobenzene	2217	100	2000	0	111	79 - 118				
2,2-Dichloropropane	2029	100	2000	0	101	60 - 139				
2-Butanone	3380	200	4000	0	84.5	56 - 143				
2-Chlorotoluene	2274	100	2000	0	114	79 - 122				
2-Hexanone	4002	200	4000	0	100	57 - 139				
4-Chlorotoluene	2265	100	2000	0	113	78 - 122				
4-Isopropyltoluene	2347	100	2000	0	117	77 - 127				
4-Methyl-2-pentanone	3793	200	4000	0	94.8	67 - 130				
Acetone	3730	200	4000	0	93.2	39 - 160				
Benzene	2397	100	2000	0	120	79 - 120				
Bromobenzene	2226	100	2000	0	111	80 - 120				
Bromochloromethane	2146	100	2000	0	107	78 - 123				
Bromodichloromethane	2027	100	2000	0	101	79 - 125				
Bromoform	1680	100	2000	0	84.0	66 - 130				
Bromomethane	2746	100	2000	0	137	53 - 141				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120469-06MS** Units: **ug/L** Analysis Date: **18-Dec-2021 16:43**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429841** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	4665	200	4000	0	117	64 - 133				
Carbon tetrachloride	2206	100	2000	0	110	72 - 136				
Chlorobenzene	2283	100	2000	0	114	82 - 118				
Chloroethane	2472	100	2000	0	124	60 - 138				
Chloroform	2145	100	2000	0	107	79 - 124				
Chloromethane	2508	100	2000	0	125	50 - 139				
cis-1,2-Dichloroethene	3805	100	2000	1709	105	78 - 123				
cis-1,3-Dichloropropene	1968	100	2000	0	98.4	75 - 124				
Dibromochloromethane	1905	100	2000	0	95.3	74 - 126				
Dibromomethane	2143	100	2000	0	107	79 - 123				
Dichlorodifluoromethane	1722	100	2000	0	86.1	32 - 152				
Ethylbenzene	2342	100	2000	0	117	79 - 121				
Hexachlorobutadiene	2485	100	2000	0	124	66 - 134				
Isopropylbenzene	2402	100	2000	0	120	72 - 131				
m,p-Xylene	4778	200	4000	0	119	80 - 121				
Methylene chloride	2207	200	2000	114.8	105	74 - 124				
Naphthalene	1846	100	2000	0	92.3	61 - 128				
n-Butylbenzene	2316	100	2000	0	116	75 - 128				
n-Propylbenzene	2396	100	2000	0	120	76 - 126				
o-Xylene	2331	100	2000	0	117	78 - 122				
sec-Butylbenzene	2391	100	2000	0	120	77 - 126				
Styrene	2340	100	2000	0	117	78 - 123				
tert-Butylbenzene	2361	100	2000	0	118	78 - 124				
Tetrachloroethene	2816	100	2000	438.5	119	74 - 129				
Toluene	2326	100	2000	0	116	80 - 121				
trans-1,2-Dichloroethene	2265	100	2000	0	113	75 - 124				
trans-1,3-Dichloropropene	1832	100	2000	0	91.6	73 - 127				
Trichloroethene	17190	100	2000	14700	124	79 - 123				SO
Trichlorofluoromethane	2428	100	2000	0	121	65 - 141				
Vinyl chloride	2429	100	2000	0	121	58 - 137				
Surr: 1,2-Dichloroethane-d4	*4245*	*100*	*5000*	*0*	*84.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*5052*	*100*	*5000*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*4630*	*100*	*5000*	*0*	*92.6*	*80 - 119*				
Surr: Toluene-d8	*5054*	*100*	*5000*	*0*	*101*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120428-07MSD** Units: **ug/L** Analysis Date: **18-Dec-2021 16:20**
Client ID: **MW23_120621** Run ID: **VOA9_397962** SeqNo: **6429840** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	460.8	25	500	0	92.2	78 - 124				
1,1,1-Trichloroethane	471.6	25	500	0	94.3	74 - 131				
1,1,2,2-Tetrachloroethane	463.2	25	500	0	92.6	71 - 121				
1,1,2-Trichloroethane	504.3	25	500	0	101	80 - 119				
1,1-Dichloroethane	540.3	25	500	0	108	77 - 125				
1,1-Dichloroethene	516.6	25	500	0	103	71 - 131				
1,1-Dichloropropene	547.4	25	500	0	109	78 - 125				
1,2,3-Trichlorobenzene	454.9	25	500	0	91.0	69 - 129				
1,2,3-Trichloropropane	449.4	25	500	0	89.9	73 - 122				
1,2,4-Trichlorobenzene	468	25	500	0	93.6	69 - 130				
1,2,4-Trimethylbenzene	498.7	25	500	0	99.7	76 - 124				
1,2-Dibromo-3-chloropropane	363.5	25	500	0	72.7	62 - 128				
1,2-Dibromoethane	496.9	25	500	0	99.4	77 - 121				
1,2-Dichlorobenzene	492.2	25	500	0	98.4	80 - 119				
1,2-Dichloroethane	539.7	25	500	76.07	92.7	73 - 128				
1,2-Dichloropropane	532.3	25	500	0	106	78 - 122				
1,3,5-Trimethylbenzene	499.8	25	500	0	100.0	75 - 124				
1,3-Dichlorobenzene	496.3	25	500	0	99.3	80 - 119				
1,3-Dichloropropane	502.4	25	500	0	100	80 - 119				
1,4-Dichlorobenzene	494.1	25	500	0	98.8	79 - 118				
2,2-Dichloropropane	444.9	25	500	0	89.0	60 - 139				
2-Butanone	769	50	1000	0	76.9	56 - 143				
2-Chlorotoluene	503.9	25	500	0	101	79 - 122				
2-Hexanone	914.1	50	1000	0	91.4	57 - 139				
4-Chlorotoluene	502.7	25	500	0	101	78 - 122				
4-Isopropyltoluene	518.2	25	500	0	104	77 - 127				
4-Methyl-2-pentanone	870.5	50	1000	0	87.0	67 - 130				
Acetone	879.5	50	1000	0	88.0	39 - 160				
Benzene	534.6	25	500	0	107	79 - 120				
Bromobenzene	507	25	500	0	101	80 - 120				
Bromochloromethane	504.8	25	500	0	101	78 - 123				
Bromodichloromethane	443.6	25	500	0	88.7	79 - 125				
Bromoform	377.7	25	500	0	75.5	66 - 130				
Bromomethane	623.2	25	500	0	125	53 - 141				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120428-07MSD** Units: **ug/L** Analysis Date: **18-Dec-2021 16:20**
Client ID: **MW23_120621** Run ID: **VOA9_397962** SeqNo: **6429840** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1015	50	1000	0	102	64 - 133				
Carbon tetrachloride	482.9	25	500	0	96.6	72 - 136				
Chlorobenzene	504.3	25	500	0	101	82 - 118				
Chloroethane	513.2	25	500	0	103	60 - 138				
Chloroform	492.9	25	500	0	98.6	79 - 124				
Chloromethane	562.6	25	500	0	113	50 - 139				
cis-1,2-Dichloroethene	499	25	500	23.61	95.1	78 - 123				
cis-1,3-Dichloropropene	434.1	25	500	0	86.8	75 - 124				
Dibromochloromethane	418.6	25	500	0	83.7	74 - 126				
Dibromomethane	498.6	25	500	0	99.7	79 - 123				
Dichlorodifluoromethane	377.9	25	500	0	75.6	32 - 152				
Ethylbenzene	520.3	25	500	0	104	79 - 121				
Hexachlorobutadiene	550.2	25	500	0	110	66 - 134				
Isopropylbenzene	526.8	25	500	0	105	72 - 131				
m,p-Xylene	1067	50	1000	0	107	80 - 121				
Methylene chloride	529.2	50	500	58.33	94.2	74 - 124				
Naphthalene	412.9	25	500	0	82.6	61 - 128				
n-Butylbenzene	508.7	25	500	0	102	75 - 128				
n-Propylbenzene	528.2	25	500	0	106	76 - 126				
o-Xylene	516.4	25	500	0	103	78 - 122				
sec-Butylbenzene	517.2	25	500	0	103	77 - 126				
Styrene	514.6	25	500	0	103	78 - 123				
tert-Butylbenzene	508.5	25	500	0	102	78 - 124				
Tetrachloroethene	538.2	25	500	0	108	74 - 129				
Toluene	516.2	25	500	0	103	80 - 121				
trans-1,2-Dichloroethene	499.1	25	500	0	99.8	75 - 124				
trans-1,3-Dichloropropene	415.5	25	500	0	83.1	73 - 127				
Trichloroethene	3250	25	500	3127	24.5	79 - 123				SO
Trichlorofluoromethane	531.3	25	500	0	106	65 - 141				
Vinyl chloride	525.6	25	500	0	105	58 - 137				
Surr: 1,2-Dichloroethane-d4	*1077*	*25*	*1250*	*0*	*86.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*1251*	*25*	*1250*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*1158*	*25*	*1250*	*0*	*92.7*	*80 - 119*				
Surr: Toluene-d8	*1276*	*25*	*1250*	*0*	*102*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120428-07MS** Units: **ug/L** Analysis Date: **18-Dec-2021 15:58**
Client ID: **MW23_120621** Run ID: **VOA9_397962** SeqNo: **6429839** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	493.9	25	500	0	98.8	78 - 124				
1,1,1-Trichloroethane	505	25	500	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	490	25	500	0	98.0	71 - 121				
1,1,2-Trichloroethane	528.5	25	500	0	106	80 - 119				
1,1-Dichloroethane	554.6	25	500	0	111	77 - 125				
1,1-Dichloroethene	556	25	500	0	111	71 - 131				
1,1-Dichloropropene	576.9	25	500	0	115	78 - 125				
1,2,3-Trichlorobenzene	462.7	25	500	0	92.5	69 - 129				
1,2,3-Trichloropropane	450.9	25	500	0	90.2	73 - 122				
1,2,4-Trichlorobenzene	479.5	25	500	0	95.9	69 - 130				
1,2,4-Trimethylbenzene	518.8	25	500	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	373.9	25	500	0	74.8	62 - 128				
1,2-Dibromoethane	528.4	25	500	0	106	77 - 121				
1,2-Dichlorobenzene	520.1	25	500	0	104	80 - 119				
1,2-Dichloroethane	568.8	25	500	76.07	98.6	73 - 128				
1,2-Dichloropropane	560.1	25	500	0	112	78 - 122				
1,3,5-Trimethylbenzene	528.2	25	500	0	106	75 - 124				
1,3-Dichlorobenzene	514.8	25	500	0	103	80 - 119				
1,3-Dichloropropane	535.3	25	500	0	107	80 - 119				
1,4-Dichlorobenzene	524.1	25	500	0	105	79 - 118				
2,2-Dichloropropane	466.4	25	500	0	93.3	60 - 139				
2-Butanone	771.9	50	1000	0	77.2	56 - 143				
2-Chlorotoluene	525.3	25	500	0	105	79 - 122				
2-Hexanone	947.1	50	1000	0	94.7	57 - 139				
4-Chlorotoluene	539.1	25	500	0	108	78 - 122				
4-Isopropyltoluene	550	25	500	0	110	77 - 127				
4-Methyl-2-pentanone	911.9	50	1000	0	91.2	67 - 130				
Acetone	876.8	50	1000	0	87.7	39 - 160				
Benzene	557.2	25	500	0	111	79 - 120				
Bromobenzene	534.6	25	500	0	107	80 - 120				
Bromochloromethane	497.6	25	500	0	99.5	78 - 123				
Bromodichloromethane	463.4	25	500	0	92.7	79 - 125				
Bromoform	384.3	25	500	0	76.9	66 - 130				
Bromomethane	673	25	500	0	135	53 - 141				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120428-07MS** Units: **ug/L** Analysis Date: **18-Dec-2021 15:58**
Client ID: **MW23_120621** Run ID: **VOA9_397962** SeqNo: **6429839** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1063	50	1000	0	106	64 - 133				
Carbon tetrachloride	517.5	25	500	0	104	72 - 136				
Chlorobenzene	538.7	25	500	0	108	82 - 118				
Chloroethane	539.4	25	500	0	108	60 - 138				
Chloroform	520.7	25	500	0	104	79 - 124				
Chloromethane	581.1	25	500	0	116	50 - 139				
cis-1,2-Dichloroethene	516	25	500	23.61	98.5	78 - 123				
cis-1,3-Dichloropropene	451.2	25	500	0	90.2	75 - 124				
Dibromochloromethane	436.9	25	500	0	87.4	74 - 126				
Dibromomethane	505.7	25	500	0	101	79 - 123				
Dichlorodifluoromethane	405.7	25	500	0	81.1	32 - 152				
Ethylbenzene	563	25	500	0	113	79 - 121				
Hexachlorobutadiene	568.5	25	500	0	114	66 - 134				
Isopropylbenzene	572.9	25	500	0	115	72 - 131				
m,p-Xylene	1146	50	1000	0	115	80 - 121				
Methylene chloride	565.5	50	500	58.33	101	74 - 124				
Naphthalene	411.1	25	500	0	82.2	61 - 128				
n-Butylbenzene	534.5	25	500	0	107	75 - 128				
n-Propylbenzene	552.7	25	500	0	111	76 - 126				
o-Xylene	555.4	25	500	0	111	78 - 122				
sec-Butylbenzene	551	25	500	0	110	77 - 126				
Styrene	556	25	500	0	111	78 - 123				
tert-Butylbenzene	545.5	25	500	0	109	78 - 124				
Tetrachloroethene	568.9	25	500	0	114	74 - 129				
Toluene	557.7	25	500	0	112	80 - 121				
trans-1,2-Dichloroethene	522.9	25	500	0	105	75 - 124				
trans-1,3-Dichloropropene	414.7	25	500	0	82.9	73 - 127				
Trichloroethene	3450	25	500	3127	64.7	79 - 123				SO
Trichlorofluoromethane	557.3	25	500	0	111	65 - 141				
Vinyl chloride	553.8	25	500	0	111	58 - 137				
Surr: 1,2-Dichloroethane-d4	*1069*	*25*	*1250*	*0*	*85.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*1265*	*25*	*1250*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*1145*	*25*	*1250*	*0*	*91.6*	*80 - 119*				
Surr: Toluene-d8	*1290*	*25*	*1250*	*0*	*103*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120469-06MSD** Units: **ug/L** Analysis Date: **18-Dec-2021 17:05**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429842** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	2036	100	2000	0	102	78 - 124	2150	5.43	20	
1,1,1-Trichloroethane	2057	100	2000	0	103	74 - 131	2173	5.48	20	
1,1,2,2-Tetrachloroethane	1983	100	2000	0	99.1	71 - 121	2059	3.8	20	
1,1,2-Trichloroethane	2168	100	2000	0	108	80 - 119	2248	3.61	20	
1,1-Dichloroethane	2267	100	2000	0	113	77 - 125	2425	6.74	20	
1,1-Dichloroethene	2196	100	2000	0	110	71 - 131	2332	5.98	20	
1,1-Dichloropropene	2346	100	2000	0	117	78 - 125	2524	7.3	20	
1,2,3-Trichlorobenzene	1995	100	2000	0	99.7	69 - 129	2105	5.37	20	
1,2,3-Trichloropropane	1805	100	2000	0	90.3	73 - 122	2012	10.8	20	
1,2,4-Trichlorobenzene	2035	100	2000	0	102	69 - 130	2145	5.27	20	
1,2,4-Trimethylbenzene	2136	100	2000	0	107	76 - 124	2272	6.19	20	
1,2-Dibromo-3-chloropropane	1539	100	2000	0	77.0	62 - 128	1549	0.628	20	
1,2-Dibromoethane	2134	100	2000	0	107	77 - 121	2214	3.67	20	
1,2-Dichlorobenzene	2119	100	2000	0	106	80 - 119	2199	3.69	20	
1,2-Dichloroethane	1997	100	2000	0	99.9	73 - 128	2091	4.58	20	
1,2-Dichloropropane	2252	100	2000	0	113	78 - 122	2388	5.85	20	
1,3,5-Trimethylbenzene	2138	100	2000	0	107	75 - 124	2262	5.63	20	
1,3-Dichlorobenzene	2101	100	2000	0	105	80 - 119	2234	6.11	20	
1,3-Dichloropropane	2149	100	2000	0	107	80 - 119	2210	2.81	20	
1,4-Dichlorobenzene	2095	100	2000	0	105	79 - 118	2217	5.66	20	
2,2-Dichloropropane	1877	100	2000	0	93.9	60 - 139	2029	7.77	20	
2-Butanone	3317	200	4000	0	82.9	56 - 143	3380	1.91	20	
2-Chlorotoluene	2131	100	2000	0	107	79 - 122	2274	6.5	20	
2-Hexanone	3930	200	4000	0	98.3	57 - 139	4002	1.81	20	
4-Chlorotoluene	2136	100	2000	0	107	78 - 122	2265	5.86	20	
4-Isopropyltoluene	2200	100	2000	0	110	77 - 127	2347	6.47	20	
4-Methyl-2-pentanone	3741	200	4000	0	93.5	67 - 130	3793	1.4	20	
Acetone	3875	200	4000	0	96.9	39 - 160	3730	3.82	20	
Benzene	2259	100	2000	0	113	79 - 120	2397	5.93	20	
Bromobenzene	2112	100	2000	0	106	80 - 120	2226	5.27	20	
Bromochloromethane	2105	100	2000	0	105	78 - 123	2146	1.94	20	
Bromodichloromethane	1947	100	2000	0	97.3	79 - 125	2027	4.02	20	
Bromoform	1668	100	2000	0	83.4	66 - 130	1680	0.715	20	
Bromomethane	2609	100	2000	0	130	53 - 141	2746	5.11	20	

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID: R397962 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120469-06MSD** Units: **ug/L** Analysis Date: **18-Dec-2021 17:05**
Client ID: Run ID: **VOA9_397962** SeqNo: **6429842** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	4421	200	4000	0	111	64 - 133	4665	5.37	20	
Carbon tetrachloride	2077	100	2000	0	104	72 - 136	2206	6.07	20	
Chlorobenzene	2182	100	2000	0	109	82 - 118	2283	4.54	20	
Chloroethane	2342	100	2000	0	117	60 - 138	2472	5.43	20	
Chloroform	2050	100	2000	0	103	79 - 124	2145	4.51	20	
Chloromethane	2352	100	2000	0	118	50 - 139	2508	6.42	20	
cis-1,2-Dichloroethene	3615	100	2000	1709	95.3	78 - 123	3805	5.1	20	
cis-1,3-Dichloropropene	1878	100	2000	0	93.9	75 - 124	1968	4.7	20	
Dibromochloromethane	1844	100	2000	0	92.2	74 - 126	1905	3.25	20	
Dibromomethane	2075	100	2000	0	104	79 - 123	2143	3.24	20	
Dichlorodifluoromethane	1602	100	2000	0	80.1	32 - 152	1722	7.23	20	
Ethylbenzene	2242	100	2000	0	112	79 - 121	2342	4.39	20	
Hexachlorobutadiene	2407	100	2000	0	120	66 - 134	2485	3.19	20	
Isopropylbenzene	2292	100	2000	0	115	72 - 131	2402	4.69	20	
m,p-Xylene	4606	200	4000	0	115	80 - 121	4778	3.65	20	
Methylene chloride	2112	200	2000	114.8	99.8	74 - 124	2207	4.44	20	
Naphthalene	1784	100	2000	0	89.2	61 - 128	1846	3.41	20	
n-Butylbenzene	2176	100	2000	0	109	75 - 128	2316	6.23	20	
n-Propylbenzene	2229	100	2000	0	111	76 - 126	2396	7.24	20	
o-Xylene	2198	100	2000	0	110	78 - 122	2331	5.85	20	
sec-Butylbenzene	2224	100	2000	0	111	77 - 126	2391	7.25	20	
Styrene	2264	100	2000	0	113	78 - 123	2340	3.32	20	
tert-Butylbenzene	2194	100	2000	0	110	78 - 124	2361	7.33	20	
Tetrachloroethene	2688	100	2000	438.5	112	74 - 129	2816	4.67	20	
Toluene	2222	100	2000	0	111	80 - 121	2326	4.58	20	
trans-1,2-Dichloroethene	2150	100	2000	0	108	75 - 124	2265	5.18	20	
trans-1,3-Dichloropropene	1768	100	2000	0	88.4	73 - 127	1832	3.56	20	
Trichloroethene	16230	100	2000	14700	76.1	79 - 123	17190	5.75	20	SO
Trichlorofluoromethane	2309	100	2000	0	115	65 - 141	2428	5.04	20	
Vinyl chloride	2239	100	2000	0	112	58 - 137	2429	8.11	20	
Surr: 1,2-Dichloroethane-d4	*4184*	*100*	*5000*	*0*	*83.7*	*81 - 118*	*4245*	*1.46*	*20*	
Surr: 4-Bromofluorobenzene	*5004*	*100*	*5000*	*0*	*100*	*85 - 114*	*5052*	*0.947*	*20*	
Surr: Dibromofluoromethane	*4525*	*100*	*5000*	*0*	*90.5*	*80 - 119*	*4630*	*2.28*	*20*	
Surr: Toluene-d8	*5050*	*100*	*5000*	*0*	*101*	*89 - 112*	*5054*	*0.09*	*20*	

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: HS21120428

QC BATCH REPORT

Batch ID:	R397962 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21120428-06 HS21120428-07 HS21120428-08

Revision: 1

ALS Houston, US Date: 26-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 18/24
WorkOrder: **HS21120428**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 26-Jan-22

Sample Receipt Checklist

Work Order ID: HS21120428 **Date/Time Received:** **07-Dec-2021 11:05**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: /S/ Pablo Marinez (eSignature) 08-Dec-2021 16:10 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 10-Dec-2021 19:05 (Date/Time)

Matrices: **WATER** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:CLIENT
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	0.8°C UC/C	IR 31
Cooler(s)/Kit(s):	47916	
Date/Time sample(s) sent to storage:	12/8/21 16:15	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
MW5_120621	06 DEC 2021	0810	-	N		WG	6	X	X	X	X										
18CPTMW08DW_120621	06 DEC 2021	0855	-	N		WG	2		X		X										
18CPTMW08SW_120621	06 DEC 2021	0940	-	N		WG	5	X	X		X										
18CPTMW12SW_120621	06 DEC 2021	1030		N		WG	6	X	X	X	X										
18CPTMW12DW_120621	06 DEC 2021	1115		N		WG	6	X	X	X	X										
MW7_120621	06 DEC 2021	1205	-	N		WG	5	X	X		X										
MW23_120621	06 DEC 2021	1250	-	N		WG	4	X	X												
MW23_120621_MS	06 DEC 2021	1250	-	MS		WG	4	X	X												
MW23_120621_MSD	06 DEC 2021	1250	-	SD		WG	4	X	X												
TRIP BLANK	06 DEC 2021		-	TB		W	2	X													
			-																		

Sample Analysis Requested (5)

Quality Assurance Samples (6)

HS21120428

Bhate Environmental Associates, Inc.
LHAAP / Site 18/24

COMMENTS: STANDARD TAT

Cooler 47916 12231
Temp 0.8°C CFO

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/6/21	1430	1. J. [illegible]	12/7/21	11:05
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

Method of Shipment: _____

Fed Ex _____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

47916

CUSTODY SEAL

Date: 12/6/21 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 12/07/21

47916 DEC 07 2021

47916

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. FMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG

RMA:

FedEx Express

TRK# 5300 5225 1700

PRIORITY OVERNIGHT

XA SGRA

77099
TX-US
IAH

4230674 06Dec2021 GGGA 56DG3/E934/1B23

December 20, 2021

Service Request No:E2101258

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120428

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 08, 2021
For your reference, these analyses have been assigned our service request number **E2101258.**

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.:**	E2101258
Project:	HS21120428	**Date Received:**	12/08/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven samples were received for analysis at ALS Environmental in Houston on 12/08/21.

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:

EQ2100683: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for these extraction batches. The LCS-DLCS RPD exceed QC limit; the individual recoveries met acceptance criteria. MS/MSD parent sample result was 81,600 ug/L (2,000x DF).

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:**E2101258
Project: HS21120428

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101258-001	MW5_120621	12/6/2021	0810
E2101258-002	18CPTMW08DW_120621	12/6/2021	0855
E2101258-003	18CPTMW08SW_120621	12/6/2021	0940
E2101258-004	18CPTMW12SW_120621	12/6/2021	1030
E2101258-005	18CPTMW12DW_120621	12/6/2021	1115
E2101258-006	MW7_120621	12/6/2021	1205
E2101258-007	MW23_120621	12/6/2021	1250

Service Request Summary

Folder #: **E2101258**
Client Name: ALS Environmental - US
Project Name: HS21120428
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/08/21
Internal Due Date: 12/21/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120428
EDD: No EDD Specified

9 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101258-001	MW5_120621	Water	12/06/21 0810	**IV**
E2101258-002	18CPTMW08DW_120621	Water	12/06/21 0855	**IV**
E2101258-003	18CPTMW08SW_120621	Water	12/06/21 0940	**IV**
E2101258-004	18CPTMW12SW_120621	Water	12/06/21 1030	**IV**
E2101258-005	18CPTMW12DW_120621	Water	12/06/21 1115	**IV**
E2101258-006	MW7_120621	Water	12/06/21 1205	**IV**
E2101258-007	MW23_120621	Water	12/06/21 1250	**IV**

Service Request Summary

Folder #:	**E2101258**	Project Chemist:	Corey Grandits
Client Name:	ALS Environmental - US	Originating Lab:	HOUSTON
Project Name:	HS21120428	Logged By:	CGRANDITS
Project Number:		Date Received:	12/08/21
		Internal Due Date:	12/21/2021
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA	QAP:	LAB QAP
		Qualifier Set:	Lab Standard
		Formset:	Lab Standard
		Merged?:	Y
Phone Number:		Report to MDL?:	Y
Cell Number:		P.O. Number:	HS21120428
Fax Number:		EDD:	No EDD Specified
E-mail:	ragenp.giga@alsglobal.com		

9 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	6	Level IV due 12/29
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 17604**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Ragen Giga
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RagenP.Giga@ALSGlobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21120428
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120428-01**	**MW5_120621**	**Water**	**06 Dec 2021 08:10**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021
2.	**HS21120428-02**	**18CPTMW08DW_120621**	**Water**	**06 Dec 2021 08:55**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021
3.	**HS21120428-03**	**18CPTMW08SW_120621**	**Water**	**06 Dec 2021 09:40**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021
4.	**HS21120428-04**	**18CPTMW12SW_120621**	**Water**	**06 Dec 2021 10:30**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021
5.	**HS21120428-05**	**18CPTMW12DW_120621**	**Water**	**06 Dec 2021 11:15**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021
6.	**HS21120428-06**	**MW7_120621**	**Water**	**06 Dec 2021 12:05**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021
7.	**HS21120428-07**	**MW23_120621**	**Water**	**06 Dec 2021 12:50**
	6850-Perch. DOD Level II & Level IV in separate pdf			21 Dec 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
MW23_120621 has extra volume for MS/MSD

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **17604**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	Pall	Date/Time:	12.8.21 16:00
Received By:	[illegible]	Date/Time:	12-8-21 16:00
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CH

Client/Project: ALH-H1

Thermometer ID: 1251

Date/Time Received: 12-8-21 Initials: CH Date/Time Logged in: 12-8-21 Initials: CH

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ ALS Courier ○ 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		12-8-21	1600	CH	4.7	☒
						☐
						☐
						☐

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
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 392605 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/13/21 09:15

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101257-001	LP-BG-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101257-002	LP-11-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101257-003	LP-12-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101257-004	LP-8-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101257-005	LP-7-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101257-006	LP-13-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101257-007	LP-2-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101257-008	DUP-1-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101257-009	DUP-2-120721	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2101258-001	MW5_120621	.01	6850/ClO4 DOD			Water	10mL	
11	E2101258-002	18CPTMW08DW_120621	.01	6850/ClO4 DOD			Water	10mL	
12	E2101258-003	18CPTMW08SW_120621	.01	6850/ClO4 DOD			Water	10mL	
13	E2101258-004	18CPTMW12SW_120621	.01	6850/ClO4 DOD			Water	10mL	
14	E2101258-005	18CPTMW12DW_120621	.01	6850/ClO4 DOD			Water	10mL	
15	E2101258-006	MW7_120621	.01	6850/ClO4 DOD			Water	10mL	
16	E2101258-007	MW23_120621	.01	6850/ClO4 DOD			Water	10mL	
17	EQ2100683-01	MB		6850/ClO4 DOD			Liquid	10mL	
18	EQ2100683-02	LCS		6850/ClO4 DOD			Liquid	10mL	
19	EQ2100683-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
20	EQ2100683-04	MW23_120621 MS	.01	6850/ClO4 DOD			Liquid	10mL	
21	EQ2100683-05	MW23_120621 DMS	.01	6850/ClO4 DOD			Liquid	10mL	
22	K2114001-001	AUS-0A2P-W04-GW-12022021	.01	6850/ClO4			Ground Water	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101257-001	100.00µL	E2101257-002	100.00µL	E2101257-003	100.00µL	E2101257-004	100.00µL	E2101257-005	100.00µL	E2101257-006	100.00µL
E2101257-007	100.00µL	E2101257-008	100.00µL	E2101257-009	100.00µL	E2101258-001	100.00µL	E2101258-002	100.00µL	E2101258-003	100.00µL
E2101258-004	100.00µL	E2101258-005	100.00µL	E2101258-006	100.00µL	E2101258-007	100.00µL	EQ2100683-01	100.00µL	EQ2100683-01	100.00µL
EQ2100683-02	100.00µL	EQ2100683-02	100.00µL	EQ2100683-03	100.00µL	EQ2100683-03	100.00µL	EQ2100683-04	100.00µL	EQ2100683-05	100.00µL
K2114001-001	100.00µL										

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100683-02	1.00µL	EQ2100683-02	1.00µL	EQ2100683-03	1.00µL	EQ2100683-03	1.00µL	EQ2100683-04	1.00µL	EQ2100683-05	1.00µL

Preparation Information Benchsheet

Prep Run#: 392605 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/13/21 09:15

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/13/21 09:15
Finished: 12/13/21 10:00
By: GRIVERA
Comments

Comments:

Reviewed By: GR Date: 12/13/21

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

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:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 0810
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	MW5_120621	**Units:**	µg/L
Lab Code:	E2101258-001	**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	**28900**		100	50.0	25.0	1000	12/13/21	12/16/21 13:58	392605	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 0855
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	18CPTMW08DW_120621	**Units:**	µg/L
Lab Code:	E2101258-002	**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	**4240**		10.0	5.00	2.50	100	12/13/21	12/16/21 14:14	392605	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 0940
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	18CPTMW08SW_120621	**Units:**	µg/L
Lab Code:	E2101258-003	**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	**19700**		100	50.0	25.0	1000	12/13/21	12/14/21 15:47	392605	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 1030
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	18CPTMW12SW_120621	**Units:**	µg/L
Lab Code:	E2101258-004	**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	**0.134**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 20:55	392605	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 1115
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	18CPTMW12DW_120621	**Units:**	µg/L
Lab Code:	E2101258-005	**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	**0.0516**	J	0.100	0.0500	0.0250	1	12/13/21	12/14/21 21:03	392605	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 1205
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	MW7_120621	**Units:**	µg/L
Lab Code:	E2101258-006	**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	**16300**		100	50.0	25.0	1000	12/13/21	12/14/21 15:55	392605	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 1250
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	MW23_120621	**Units:**	µg/L
Lab Code:	E2101258-007	**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	**81600**		200	100	50.0	2000	12/13/21	12/16/21 14:29	392605	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100683-01	**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	12/13/21	12/14/21 19:20	392605	749353	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21120428
Sample Matrix: Water

Service Request: E2101258
Date Analyzed: 12/14/21

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: 392605

	Lab Control Sample EQ2100683-02			Duplicate Lab Control Sample EQ2100683-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.101	0.100	101	0.119	0.100	119	84 - 119	17 *	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:**	E2101258
Project:	HS21120428	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100683-02	**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	12/13/21	12/14/21 19:28	392605	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100683-03	**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	**0.119**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 19:36	392605	749353	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/6/21
Sample Matrix:	Water	**Date Received:**	12/8/21
		Date Analyzed:	12/16/21

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	MW23_120621	**Units:**	µg/L
Lab Code:	E2101258-007	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		MW23_120621MS				MW23_120621DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2100683-04				EQ2100683-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	81600	72100	0.100	-9463600#		64800	0.100	-1675220#	84 - 119	11	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 1250
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	MW23_120621	**Units:**	µg/L
Lab Code:	EQ2100683-04	**Basis:**	NA
Run Type:	Matrix Spike		

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	**72100**		200	100	50.0	2000	12/13/21	12/16/21 14:21	392605	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101258
Project:	HS21120428	**Date Collected:**	12/ 6/21 1250
Sample Matrix:	Water	**Date Received:**	12/ 8/21
Sample Name:	MW23_120621	**Units:**	µg/L
Lab Code:	EQ2100683-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**64800**		200	100	50.0	2000	12/13/21	12/16/21 14:06	392605	749388	

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December 27, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120475**

Laboratory Results for: **LHAAP/Site 18 /24**

Dear Marcia Olive,

ALS Environmental received 10 sample(s) on Dec 08, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120475

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120475-01	120_120721	Groundwater		07-Dec-2021 07:25	08-Dec-2021 10:30	☐
HS21120475-02	MW14_120721	Groundwater		07-Dec-2021 08:10	08-Dec-2021 10:30	☐
HS21120475-03	1824DPTMW06_120721	Groundwater		07-Dec-2021 09:05	08-Dec-2021 10:30	☐
HS21120475-04	1824DPTMW06_120721_a	Groundwater		07-Dec-2021 09:05	08-Dec-2021 10:30	☐
HS21120475-05	18CPTMW22R_120721	Groundwater		07-Dec-2021 10:40	08-Dec-2021 10:30	☐
HS21120475-06	18CPTMW22SW_120721	Groundwater		07-Dec-2021 11:25	08-Dec-2021 10:30	☐
HS21120475-07	MW19_120721	Groundwater		07-Dec-2021 12:10	08-Dec-2021 10:30	☐
HS21120475-08	MW18_120721	Groundwater		07-Dec-2021 13:00	08-Dec-2021 10:30	☐
HS21120475-09	MW18_120721_a	Groundwater		07-Dec-2021 13:03	08-Dec-2021 10:30	☐
HS21120475-10	Trip Blank	Water		07-Dec-2021 00:00	08-Dec-2021 10:30	☐

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120475

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was performed by ALS Specialties Laboratory in Houston, Texas. The final report is appended.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173430

Sample ID: 120_120721 (HS21120475-01)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.
- The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: 1824DPTMW06_120721 (HS21120475-03)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 1824DPTMW06_120721_a (HS21120475-04)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.
- The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: 18CPTMW22SW_120721 (HS21120475-06)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: MW14_120721 (HS21120475-02)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.
- The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Volatiles by Method SW8260

Batch ID: R398063

Sample ID: 120_120721 (HS21120475-01)

- SURR failure due to matrix. Confirmed by re-analysis @ dilution.

Sample ID: MW14_120721 (HS21120475-02)

- SURR failure due to matrix. Confirmed by re-analysis @ dilution.

Sample ID: VLCSW-211220

- Bromomethane is also high for LCS.

Sample ID: VSTD050

- 2,2-Dichloropropane, Bromomethane, Chloromethane and Hexachlorobutadiene exceeded %D limits for CCV .Samples are ND for these compounds.

Sample ID: 1824DPTMW06_120721 (HS21120475-03MSD)

- MS/MSD RPD recovered above upper limits for Chloromethane

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120475

CASE NARRATIVE

Metals by Method SW6020A

Batch ID: 173565

Sample ID: HS21120092-05MSD

- MS/MSD and DUPs are for an unrelated sample

Metals by Method SW7470A

Batch ID: 173516

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 120_120721
Collection Date: 07-Dec-2021 07:25

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	20-Dec-2021 20:46
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
1,1-Dichloroethane	**11**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46
1,1-Dichloroethene	**38**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2-Dibromo-3-chloropropane	10	U	2.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	20-Dec-2021 20:46
1,2-Dichloroethane	**20**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	20-Dec-2021 20:46
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
2-Butanone	10	U	5.0	10	20	ug/L	10	20-Dec-2021 20:46
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
2-Hexanone	20	U	10	20	20	ug/L	10	20-Dec-2021 20:46
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	20-Dec-2021 20:46
Acetone	20	U	4.0	20	20	ug/L	10	20-Dec-2021 20:46
Benzene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
Bromobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
Bromoform	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
Bromomethane	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
Carbon disulfide	20	U	6.0	20	20	ug/L	10	20-Dec-2021 20:46
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	20-Dec-2021 20:46
Chlorobenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Chloroethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Chloroform	**12**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 120_120721
Collection Date: 07-Dec-2021 07:25

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
cis-1,2-Dichloroethene	**800**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46
cis-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Ethylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	20-Dec-2021 20:46
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
m,p-Xylene	10	U	5.0	10	20	ug/L	10	20-Dec-2021 20:46
Methylene chloride	10	U	4.0	10	20	ug/L	10	20-Dec-2021 20:46
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 20:46
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Naphthalene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
o-Xylene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Styrene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Tetrachloroethene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Toluene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
trans-1,2-Dichloroethene	**5.4**	J	**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 20:46
Trichloroethene	**4,900**		**20**	**50**	**100**	**ug/L**	100	20-Dec-2021 21:08
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 20:46
Vinyl chloride	**13**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 20:46
Surr: 1,2-Dichloroethane-d4	*80.4*	*S*		**0**	*81-118*	*%REC*	*10*	*20-Dec-2021 20:46*
Surr: 1,2-Dichloroethane-d4	*81.4*			**0**	*81-118*	*%REC*	*100*	*20-Dec-2021 21:08*
Surr: 4-Bromofluorobenzene	*92.3*			**0**	*85-114*	*%REC*	*10*	*20-Dec-2021 20:46*
Surr: 4-Bromofluorobenzene	*92.3*			**0**	*85-114*	*%REC*	*100*	*20-Dec-2021 21:08*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*10*	*20-Dec-2021 20:46*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*100*	*20-Dec-2021 21:08*
Surr: Toluene-d8	*98.7*			**0**	*89-112*	*%REC*	*10*	*20-Dec-2021 20:46*
Surr: Toluene-d8	*98.8*			**0**	*89-112*	*%REC*	*100*	*20-Dec-2021 21:08*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**49**		**1.0**	**1.0**	**1.0**	**ug/L**	100	18-Dec-2021 14:27
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*100*	*18-Dec-2021 14:27*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*100*	*18-Dec-2021 14:27*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*100*	*18-Dec-2021 14:27*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 27-Dec-21

Client:	Bhate Environmental Associates, Inc.		**ANALYTICAL REPORT**
Project:	LHAAP/Site 18 /24	WorkOrder:	HS21120475
Sample ID:	120_120721	Lab ID:	HS21120475-01
Collection Date:	07-Dec-2021 07:25	Matrix:	Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW14_120721
Collection Date: 07-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	20-Dec-2021 21:31
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
1,1-Dichloroethane	**20**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 21:31
1,1-Dichloroethene	**69**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 21:31
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2-Dibromo-3-chloropropane	10	U	2.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	20-Dec-2021 21:31
1,2-Dichloroethane	**55**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 21:31
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	20-Dec-2021 21:31
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
2-Butanone	10	U	5.0	10	20	ug/L	10	20-Dec-2021 21:31
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
2-Hexanone	20	U	10	20	20	ug/L	10	20-Dec-2021 21:31
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	20-Dec-2021 21:31
Acetone	20	U	4.0	20	20	ug/L	10	20-Dec-2021 21:31
Benzene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Bromobenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Bromoform	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
Bromomethane	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
Carbon disulfide	20	U	6.0	20	20	ug/L	10	20-Dec-2021 21:31
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	20-Dec-2021 21:31
Chlorobenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Chloroethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Chloroform	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW14_120721
Collection Date: 07-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
cis-1,2-Dichloroethene	**1,300**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 21:31
cis-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Ethylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	20-Dec-2021 21:31
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
m,p-Xylene	10	U	5.0	10	20	ug/L	10	20-Dec-2021 21:31
Methylene chloride	20	U	4.0	20	20	ug/L	10	20-Dec-2021 21:31
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	20-Dec-2021 21:31
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Naphthalene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
o-Xylene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Styrene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Tetrachloroethene	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Toluene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
trans-1,2-Dichloroethene	**13**		**2.0**	**5.0**	**10**	**ug/L**	10	20-Dec-2021 21:31
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Trichloroethene	**6,200**		**20**	**50**	**100**	**ug/L**	100	20-Dec-2021 21:53
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	20-Dec-2021 21:31
Vinyl chloride	5.0	U	2.0	5.0	10	ug/L	10	20-Dec-2021 21:31
Surr: 1,2-Dichloroethane-d4	*79.7*	*S*		**0**	*81-118*	*%REC*	*10*	*20-Dec-2021 21:31*
Surr: 1,2-Dichloroethane-d4	*81.1*			**0**	*81-118*	*%REC*	*100*	*20-Dec-2021 21:53*
Surr: 4-Bromofluorobenzene	*92.9*			**0**	*85-114*	*%REC*	*10*	*20-Dec-2021 21:31*
Surr: 4-Bromofluorobenzene	*92.3*			**0**	*85-114*	*%REC*	*100*	*20-Dec-2021 21:53*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*100*	*20-Dec-2021 21:53*
Surr: Dibromofluoromethane	*87.8*			**0**	*80-119*	*%REC*	*10*	*20-Dec-2021 21:31*
Surr: Toluene-d8	*99.1*			**0**	*89-112*	*%REC*	*10*	*20-Dec-2021 21:31*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*100*	*20-Dec-2021 21:53*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**96**		**10**	**10**	**10**	**ug/L**	1000	18-Dec-2021 14:45
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*1000*	*18-Dec-2021 14:45*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*1000*	*18-Dec-2021 14:45*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*1000*	*18-Dec-2021 14:45*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW14_120721
Collection Date: 07-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JC
Aluminum	**0.0386**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	22-Dec-2021 14:22
Antimony	**0.000416**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Arsenic	**0.00422**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Barium	**0.341**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Beryllium	**0.000356**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	22-Dec-2021 14:22
Cadmium	**0.000880**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	22-Dec-2021 14:22
Calcium	**124**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	22-Dec-2021 14:22
Chromium	**0.211**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Cobalt	**0.0317**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Copper	**0.00229**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Iron	**66.4**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:22
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	22-Dec-2021 14:22
Magnesium	**50.4**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:22
Manganese	**3.11**		**0.0140**	**0.0500**	**0.100**	**mg/L**	20	22-Dec-2021 15:55
Nickel	**0.465**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Potassium	**15.7**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:22
Selenium	**0.00143**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	22-Dec-2021 14:22
Sodium	**292**		**0.280**	**1.00**	**4.00**	**mg/L**	20	22-Dec-2021 15:55
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:22
Vanadium	**0.000712**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
Zinc	**0.915**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:22
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.000153**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:24
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 1824DPTMW06_120721
Collection Date: 07-Dec-2021 09:05

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,1-Dichloroethane	**1.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 14:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,2-Dichloroethane	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 14:27
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 14:27
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 14:27
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 14:27
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 14:27
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 14:27
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 1824DPTMW06_120721
Collection Date: 07-Dec-2021 09:05

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
cis-1,2-Dichloroethene	**5.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 14:27
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 14:27
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 14:27
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 14:27
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Trichloroethene	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 14:27
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 14:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 14:27
Surr: 1,2-Dichloroethane-d4	*81.5*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 14:27*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 14:27*
Surr: Dibromofluoromethane	*87.2*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 14:27*
Surr: Toluene-d8	*97.8*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 14:27*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**2.0**		**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 15:03
Surr: 2-Fluorobiphenyl	*67.6*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 15:03*
Surr: 4-Terphenyl-d14	*135*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 15:03*
Surr: Nitrobenzene-d5	*125*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 15:03*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 1824DPTMW06_120721_a
Collection Date: 07-Dec-2021 09:05

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,1-Dichloroethane	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 18:32
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,2-Dichloroethane	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 18:32
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 18:32
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 18:32
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 18:32
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 18:32
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 18:32
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 1824DPTMW06_120721_a
Collection Date: 07-Dec-2021 09:05

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
cis-1,2-Dichloroethene	**5.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 18:32
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 18:32
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	20-Dec-2021 18:32
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:32
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Trichloroethene	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 18:32
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:32
Surr: 1,2-Dichloroethane-d4	*81.4*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 18:32*
Surr: 4-Bromofluorobenzene	*93.4*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 18:32*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 18:32*
Surr: Toluene-d8	*98.3*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 18:32*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**4.7**		**1.0**	**1.0**	**1.0**	**ug/L**	100	18-Dec-2021 15:21
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*100*	*18-Dec-2021 15:21*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*100*	*18-Dec-2021 15:21*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*100*	*18-Dec-2021 15:21*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW22R_120721
Collection Date: 07-Dec-2021 10:40

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 18:54
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 18:54
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 18:54
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 18:54
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 18:54
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW22R_120721
Collection Date: 07-Dec-2021 10:40

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 18:54
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 18:54
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:54
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:54
Surr: 1,2-Dichloroethane-d4	*81.3*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 18:54*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 18:54*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 18:54*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 18:54*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.48**		**0.010**	**0.010**	**0.010**	**ug/L**	1	18-Dec-2021 15:39
Surr: 2-Fluorobiphenyl	*99.6*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 15:39*
Surr: 4-Terphenyl-d14	*117*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 15:39*
Surr: Nitrobenzene-d5	*119*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 15:39*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW22R_120721
Collection Date: 07-Dec-2021 10:40

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JHD
Aluminum	**8.22**		**0.180**	**0.500**	**1.00**	**mg/L**	100	22-Dec-2021 15:57
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	22-Dec-2021 14:25
Arsenic	**0.00351**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Barium	**0.171**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Beryllium	**0.000971**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	22-Dec-2021 14:25
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:25
Calcium	**1.91**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	22-Dec-2021 14:25
Chromium	**0.00922**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Cobalt	**0.0146**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Copper	**0.00724**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Iron	**10.8**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:25
Lead	**0.00631**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Magnesium	**2.26**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:25
Manganese	**0.112**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Nickel	**0.00890**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Potassium	**0.867**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:25
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	22-Dec-2021 14:25
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	22-Dec-2021 14:25
Sodium	**33.1**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:25
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:25
Vanadium	**0.0146**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
Zinc	**0.0284**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:25
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.000153**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:32
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW22SW_120721
Collection Date: 07-Dec-2021 11:25

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 19:17
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 19:17
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 19:17
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 19:17
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 19:17
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW22SW_120721
Collection Date: 07-Dec-2021 11:25

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 19:17
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	20-Dec-2021 19:17
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:17
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Trichloroethene	**0.97**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 19:17
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:17
Surr: 1,2-Dichloroethane-d4	*81.1*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 19:17*
Surr: 4-Bromofluorobenzene	*91.5*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 19:17*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 19:17*
Surr: Toluene-d8	*97.8*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 19:17*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**1.3**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Dec-2021 16:14
Surr: 2-Fluorobiphenyl	*47.8*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:14*
Surr: 4-Terphenyl-d14	*73.3*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:14*
Surr: Nitrobenzene-d5	*106*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:14*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW22SW_120721
Collection Date: 07-Dec-2021 11:25

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JC
Aluminum	**0.0534**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	22-Dec-2021 14:27
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	22-Dec-2021 14:27
Arsenic	**0.00211**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
Barium	**0.110**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:27
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:27
Calcium	**12.7**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	22-Dec-2021 14:27
Chromium	**0.0188**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
Cobalt	0.000500	U	0.000100	0.000500	0.00500	mg/L	1	22-Dec-2021 14:27
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	22-Dec-2021 14:27
Iron	**0.0452**	J	**0.0120**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:27
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	22-Dec-2021 14:27
Magnesium	**1.05**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:27
Manganese	**0.00737**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
Nickel	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	22-Dec-2021 14:27
Potassium	**244**		**0.360**	**1.00**	**4.00**	**mg/L**	20	22-Dec-2021 15:59
Selenium	**0.00331**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	22-Dec-2021 14:27
Sodium	**272**		**0.280**	**1.00**	**4.00**	**mg/L**	20	22-Dec-2021 15:59
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:27
Vanadium	**0.00108**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
Zinc	**0.00264**	J	**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:27
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.0000410**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:34
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW19_120721
Collection Date: 07-Dec-2021 12:10

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 19:39
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 19:39
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 19:39
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 19:39
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 19:39
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW19_120721
Collection Date: 07-Dec-2021 12:10

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
cis-1,2-Dichloroethene	**5.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 19:39
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 19:39
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 19:39
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 19:39
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Trichloroethene	**6.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 19:39
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 19:39
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 19:39
Surr: 1,2-Dichloroethane-d4	*81.5*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 19:39*
Surr: 4-Bromofluorobenzene	*94.0*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 19:39*
Surr: Dibromofluoromethane	*88.9*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 19:39*
Surr: Toluene-d8	*98.0*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 19:39*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW19_120721
Collection Date: 07-Dec-2021 12:10

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 15-Dec-2021		Analyst: JC
Aluminum	**0.673**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	22-Dec-2021 14:29
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	22-Dec-2021 14:29
Arsenic	**0.00328**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Barium	**0.323**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:29
Cadmium	**0.00134**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	22-Dec-2021 14:29
Calcium	**114**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	22-Dec-2021 14:29
Chromium	**0.0517**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Cobalt	**0.0142**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Copper	**0.00490**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Iron	**47.1**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:29
Lead	**0.000644**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Magnesium	**64.7**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:29
Manganese	**2.71**		**0.0350**	**0.125**	**0.250**	**mg/L**	50	22-Dec-2021 16:01
Nickel	**0.0433**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Potassium	**4.46**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	22-Dec-2021 14:29
Selenium	**0.00637**		**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	22-Dec-2021 14:29
Sodium	**854**		**0.700**	**2.50**	**10.0**	**mg/L**	50	22-Dec-2021 16:01
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	22-Dec-2021 14:29
Vanadium	**0.00157**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
Zinc	**0.0101**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	22-Dec-2021 14:29
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.00010	0.000200	mg/L	1	14-Dec-2021 11:36
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**		0				Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW18_120721
Collection Date: 07-Dec-2021 13:00

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 20:01
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 20:01
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 20:01
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 20:01
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 20:01
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW18_120721
Collection Date: 07-Dec-2021 13:00

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
cis-1,2-Dichloroethene	**0.89**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 20:01
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 20:01
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	20-Dec-2021 20:01
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:01
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Trichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 20:01
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:01
Surr: 1,2-Dichloroethane-d4	*81.4*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 20:01*
Surr: 4-Bromofluorobenzene	*93.8*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 20:01*
Surr: Dibromofluoromethane	*88.7*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 20:01*
Surr: Toluene-d8	*98.8*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 20:01*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW18_120721_a
Collection Date: 07-Dec-2021 13:03

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 20:24
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 20:24
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 20:24
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 20:24
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 20:24
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW18_120721_a
Collection Date: 07-Dec-2021 13:03

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
cis-1,2-Dichloroethene	**0.94**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 20:24
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 20:24
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 20:24
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 20:24
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Trichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	20-Dec-2021 20:24
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 20:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 20:24
Surr: 1,2-Dichloroethane-d4	*82.2*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 20:24*
Surr: 4-Bromofluorobenzene	*93.1*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 20:24*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 20:24*
Surr: Toluene-d8	*99.3*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 20:24*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 07-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 18:10
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	20-Dec-2021 18:10
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	20-Dec-2021 18:10
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	20-Dec-2021 18:10
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	20-Dec-2021 18:10
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 07-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120475
Lab ID:HS21120475-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	20-Dec-2021 18:10
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	20-Dec-2021 18:10
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	20-Dec-2021 18:10
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	20-Dec-2021 18:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	20-Dec-2021 18:10
Surr: 1,2-Dichloroethane-d4	*83.0*			**0**	*81-118*	*%REC*	*1*	*20-Dec-2021 18:10*
Surr: 4-Bromofluorobenzene	*94.2*			**0**	*85-114*	*%REC*	*1*	*20-Dec-2021 18:10*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*1*	*20-Dec-2021 18:10*
Surr: Toluene-d8	*99.6*			**0**	*89-112*	*%REC*	*1*	*20-Dec-2021 18:10*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Dec-21

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

Batch ID: 173430 **Start Date:** 10 Dec 2021 11:30 **End Date:** 10 Dec 2021 15:00
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120475-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120475-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120475-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120475-04	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120475-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120475-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173516 **Start Date:** 14 Dec 2021 08:00 **End Date:** 14 Dec 2021 10:30
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120475-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120475-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120475-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120475-07		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 173565 **Start Date:** 15 Dec 2021 09:30 **End Date:** 15 Dec 2021 13:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120475-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120475-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120475-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120475-07		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173430 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21120475-01	120_120721	07 Dec 2021 07:25		10 Dec 2021 16:47	18 Dec 2021 14:27	100
HS21120475-02	MW14_120721	07 Dec 2021 08:10		10 Dec 2021 16:47	18 Dec 2021 14:45	1000
HS21120475-03	1824DPTMW06_120721	07 Dec 2021 09:05		10 Dec 2021 16:47	18 Dec 2021 15:03	25
HS21120475-04	1824DPTMW06_120721_a	07 Dec 2021 09:05		10 Dec 2021 16:47	18 Dec 2021 15:21	100
HS21120475-05	18CPTMW22R_120721	07 Dec 2021 10:40		10 Dec 2021 16:47	18 Dec 2021 15:39	1
HS21120475-06	18CPTMW22SW_120721	07 Dec 2021 11:25		10 Dec 2021 16:47	18 Dec 2021 16:14	10
Batch ID: 173516 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS21120475-02	MW14_120721	07 Dec 2021 08:10		14 Dec 2021 08:00	14 Dec 2021 11:24	1
HS21120475-05	18CPTMW22R_120721	07 Dec 2021 10:40		14 Dec 2021 08:00	14 Dec 2021 11:32	1
HS21120475-06	18CPTMW22SW_120721	07 Dec 2021 11:25		14 Dec 2021 08:00	14 Dec 2021 11:34	1
HS21120475-07	MW19_120721	07 Dec 2021 12:10		14 Dec 2021 08:00	14 Dec 2021 11:36	1
Batch ID: 173565 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21120475-02	MW14_120721	07 Dec 2021 08:10		15 Dec 2021 13:30	22 Dec 2021 15:55	20
HS21120475-02	MW14_120721	07 Dec 2021 08:10		15 Dec 2021 13:30	22 Dec 2021 14:22	1
HS21120475-05	18CPTMW22R_120721	07 Dec 2021 10:40		15 Dec 2021 13:30	22 Dec 2021 15:57	100
HS21120475-05	18CPTMW22R_120721	07 Dec 2021 10:40		15 Dec 2021 13:30	22 Dec 2021 14:25	1
HS21120475-06	18CPTMW22SW_120721	07 Dec 2021 11:25		15 Dec 2021 13:30	22 Dec 2021 15:59	20
HS21120475-06	18CPTMW22SW_120721	07 Dec 2021 11:25		15 Dec 2021 13:30	22 Dec 2021 14:27	1
HS21120475-07	MW19_120721	07 Dec 2021 12:10		15 Dec 2021 13:30	22 Dec 2021 16:01	50
HS21120475-07	MW19_120721	07 Dec 2021 12:10		15 Dec 2021 13:30	22 Dec 2021 14:29	1
Batch ID: R398029 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21120475-01	120_120721	07 Dec 2021 07:25			20 Dec 2021 17:32	1
HS21120475-02	MW14_120721	07 Dec 2021 08:10			20 Dec 2021 17:32	1
HS21120475-03	1824DPTMW06_120721	07 Dec 2021 09:05			20 Dec 2021 17:32	1
HS21120475-04	1824DPTMW06_120721_a	07 Dec 2021 09:05			20 Dec 2021 17:32	1
HS21120475-05	18CPTMW22R_120721	07 Dec 2021 10:40			20 Dec 2021 17:32	1
HS21120475-06	18CPTMW22SW_120721	07 Dec 2021 11:25			20 Dec 2021 17:32	1
HS21120475-07	MW19_120721	07 Dec 2021 12:10			20 Dec 2021 17:32	1
HS21120475-08	MW18_120721	07 Dec 2021 13:00			20 Dec 2021 17:32	1
HS21120475-09	MW18_120721_a	07 Dec 2021 13:03			20 Dec 2021 17:32	1
Batch ID: R398063 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120475-10	Trip Blank	07 Dec 2021 00:00			20 Dec 2021 18:10	1

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R398063 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120475-01	120_120721	07 Dec 2021 07:25			20 Dec 2021 21:08	100
HS21120475-01	120_120721	07 Dec 2021 07:25			20 Dec 2021 20:46	10
HS21120475-02	MW14_120721	07 Dec 2021 08:10			20 Dec 2021 21:53	100
HS21120475-02	MW14_120721	07 Dec 2021 08:10			20 Dec 2021 21:31	10
HS21120475-03	1824DPTMW06_120721	07 Dec 2021 09:05			20 Dec 2021 14:27	1
HS21120475-04	1824DPTMW06_120721_a	07 Dec 2021 09:05			20 Dec 2021 18:32	1
HS21120475-05	18CPTMW22R_120721	07 Dec 2021 10:40			20 Dec 2021 18:54	1
HS21120475-06	18CPTMW22SW_120721	07 Dec 2021 11:25			20 Dec 2021 19:17	1
HS21120475-07	MW19_120721	07 Dec 2021 12:10			20 Dec 2021 19:39	1
HS21120475-08	MW18_120721	07 Dec 2021 13:00			20 Dec 2021 20:01	1
HS21120475-09	MW18_120721_a	07 Dec 2021 13:03			20 Dec 2021 20:24	1

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173516 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173516** Units: **mg/L** Analysis Date: **14-Dec-2021 10:52**
Client ID: Run ID: **HG03_397541** SeqNo: **6419855** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173516** Units: **mg/L** Analysis Date: **14-Dec-2021 10:54**
Client ID: Run ID: **HG03_397541** SeqNo: **6419856** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.000200	0.005	0	105	82 - 119				

MS Sample ID: **HS21120092-05MS** Units: **mg/L** Analysis Date: **14-Dec-2021 10:58**
Client ID: Run ID: **HG03_397541** SeqNo: **6419858** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.000200	0.005	0.00007100	93.6	82 - 119				

MSD Sample ID: **HS21120092-05MSD** Units: **mg/L** Analysis Date: **14-Dec-2021 10:59**
Client ID: Run ID: **HG03_397541** SeqNo: **6419859** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00497	0.000200	0.005	0.00007100	98.0	82 - 119	0.004750	4.53	20	

The following samples were analyzed in this batch: HS21120475-02 HS21120475-05 HS21120475-06 HS21120475-07

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-173565** Units: **mg/L** Analysis Date: **15-Dec-2021 21:25**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424041** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003659	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

LCS Sample ID: **LCS-173565** Units: **mg/L** Analysis Date: **16-Dec-2021 16:19**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6425387** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.108	0.0100	0.1	0	108	84 - 117				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-173565** Units: **mg/L** Analysis Date: **15-Dec-2021 21:27**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424042** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.05129	0.00500	0.05	0	103	85 - 117				
Arsenic	0.05307	0.00500	0.05	0	106	84 - 116				
Barium	0.05344	0.00500	0.05	0	107	86 - 114				
Beryllium	0.05193	0.00200	0.05	0	104	83 - 121				
Cadmium	0.05468	0.00200	0.05	0	109	87 - 115				
Calcium	5.164	0.500	5	0	103	87 - 118				
Chromium	0.05209	0.00500	0.05	0	104	85 - 116				
Cobalt	0.05234	0.00500	0.05	0	105	86 - 115				
Copper	0.05504	0.00500	0.05	0	110	85 - 118				
Iron	5.194	0.200	5	0	104	87 - 118				
Lead	0.05226	0.00500	0.05	0	105	88 - 115				
Magnesium	5.392	0.200	5	0	108	83 - 118				
Manganese	0.05339	0.00500	0.05	0	107	87 - 115				
Nickel	0.05396	0.00500	0.05	0	108	85 - 117				
Potassium	5.231	0.200	5	0	105	87 - 115				
Selenium	0.05563	0.00500	0.05	0	111	80 - 120				
Silver	0.05363	0.00500	0.05	0	107	85 - 116				
Sodium	5.278	0.200	5	0	106	85 - 117				
Thallium	0.05319	0.00200	0.05	0	106	82 - 116				
Vanadium	0.05225	0.00500	0.05	0	105	86 - 115				
Zinc	0.05685	0.00500	0.05	0	114	83 - 119				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21120092-05MS** Units: **mg/L** Analysis Date: **15-Dec-2021 21:33**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424045** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	23.07	0.0100	0.1	23.06	5.63	84 - 117				SEO
Antimony	0.0513	0.00500	0.05	0.000123	102	85 - 117				
Arsenic	0.05642	0.00500	0.05	0.001712	109	84 - 116				
Barium	0.06419	0.00500	0.05	0.01164	105	86 - 114				
Beryllium	0.06172	0.00200	0.05	0.009363	105	83 - 121				
Cadmium	0.06048	0.00200	0.05	0.009242	102	87 - 115				
Calcium	517.8	0.500	5	514.2	73.0	87 - 118				SEO
Chromium	0.05154	0.00500	0.05	0.000979	101	85 - 116				
Cobalt	0.2334	0.00500	0.05	0.18	107	86 - 115				
Copper	0.05655	0.00500	0.05	0.006004	101	85 - 118				
Iron	5.28	0.200	5	0.2562	100	87 - 118				
Lead	0.05274	0.00500	0.05	0.000788	104	88 - 115				
Magnesium	225.7	0.200	5	219.7	118	83 - 118				SEO
Manganese	3.342	0.00500	0.05	3.294	96.9	87 - 115				EO
Nickel	0.9313	0.00500	0.05	0.8808	101	85 - 117				O
Potassium	14.33	0.200	5	9.331	99.9	87 - 115				
Selenium	0.09932	0.00500	0.05	0.04332	112	80 - 120				
Silver	0.04744	0.00500	0.05	0.000041	94.8	85 - 116				
Sodium	180.4	0.200	5	176.3	81.4	85 - 117				SEO
Thallium	0.05414	0.00200	0.05	0.000372	108	82 - 116				
Vanadium	0.05317	0.00500	0.05	0.000932	104	86 - 115				
Zinc	0.5828	0.00500	0.05	0.531	103	83 - 119				O

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21120092-05MSD** Units: **mg/L** Analysis Date: **15-Dec-2021 21:35**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424046** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	23.36	0.0100	0.1	23.06	301	84 - 117	23.07	1.27	20	SEO
Antimony	0.05202	0.00500	0.05	0.000123	104	85 - 117	0.0513	1.39	20	
Arsenic	0.05688	0.00500	0.05	0.001712	110	84 - 116	0.05642	0.809	20	
Barium	0.06676	0.00500	0.05	0.01164	110	86 - 114	0.06419	3.93	20	
Beryllium	0.06333	0.00200	0.05	0.009363	108	83 - 121	0.06172	2.56	20	
Cadmium	0.06277	0.00200	0.05	0.009242	107	87 - 115	0.06048	3.71	20	
Calcium	529.4	0.500	5	514.2	305	87 - 118	517.8	2.22	20	SEO
Chromium	0.05131	0.00500	0.05	0.000979	101	85 - 116	0.05154	0.439	20	
Cobalt	0.237	0.00500	0.05	0.18	114	86 - 115	0.2334	1.54	20	
Copper	0.05691	0.00500	0.05	0.006004	102	85 - 118	0.05655	0.635	20	
Iron	5.343	0.200	5	0.2562	102	87 - 118	5.28	1.19	20	
Lead	0.05366	0.00500	0.05	0.000788	106	88 - 115	0.05274	1.72	20	
Magnesium	228.4	0.200	5	219.7	173	83 - 118	225.7	1.21	20	SEO
Manganese	3.393	0.00500	0.05	3.294	199	87 - 115	3.342	1.52	20	SEO
Nickel	0.9411	0.00500	0.05	0.8808	121	85 - 117	0.9313	1.04	20	SO
Potassium	14.58	0.200	5	9.331	105	87 - 115	14.33	1.73	20	
Selenium	0.1008	0.00500	0.05	0.04332	115	80 - 120	0.09932	1.49	20	
Silver	0.04877	0.00500	0.05	0.000041	97.5	85 - 116	0.04744	2.76	20	
Sodium	183.9	0.200	5	176.3	151	85 - 117	180.4	1.91	20	SEO
Thallium	0.05489	0.00200	0.05	0.000372	109	82 - 116	0.05414	1.38	20	
Vanadium	0.05346	0.00500	0.05	0.000932	105	86 - 115	0.05317	0.555	20	
Zinc	0.5906	0.00500	0.05	0.531	119	83 - 119	0.5828	1.34	20	SO

PDS Sample ID: **HS21120092-05PDS** Units: **mg/L** Analysis Date: **16-Dec-2021 17:27**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6426423** PrepDate: **15-Dec-2021** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	30.38	1.00	10	20.73	96.5	80 - 120				
Calcium	1475	50.0	1000	474.9	100	80 - 120				
Magnesium	1244	20.0	1000	220.9	102	80 - 120				
Manganese	13.4	0.500	10	3.157	102	80 - 120				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21120092-05PDS** Units: **mg/L** Analysis Date: **15-Dec-2021 21:37**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424047** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nickel	1.01	0.00500	0.1	0.8808	129	80 - 120				SO
Potassium	21.14	0.200	10	9.331	118	80 - 120				
Silver	0.08753	0.00500	0.1	0.000041	87.5	80 - 120				
Zinc	0.653	0.00500	0.1	0.531	122	80 - 120				SO

PDS Sample ID: **HS21120092-05PDS** Units: **mg/L** Analysis Date: **17-Dec-2021 15:05**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427886** PrepDate: **15-Dec-2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	292.8	2.00	100	191.4	101	80 - 120				

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **17-Dec-2021 12:15**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427336** PrepDate: **15-Dec-2021** DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	19.06	5.00					20.73	8.05	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **15-Dec-2021 21:31**
Client ID: Run ID: **ICPMS06_397733** SeqNo: **6424044** PrepDate: **15-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0.000123	0	10	U
Arsenic	0.00500	0.0250					0.001712	0	10	U
Barium	0.0106	0.0250					0.01164	0	10	J
Beryllium	0.007326	0.0100					0.009363	0	10	J
Cadmium	0.007303	0.0100					0.009242	0	10	J
Chromium	0.00500	0.0250					0.000979	0	10	U
Copper	0.0125	0.0250					0.006004	0	10	U
Iron	0.2155	1.00					0.2562	0	10	J
Lead	0.00500	0.0250					0.000788	0	10	U
Silver	0.00250	0.0250					0.000041	0	10	U
Thallium	0.00250	0.0100					0.000372	0	10	U
Vanadium	0.004421	0.0250					0.000932	0	10	J

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173565 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **16-Dec-2021 17:25**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6426422** PrepDate: **15-Dec-2021** DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Calcium	457.2	250					474.9	3.71	10	
Magnesium	222.1	100					220.9	0.522	10	
Manganese	3.081	2.50					3.157	2.42	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **16-Dec-2021 16:25**
Client ID: Run ID: **ICPMS06_397784** SeqNo: **6425390** PrepDate: **15-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Cobalt	0.178	0.0250					0.18	1.12	10	
Nickel	0.8457	0.0250					0.8808	3.98	10	
Potassium	9.665	1.00					9.331	3.58	10	
Selenium	0.03996	0.0250					0.04332	7.74	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **17-Dec-2021 15:03**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427885** PrepDate: **15-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Sodium	202	10.0					191.4	5.56	10	

SD Sample ID: **HS21120092-05SD** Units: **mg/L** Analysis Date: **17-Dec-2021 12:17**
Client ID: Run ID: **ICPMS06_397851** SeqNo: **6427337** PrepDate: **15-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Zinc	0.5623	0.0250					0.531	5.89	10	

The following samples were analyzed in this batch: HS21120475-02 HS21120475-05 HS21120475-06 HS21120475-07

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: 173430 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 14:17**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437290** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.06631*	*0*	*0.08*	*0*	*82.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08801*	*0*	*0.08*	*0*	*110*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.0668*	*0*	*0.08*	*0*	*83.5*	*40 - 140*				

LCS Sample ID: **LCS-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 14:34**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437291** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08377	0.010	0.08	0	105	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07207*	*0*	*0.08*	*0*	*90.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.07597*	*0*	*0.08*	*0*	*95.0*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08181*	*0*	*0.08*	*0*	*102*	*40 - 140*				

LCSD Sample ID: **LCSD-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 15:03**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437292** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.0729	0.010	0.08	0	91.1	40 - 140	0.08377	13.9	20	
Surr: 2-Fluorobiphenyl	*0.07341*	*0*	*0.08*	*0*	*91.8*	*40 - 140*	*0.07207*	*1.84*	*20*	
Surr: 4-Terphenyl-d14	*0.07482*	*0*	*0.08*	*0*	*93.5*	*40 - 140*	*0.07597*	*1.52*	*20*	
Surr: Nitrobenzene-d5	*0.07738*	*0*	*0.08*	*0*	*96.7*	*40 - 140*	*0.08181*	*5.56*	*20*	

The following samples were analyzed in this batch: HS21120475-01 HS21120475-02 HS21120475-03 HS21120475-04 HS21120475-05 HS21120475-06

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211220** Units: **ug/L** Analysis Date: **20-Dec-2021 14:04**
Client ID: Run ID: **VOA9_398063** SeqNo: **6432044** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211220** Units: **ug/L** Analysis Date: **20-Dec-2021 14:04**
Client ID: Run ID: **VOA9_398063** SeqNo: **6432044** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*42.1*	*1.0*	*50*	*0*	*84.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.91*	*1.0*	*50*	*0*	*95.8*	*85 - 114*				
Surr: Dibromofluoromethane	*44.34*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*49.8*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211220** Units: **ug/L** Analysis Date: **20-Dec-2021 13:20**
Client ID: Run ID: **VOA9_398063** SeqNo: **6432043** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.34	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	19.85	1.0	20	0	99.2	74 - 131				
1,1,2,2-Tetrachloroethane	19.68	1.0	20	0	98.4	71 - 121				
1,1,2-Trichloroethane	21.31	1.0	20	0	107	80 - 119				
1,1-Dichloroethane	22.84	1.0	20	0	114	77 - 125				
1,1-Dichloroethene	21.39	1.0	20	0	107	71 - 131				
1,1-Dichloropropene	21.2	1.0	20	0	106	78 - 125				
1,2,3-Trichlorobenzene	19.56	1.0	20	0	97.8	69 - 129				
1,2,3-Trichloropropane	19.46	1.0	20	0	97.3	73 - 122				
1,2,4-Trichlorobenzene	20.1	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	20.49	1.0	20	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	16.03	1.0	20	0	80.2	62 - 128				
1,2-Dibromoethane	21.51	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	20.46	1.0	20	0	102	80 - 119				
1,2-Dichloroethane	19.16	1.0	20	0	95.8	73 - 128				
1,2-Dichloropropane	21.9	1.0	20	0	110	78 - 122				
1,3,5-Trimethylbenzene	20.23	1.0	20	0	101	75 - 124				
1,3-Dichlorobenzene	20.54	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	21.32	1.0	20	0	107	80 - 119				
1,4-Dichlorobenzene	20.92	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	20.22	1.0	20	0	101	60 - 139				
2-Butanone	35.45	2.0	40	0	88.6	56 - 143				
2-Chlorotoluene	20.1	1.0	20	0	101	79 - 122				
2-Hexanone	40.5	2.0	40	0	101	57 - 139				
4-Chlorotoluene	20.49	1.0	20	0	102	78 - 122				
4-Isopropyltoluene	20.4	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	36.65	2.0	40	0	91.6	67 - 130				
Acetone	50.89	2.0	40	0	127	39 - 160				
Benzene	21.49	1.0	20	0	107	79 - 120				
Bromobenzene	21.55	1.0	20	0	108	80 - 120				
Bromochloromethane	21.42	1.0	20	0	107	78 - 123				
Bromodichloromethane	18.77	1.0	20	0	93.8	79 - 125				
Bromoform	17.15	1.0	20	0	85.7	66 - 130				
Bromomethane	31.21	1.0	20	0	156	53 - 141				S

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211220** Units: **ug/L** Analysis Date: **20-Dec-2021 13:20**
Client ID: Run ID: **VOA9_398063** SeqNo: **6432043** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	46.95	2.0	40	0	117	64 - 133				
Carbon tetrachloride	18.98	1.0	20	0	94.9	72 - 136				
Chlorobenzene	21.23	1.0	20	0	106	82 - 118				
Chloroethane	23.04	1.0	20	0	115	60 - 138				
Chloroform	19.88	1.0	20	0	99.4	79 - 124				
Chloromethane	26.32	1.0	20	0	132	50 - 139				
cis-1,2-Dichloroethene	20.49	1.0	20	0	102	78 - 123				
cis-1,3-Dichloropropene	19.12	1.0	20	0	95.6	75 - 124				
Dibromochloromethane	18.51	1.0	20	0	92.6	74 - 126				
Dibromomethane	20.98	1.0	20	0	105	79 - 123				
Dichlorodifluoromethane	21.31	1.0	20	0	107	32 - 152				
Ethylbenzene	21.35	1.0	20	0	107	79 - 121				
Hexachlorobutadiene	23.65	1.0	20	0	118	66 - 134				
Isopropylbenzene	20.96	1.0	20	0	105	72 - 131				
m,p-Xylene	43.47	2.0	40	0	109	80 - 121				
Methylene chloride	21.41	2.0	20	0	107	74 - 124				
Naphthalene	17.36	1.0	20	0	86.8	61 - 128				
n-Butylbenzene	20.06	1.0	20	0	100	75 - 128				
n-Propylbenzene	20.27	1.0	20	0	101	76 - 126				
o-Xylene	21.46	1.0	20	0	107	78 - 122				
sec-Butylbenzene	20.2	1.0	20	0	101	77 - 126				
Styrene	21.77	1.0	20	0	109	78 - 123				
tert-Butylbenzene	20.09	1.0	20	0	100	78 - 124				
Tetrachloroethene	21.49	1.0	20	0	107	74 - 129				
Toluene	21.31	1.0	20	0	107	80 - 121				
trans-1,2-Dichloroethene	21.6	1.0	20	0	108	75 - 124				
trans-1,3-Dichloropropene	18.14	1.0	20	0	90.7	73 - 127				
Trichloroethene	21.73	1.0	20	0	109	79 - 123				
Trichlorofluoromethane	22.11	1.0	20	0	111	65 - 141				
Vinyl chloride	23.88	1.0	20	0	119	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.33*	*1.0*	*50*	*0*	*92.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.25*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*49.51*	*1.0*	*50*	*0*	*99.0*	*80 - 119*				
Surr: Toluene-d8	*50.81*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: **R398063 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21120475-03MS** Units: **ug/L** Analysis Date: **20-Dec-2021 15:56**
Client ID: **1824DPTMW06_120721** Run ID: **VOA9_398063** SeqNo: **6432046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.92	1.0	20	0	94.6	78 - 124				
1,1,1-Trichloroethane	18.56	1.0	20	0	92.8	74 - 131				
1,1,2,2-Tetrachloroethane	18.08	1.0	20	0	90.4	71 - 121				
1,1,2-Trichloroethane	19.6	1.0	20	0	98.0	80 - 119				
1,1-Dichloroethane	22.25	1.0	20	1.197	105	77 - 125				
1,1-Dichloroethene	21.22	1.0	20	0	106	71 - 131				
1,1-Dichloropropene	21.22	1.0	20	0	106	78 - 125				
1,2,3-Trichlorobenzene	17.56	1.0	20	0	87.8	69 - 129				
1,2,3-Trichloropropane	17.15	1.0	20	0	85.7	73 - 122				
1,2,4-Trichlorobenzene	18.21	1.0	20	0	91.1	69 - 130				
1,2,4-Trimethylbenzene	19.65	1.0	20	0	98.3	76 - 124				
1,2-Dibromo-3-chloropropane	14.56	1.0	20	0	72.8	62 - 128				
1,2-Dibromoethane	20.17	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	19.8	1.0	20	0	99.0	80 - 119				
1,2-Dichloroethane	19.2	1.0	20	1.595	88.0	73 - 128				
1,2-Dichloropropane	20.36	1.0	20	0	102	78 - 122				
1,3,5-Trimethylbenzene	19.42	1.0	20	0	97.1	75 - 124				
1,3-Dichlorobenzene	19.79	1.0	20	0	99.0	80 - 119				
1,3-Dichloropropane	19.66	1.0	20	0	98.3	80 - 119				
1,4-Dichlorobenzene	20.1	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	18.16	1.0	20	0	90.8	60 - 139				
2-Butanone	28.25	2.0	40	0	70.6	56 - 143				
2-Chlorotoluene	19.5	1.0	20	0	97.5	79 - 122				
2-Hexanone	33.87	2.0	40	0	84.7	57 - 139				
4-Chlorotoluene	19.49	1.0	20	0	97.5	78 - 122				
4-Isopropyltoluene	20.03	1.0	20	0	100	77 - 127				
4-Methyl-2-pentanone	32.01	2.0	40	0	80.0	67 - 130				
Acetone	30.65	2.0	40	0	76.6	39 - 160				
Benzene	20.82	1.0	20	0	104	79 - 120				
Bromobenzene	20.31	1.0	20	0	102	80 - 120				
Bromochloromethane	19.19	1.0	20	0	96.0	78 - 123				
Bromodichloromethane	17.79	1.0	20	0	88.9	79 - 125				
Bromoform	15.61	1.0	20	0	78.1	66 - 130				
Bromomethane	24.78	1.0	20	0	124	53 - 141				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120475-03MS** Units: **ug/L** Analysis Date: **20-Dec-2021 15:56**
Client ID: **1824DPTMW06_120721** Run ID: **VOA9_398063** SeqNo: **6432046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	43.91	2.0	40	0	110	64 - 133				
Carbon tetrachloride	19.59	1.0	20	0	98.0	72 - 136				
Chlorobenzene	20.48	1.0	20	0	102	82 - 118				
Chloroethane	16.77	1.0	20	0	83.8	60 - 138				
Chloroform	18.52	1.0	20	0	92.6	79 - 124				
Chloromethane	24.91	1.0	20	0	125	50 - 139				
cis-1,2-Dichloroethene	23.79	1.0	20	4.972	94.1	78 - 123				
cis-1,3-Dichloropropene	17	1.0	20	0	85.0	75 - 124				
Dibromochloromethane	16.98	1.0	20	0	84.9	74 - 126				
Dibromomethane	19.58	1.0	20	0	97.9	79 - 123				
Dichlorodifluoromethane	14.34	1.0	20	0	71.7	32 - 152				
Ethylbenzene	21.01	1.0	20	0	105	79 - 121				
Hexachlorobutadiene	21.52	1.0	20	0	108	66 - 134				
Isopropylbenzene	21.12	1.0	20	0	106	72 - 131				
m,p-Xylene	43.08	2.0	40	0	108	80 - 121				
Methylene chloride	19.03	2.0	20	0	95.1	74 - 124				
Naphthalene	15.33	1.0	20	0	76.7	61 - 128				
n-Butylbenzene	19.21	1.0	20	0	96.0	75 - 128				
n-Propylbenzene	20.38	1.0	20	0	102	76 - 126				
o-Xylene	20.36	1.0	20	0	102	78 - 122				
sec-Butylbenzene	19.92	1.0	20	0	99.6	77 - 126				
Styrene	20.43	1.0	20	0	102	78 - 123				
tert-Butylbenzene	20.16	1.0	20	0	101	78 - 124				
Tetrachloroethene	21.99	1.0	20	0	110	74 - 129				
Toluene	20.73	1.0	20	0	104	80 - 121				
trans-1,2-Dichloroethene	20.59	1.0	20	0	103	75 - 124				
trans-1,3-Dichloropropene	15.75	1.0	20	0	78.8	73 - 127				
Trichloroethene	24.91	1.0	20	3.023	109	79 - 123				
Trichlorofluoromethane	21.28	1.0	20	0	106	65 - 141				
Vinyl chloride	21.23	1.0	20	0	106	58 - 137				
Surr: 1,2-Dichloroethane-d4	*40.72*	*1.0*	*50*	*0*	*81.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.82*	*1.0*	*50*	*0*	*97.6*	*85 - 114*				
Surr: Dibromofluoromethane	*45.24*	*1.0*	*50*	*0*	*90.5*	*80 - 119*				
Surr: Toluene-d8	*50.35*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120475-03MSD** Units: **ug/L** Analysis Date: **20-Dec-2021 16:18**
Client ID: **1824DPTMW06_120721** Run ID: **VOA9_398063** SeqNo: **6432047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.35	1.0	20	0	91.7	78 - 124	18.92	3.09	20	
1,1,1-Trichloroethane	17.63	1.0	20	0	88.1	74 - 131	18.56	5.14	20	
1,1,2,2-Tetrachloroethane	17.55	1.0	20	0	87.8	71 - 121	18.08	2.96	20	
1,1,2-Trichloroethane	19.1	1.0	20	0	95.5	80 - 119	19.6	2.57	20	
1,1-Dichloroethane	21.22	1.0	20	1.197	100	77 - 125	22.25	4.77	20	
1,1-Dichloroethene	19.42	1.0	20	0	97.1	71 - 131	21.22	8.89	20	
1,1-Dichloropropene	20.29	1.0	20	0	101	78 - 125	21.22	4.46	20	
1,2,3-Trichlorobenzene	18.35	1.0	20	0	91.8	69 - 129	17.56	4.41	20	
1,2,3-Trichloropropane	16.6	1.0	20	0	83.0	73 - 122	17.15	3.22	20	
1,2,4-Trichlorobenzene	18.53	1.0	20	0	92.7	69 - 130	18.21	1.75	20	
1,2,4-Trimethylbenzene	19.13	1.0	20	0	95.6	76 - 124	19.65	2.72	20	
1,2-Dibromo-3-chloropropane	14.39	1.0	20	0	71.9	62 - 128	14.56	1.15	20	
1,2-Dibromoethane	19.14	1.0	20	0	95.7	77 - 121	20.17	5.22	20	
1,2-Dichlorobenzene	19.2	1.0	20	0	96.0	80 - 119	19.8	3.08	20	
1,2-Dichloroethane	18.44	1.0	20	1.595	84.2	73 - 128	19.2	4.05	20	
1,2-Dichloropropane	19.54	1.0	20	0	97.7	78 - 122	20.36	4.1	20	
1,3,5-Trimethylbenzene	19.01	1.0	20	0	95.0	75 - 124	19.42	2.16	20	
1,3-Dichlorobenzene	19.02	1.0	20	0	95.1	80 - 119	19.79	3.98	20	
1,3-Dichloropropane	18.81	1.0	20	0	94.0	80 - 119	19.66	4.46	20	
1,4-Dichlorobenzene	19.23	1.0	20	0	96.2	79 - 118	20.1	4.42	20	
2,2-Dichloropropane	16.84	1.0	20	0	84.2	60 - 139	18.16	7.54	20	
2-Butanone	27.07	2.0	40	0	67.7	56 - 143	28.25	4.26	20	
2-Chlorotoluene	18.97	1.0	20	0	94.8	79 - 122	19.5	2.76	20	
2-Hexanone	32.58	2.0	40	0	81.4	57 - 139	33.87	3.88	20	
4-Chlorotoluene	18.86	1.0	20	0	94.3	78 - 122	19.49	3.31	20	
4-Isopropyltoluene	19.9	1.0	20	0	99.5	77 - 127	20.03	0.658	20	
4-Methyl-2-pentanone	31.28	2.0	40	0	78.2	67 - 130	32.01	2.32	20	
Acetone	31.33	2.0	40	0	78.3	39 - 160	30.65	2.22	20	
Benzene	19.57	1.0	20	0	97.9	79 - 120	20.82	6.16	20	
Bromobenzene	19.56	1.0	20	0	97.8	80 - 120	20.31	3.77	20	
Bromochloromethane	18.54	1.0	20	0	92.7	78 - 123	19.19	3.47	20	
Bromodichloromethane	17.04	1.0	20	0	85.2	79 - 125	17.79	4.27	20	
Bromoform	15.32	1.0	20	0	76.6	66 - 130	15.61	1.85	20	
Bromomethane	20.58	1.0	20	0	103	53 - 141	24.78	18.5	20	

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID: R398063 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120475-03MSD** Units: **ug/L** Analysis Date: **20-Dec-2021 16:18**
Client ID: **1824DPTMW06_120721** Run ID: **VOA9_398063** SeqNo: **6432047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	41.92	2.0	40	0	105	64 - 133	43.91	4.64	20	
Carbon tetrachloride	19	1.0	20	0	95.0	72 - 136	19.59	3.08	20	
Chlorobenzene	19.64	1.0	20	0	98.2	82 - 118	20.48	4.21	20	
Chloroethane	15.35	1.0	20	0	76.7	60 - 138	16.77	8.86	20	
Chloroform	17.44	1.0	20	0	87.2	79 - 124	18.52	5.99	20	
Chloromethane	18.41	1.0	20	0	92.0	50 - 139	24.91	30	20	R
cis-1,2-Dichloroethene	22.62	1.0	20	4.972	88.3	78 - 123	23.79	5.04	20	
cis-1,3-Dichloropropene	16.37	1.0	20	0	81.9	75 - 124	17	3.77	20	
Dibromochloromethane	16.51	1.0	20	0	82.6	74 - 126	16.98	2.8	20	
Dibromomethane	18.71	1.0	20	0	93.5	79 - 123	19.58	4.56	20	
Dichlorodifluoromethane	13.08	1.0	20	0	65.4	32 - 152	14.34	9.17	20	
Ethylbenzene	20.18	1.0	20	0	101	79 - 121	21.01	4.04	20	
Hexachlorobutadiene	23	1.0	20	0	115	66 - 134	21.52	6.64	20	
Isopropylbenzene	20.37	1.0	20	0	102	72 - 131	21.12	3.6	20	
m,p-Xylene	40.8	2.0	40	0	102	80 - 121	43.08	5.42	20	
Methylene chloride	18	2.0	20	0	90.0	74 - 124	19.03	5.54	20	
Naphthalene	15.83	1.0	20	0	79.2	61 - 128	15.33	3.21	20	
n-Butylbenzene	19.55	1.0	20	0	97.8	75 - 128	19.21	1.77	20	
n-Propylbenzene	19.82	1.0	20	0	99.1	76 - 126	20.38	2.8	20	
o-Xylene	19.5	1.0	20	0	97.5	78 - 122	20.36	4.36	20	
sec-Butylbenzene	20.18	1.0	20	0	101	77 - 126	19.92	1.33	20	
Styrene	19.71	1.0	20	0	98.6	78 - 123	20.43	3.58	20	
tert-Butylbenzene	19.86	1.0	20	0	99.3	78 - 124	20.16	1.5	20	
Tetrachloroethene	20.97	1.0	20	0	105	74 - 129	21.99	4.74	20	
Toluene	19.69	1.0	20	0	98.5	80 - 121	20.73	5.15	20	
trans-1,2-Dichloroethene	19.53	1.0	20	0	97.7	75 - 124	20.59	5.29	20	
trans-1,3-Dichloropropene	15.17	1.0	20	0	75.9	73 - 127	15.75	3.74	20	
Trichloroethene	23.5	1.0	20	3.023	102	79 - 123	24.91	5.81	20	
Trichlorofluoromethane	20.17	1.0	20	0	101	65 - 141	21.28	5.37	20	
Vinyl chloride	20.06	1.0	20	0	100	58 - 137	21.23	5.66	20	
Surr: 1,2-Dichloroethane-d4	*40.78*	*1.0*	*50*	*0*	*81.6*	*81 - 118*	*40.72*	*0.145*	*20*	
Surr: 4-Bromofluorobenzene	*48.96*	*1.0*	*50*	*0*	*97.9*	*85 - 114*	*48.82*	*0.292*	*20*	
Surr: Dibromofluoromethane	*44.61*	*1.0*	*50*	*0*	*89.2*	*80 - 119*	*45.24*	*1.4*	*20*	
Surr: Toluene-d8	*49.72*	*1.0*	*50*	*0*	*99.4*	*89 - 112*	*50.35*	*1.25*	*20*	

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120475

QC BATCH REPORT

Batch ID:	R398063 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21120475-01	HS21120475-02	HS21120475-03	HS21120475-04
HS21120475-05	HS21120475-06	HS21120475-07	HS21120475-08
HS21120475-09	HS21120475-10		

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: **HS21120475**

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

ALS Houston, US Date: 27-Dec-21

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 27-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120475

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21120475-01	120_120721	Login	12/9/2021 10:45:51 AM	NDR	MET101
HS21120475-01	120_120721	Login	12/9/2021 10:45:51 AM	NDR	Sub
HS21120475-01	120_120721	Login	12/9/2021 10:45:51 AM	NDR	Disposed
HS21120475-02	MW14_120721	Login	12/9/2021 10:45:51 AM	NDR	MET101
HS21120475-02	MW14_120721	Login	12/9/2021 10:45:51 AM	NDR	Sub
HS21120475-02	MW14_120721	Login	12/9/2021 10:45:51 AM	NDR	Disposed
HS21120475-02	MW14_120721	Login	12/9/2021 10:45:51 AM	NDR	Disposed

ALS Houston, US Date: 27-Dec-21

Sample Receipt Checklist

Work Order ID: HS21120475 **Date/Time Received:** **08-Dec-2021 10:30**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: /S/ Nilesh D. Ranchod (eSignature) 09-Dec-2021 10:59 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 10-Dec-2021 19:30 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.1°C UC/C	IR31
Cooler(s)/Kit(s):	48051	
Date/Time sample(s) sent to storage:	12/08/2021 20:00	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01115688

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1,4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number
							Sample Analysis Requested (5)											Quality Assurance Samples (6)	
120_120721	07 DEC 2021	0725	-	N		WG	5	X	X		X								
MW14_120721	07 DEC 2021	0810	-	N		WG	6	X	X	X	X								
1824DPTmw06_120721	07 DEC 2021	0905	-	N		WG	5	X	X		X								
1824DPTmw06_120721_a	07 DEC 2021	0905		FD		WG	5	X	X		X								
18CPTmw22R_120721	07 DEC 2021	1040		N		WG	6	X	X	X	X								
18CPTmw22SW_120721	07 DEC 2021	1125	-	N		WG	6	X	X	X	X								
MW19_120721	07 DEC 2021	1210	-	N		WG	5	X	X	X									
MW18_120721	07 DEC 2021	1300	-	N		WG	4	X	X										
MW18_120721_a	07 DEC 2021	1303	-	FD		WG	4	X	X										
TRIP BLANK	07 DEC 2021		-	TB		W	2	X											
			-																

COMMENTS:

STANDARD TAT

Cooler 48051 1031
Temp 1.1°C CFO

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/7/21	1430	1. J. Mancan	12/8/21	10:30
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

Method of Shipment: _____

Fed Ex _____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

HS21120475

Bhate Environmental Associates, Inc.
LHAAP/Site 18 /24

01115689

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

48051

CUSTODY SEAL

Date: 12/7/21 Time: 1480
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 12/08/21

48051

48051

Part # 159469-494 MTW EXP 07/22

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG

RMA:

FedEx Express

FedEx
TRK# 0221 5300 5225 1607

WED - 08 DEC 11:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

#475[illegible] 12/07 56DJ3/E934/FE4A

December 20, 2021

Service Request No:E2101262

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120475

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 09, 2021
For your reference, these analyses have been assigned our service request number **E2101262.**

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.:**	E2101262
Project:	HS21120475	**Date Received:**	12/09/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Nine samples were received for analysis at ALS Environmental in Houston on 12/09/21.

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:

EQ2100684: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS RPD exceed QC limit; the individual 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:**E2101262
Project: HS21120475

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101262-001	120_120721	12/7/2021	0725
E2101262-002	MW14_120721	12/7/2021	0810
E2101262-003	1824DPTMW06_120721	12/7/2021	0905
E2101262-004	1824DPTMW06_120721_a	12/7/2021	0905
E2101262-005	18CPTMW22R_120721	12/7/2021	1040
E2101262-006	18CPTMW22SW_120721	12/7/2021	1125
E2101262-007	MW19_120721	12/7/2021	1210
E2101262-008	MW18_120721	12/7/2021	1300
E2101262-009	MW18_120721_a	12/7/2021	1303

Service Request Summary

Folder #: **E2101262**
Client Name: ALS Environmental - US
Project Name: HS21120475
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/09/21
Internal Due Date: 12/22/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120475
EDD: No EDD Specified

9 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101262-001	120_120721	Ground Water	12/07/21 0725	**IV**
E2101262-002	MW14_120721	Ground Water	12/07/21 0810	**IV**
E2101262-003	1824DPTMW06_120721	Ground Water	12/07/21 0905	**IV**
E2101262-004	1824DPTMW06_120721_a	Ground Water	12/07/21 0905	**IV**
E2101262-005	18CPTMW22R_120721	Ground Water	12/07/21 1040	**IV**
E2101262-006	18CPTMW22SW_120721	Ground Water	12/07/21 1125	**IV**
E2101262-007	MW19_120721	Ground Water	12/07/21 1210	**IV**
E2101262-008	MW18_120721	Ground Water	12/07/21 1300	**IV**
E2101262-009	MW18_120721_a	Ground Water	12/07/21 1303	**IV**

Service Request Summary

Folder #:	**E2101262**	Project Chemist:	Corey Grandits
Client Name:	ALS Environmental - US	Originating Lab:	HOUSTON
Project Name:	HS21120475	Logged By:	CGRANDITS
Project Number:		Date Received:	12/09/21
		Internal Due Date:	12/22/2021
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA	QAP:	LAB QAP
		Qualifier Set:	Lab Standard
		Formset:	Lab Standard
		Merged?:	Y
Phone Number:		Report to MDL?:	Y
Cell Number:		P.O. Number:	HS21120475
Fax Number:		EDD:	No EDD Specified
E-mail:	ragenp.giga@alsglobal.com		

9 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	9	Level IV due 12/30

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: **Texas**

COC ID: **17615**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21120475
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120475-01**	**120_120721**	**Groundwater**	**07 Dec 2021 07:25**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
2.	**HS21120475-02**	**MW14_120721**	**Groundwater**	**07 Dec 2021 08:10**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
3.	**HS21120475-03**	**1824DPTMW06_120721**	**Groundwater**	**07 Dec 2021 09:05**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
4.	**HS21120475-04**	**1824DPTMW06_120721_a**	**Groundwater**	**07 Dec 2021 09:05**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
5.	**HS21120475-05**	**18CPTMW22R_120721**	**Groundwater**	**07 Dec 2021 10:40**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
6.	**HS21120475-06**	**18CPTMW22SW_120721**	**Groundwater**	**07 Dec 2021 11:25**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
7.	**HS21120475-07**	**MW19_120721**	**Groundwater**	**07 Dec 2021 12:10**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
8.	**HS21120475-08**	**MW18_120721**	**Groundwater**	**07 Dec 2021 13:00**
	Provide Level II and Level IV reports in separate pdf			22 Dec 2021
9.	**HS21120475-09**	**MW18_120721_a**	**Groundwater**	**07 Dec 2021 13:03**

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17615**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
Provide Level II and Level IV reports in separate pdf			22 Dec 2021

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: CONTEST 4 Date/Time: 12-9-21 1PM

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-H

Thermometer ID: 17031

Date/Time Received: 12-9-21 Initials: CG

Date/Time Logged in: 12-9-21 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		12-9-21	1300	CG	2.2	☒
						☐
						☐
						☐

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

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#: 392606 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/13/21 09:17

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101261-001	MW-30-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101261-002	MW-29-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101261-003	MW-26-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101261-004	MW-17-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101261-005	MW-22-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101261-006	MW-20-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101261-007	MW-28-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101261-008	MW-27-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101261-009	MW-5R-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2101261-010	DUP-1-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2101262-001	120_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2101262-002	MW14_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2101262-003	1824DPTMW06_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2101262-004	1824DPTMW06_120721_a	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2101262-005	18CPTMW22R_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2101262-006	18CPTMW22SW_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
17	E2101262-007	MW19_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
18	E2101262-008	MW18_120721	.01	6850/ClO4 DOD			Ground Water	10mL	
19	E2101262-009	MW18_120721_a	.01	6850/ClO4 DOD			Ground Water	10mL	
20	EQ2100684-01	MB		6850/ClO4 DOD			Liquid	10mL	
21	EQ2100684-02	LCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2100684-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101261-001	100.00µL	E2101261-002	100.00µL	E2101261-003	100.00µL	E2101261-004	100.00µL	E2101261-005	100.00µL	E2101261-006	100.00µL
E2101261-007	100.00µL	E2101261-008	100.00µL	E2101261-009	100.00µL	E2101261-010	100.00µL	E2101262-001	100.00µL	E2101262-002	100.00µL
E2101262-003	100.00µL	E2101262-004	100.00µL	E2101262-005	100.00µL	E2101262-006	100.00µL	E2101262-007	100.00µL	E2101262-008	100.00µL
E2101262-009	100.00µL	EQ2100684-01	100.00µL	EQ2100684-02	100.00µL	EQ2100684-03	100.00µL				

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100684-02	1.00µL	EQ2100684-03	1.00µL

Preparation Information Benchsheet

Prep Run#: 392606 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/13/21 09:17

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/13/21 09:17
Finished: 12/13/21 10:30
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 12/13/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined
Received By: _____ Date: _____ 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:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 0725
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	120_120721	**Units:**	µg/L
Lab Code:	E2101262-001	**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	**15200**		50.0	25.0	12.5	500	12/13/21	12/16/21 15:01	392606	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 0810
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	MW14_120721	**Units:**	µg/L
Lab Code:	E2101262-002	**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	**164000**		500	250	125	5000	12/13/21	12/16/21 15:17	392606	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 0905
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	1824DPTMW06_120721	**Units:**	µg/L
Lab Code:	E2101262-003	**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	**1.14**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 22:45	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 0905
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	1824DPTMW06_120721_a	**Units:**	µg/L
Lab Code:	E2101262-004	**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	**0.828**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 22:53	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 1040
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	18CPTMW22R_120721	**Units:**	µg/L
Lab Code:	E2101262-005	**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	**0.392**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 23:01	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 1125
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	18CPTMW22SW_120721	**Units:**	µg/L
Lab Code:	E2101262-006	**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	**11700**		50.0	25.0	12.5	500	12/13/21	12/16/21 15:25	392606	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 1210
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	MW19_120721	**Units:**	µg/L
Lab Code:	E2101262-007	**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	**0.117**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 23:17	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 1300
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	MW18_120721	**Units:**	µg/L
Lab Code:	E2101262-008	**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	**0.0818**	J	0.100	0.0500	0.0250	1	12/13/21	12/14/21 23:25	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	12/ 7/21 1303
Sample Matrix:	Ground Water	**Date Received:**	12/ 9/21
Sample Name:	MW18_120721_a	**Units:**	µg/L
Lab Code:	E2101262-009	**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	**0.0700**	J	0.100	0.0500	0.0250	1	12/13/21	12/14/21 23:33	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100684-01	**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	12/13/21	12/14/21 21:18	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100684-02	**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	**0.0905**	J	0.100	0.0500	0.0250	1	12/13/21	12/14/21 21:26	392606	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100684-03	**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	**0.117**		0.100	0.0500	0.0250	1	12/13/21	12/14/21 21:34	392606	749353	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101262
Project:	HS21120475	**Date Analyzed:**	12/14/21
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	392606

	Lab Control Sample EQ2100684-02			Duplicate Lab Control Sample EQ2100684-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0905	0.100	91	0.117	0.100	117	84 - 119	26 *	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.

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December 28, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120589**

Laboratory Results for: **LHAAP/Site 18 /24**

Dear Marcia Olive,

ALS Environmental received 9 sample(s) on Dec 09, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120589

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120589-01	18CPTMW04SW-120821	Groundwater		08-Dec-2021 07:30	09-Dec-2021 10:10	☐
HS21120589-02	18CPTMW04-120821	Groundwater		08-Dec-2021 08:10	09-Dec-2021 10:10	☐
HS21120589-03	MW22_120821	Groundwater		08-Dec-2021 08:55	09-Dec-2021 10:10	☐
HS21120589-04	MW22_120821_a	Groundwater		08-Dec-2021 08:55	09-Dec-2021 10:10	☐
HS21120589-05	18CPTMW06_120821	Groundwater		08-Dec-2021 09:45	09-Dec-2021 10:10	☐
HS21120589-06	18ww06_120821	Groundwater		08-Dec-2021 10:30	09-Dec-2021 10:10	☐
HS21120589-07	18ww02-120821	Groundwater		08-Dec-2021 11:15	09-Dec-2021 10:10	☐
HS21120589-08	18CPTMW15-120821	Groundwater		08-Dec-2021 13:05	09-Dec-2021 10:10	☐
HS21120589-09	Trip Blank	Water		08-Dec-2021 00:00	09-Dec-2021 10:10	☐

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120589

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS High Res Lab Houston, TX. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173430

Sample ID: 18CPTMW04-120821 (HS21120589-02)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18CPTMW04SW-120821 (HS21120589-01)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18CPTMW06_120821 (HS21120589-05)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18CPTMW15-120821 (HS21120589-08)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18ww02-120821 (HS21120589-07)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

Sample ID: 18ww06_120821 (HS21120589-06)

- The GCMS semi-volatile extract of this sample was run at a dilution due to a high level of matrix interference.

GCMS Volatiles by Method SW8260

Batch ID: R398300

Sample ID: VLCSW-211222

- Bromomethane and Hexachlorobutadiene are also high for LCS.

Sample ID: VSTD050

- Bromomethane, Acetone and Hexachlorobutadiene exceeded %D limits for CCV. Samples are ND.

Sample ID: 18CPTMW04SW-120821 (HS21120589-01MS)

- MS and MSD failed QC limit for some compounds

Metals by Method SW6020A

Batch ID: 173884

Sample ID: HS21120658-04MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120589

CASE NARRATIVE

Metals by Method SW7470A

Batch ID: 173516

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW04SW-120821
Collection Date: 08-Dec-2021 07:30

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 12:49
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 12:49
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 12:49
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 12:49
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 12:49
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW04SW-120821
Collection Date: 08-Dec-2021 07:30

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 12:49
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Dec-2021 12:49
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:49
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:49
Surr: 1,2-Dichloroethane-d4	*85.4*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 12:49*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 12:49*
Surr: Dibromofluoromethane	*98.4*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 12:49*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 12:49*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**1.4**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Dec-2021 16:32
Surr: 2-Fluorobiphenyl	*42.5*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:32*
Surr: 4-Terphenyl-d14	*48.3*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:32*
Surr: Nitrobenzene-d5	*91.2*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW04SW-120821
Collection Date: 08-Dec-2021 07:30

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.142**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:20
Antimony	**0.000647**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Arsenic	**0.00684**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Barium	**0.925**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:20
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:20
Calcium	**30.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:20
Chromium	**0.0111**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Cobalt	**0.00805**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	27-Dec-2021 14:20
Iron	**29.3**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:20
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:20
Magnesium	**17.7**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:20
Manganese	**0.561**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Nickel	**0.00606**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
Potassium	**103**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:20
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:20
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:20
Sodium	**132**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:20
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:20
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:20
Zinc	**0.0239**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:20
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.0000430**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:37
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW04-120821
Collection Date: 08-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,2-Dichloroethane	**0.63**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:11
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 13:11
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 13:11
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 13:11
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 13:11
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 13:11
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW04-120821
Collection Date: 08-Dec-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
cis-1,2-Dichloroethene	**9.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:11
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 13:11
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 13:11
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:11
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Trichloroethene	**200**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Dec-2021 15:02
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:11
Surr: 1,2-Dichloroethane-d4	*83.1*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 13:11*
Surr: 1,2-Dichloroethane-d4	*84.6*			**0**	*81-118*	*%REC*	*5*	*22-Dec-2021 15:02*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 13:11*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*5*	*22-Dec-2021 15:02*
Surr: Dibromofluoromethane	*97.2*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 13:11*
Surr: Dibromofluoromethane	*98.3*			**0**	*80-119*	*%REC*	*5*	*22-Dec-2021 15:02*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*5*	*22-Dec-2021 15:02*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 13:11*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**1.1**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Dec-2021 16:50
Surr: 2-Fluorobiphenyl	*41.6*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:50*
Surr: 4-Terphenyl-d14	*59.1*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:50*
Surr: Nitrobenzene-d5	*43.3*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 16:50*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	LHAAP/Site 18 /24	WorkOrder:HS21120589
Sample ID:	18CPTMW04-120821	Lab ID:HS21120589-02
Collection Date:	08-Dec-2021 08:10	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW22_120821
Collection Date: 08-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,2-Dichloroethane	**5.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:33
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 13:33
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 13:33
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 13:33
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 13:33
Benzene	**0.88**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:33
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 13:33
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Chloroform	**2.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW22_120821
Collection Date: 08-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
cis-1,2-Dichloroethene	**3.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:33
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 13:33
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Dec-2021 13:33
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:33
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:33
Trichloroethene	**380**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Dec-2021 18:00
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:33
Vinyl chloride	**0.55**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:33
Surr: 1,2-Dichloroethane-d4	*82.1*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 13:33*
Surr: 1,2-Dichloroethane-d4	*82.2*			**0**	*81-118*	*%REC*	*5*	*22-Dec-2021 18:00*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 13:33*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*5*	*22-Dec-2021 18:00*
Surr: Dibromofluoromethane	*97.6*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 13:33*
Surr: Dibromofluoromethane	*96.7*			**0**	*80-119*	*%REC*	*5*	*22-Dec-2021 18:00*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 13:33*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*22-Dec-2021 18:00*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW22_120821
Collection Date: 08-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.0378**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:28
Antimony	**0.000604**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Arsenic	**0.00153**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Barium	**1.02**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:28
Cadmium	**0.000493**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:28
Calcium	**97.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:28
Chromium	**1.25**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Cobalt	**0.0102**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Copper	**0.0231**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Iron	**13.8**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:28
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:28
Magnesium	**27.9**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:28
Manganese	**0.288**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Nickel	**0.930**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Potassium	**2.06**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:28
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:28
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:28
Sodium	**368**		**0.280**	**1.00**	**4.00**	**mg/L**	20	28-Dec-2021 12:41
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:28
Vanadium	**0.00613**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
Zinc	**0.00370**	J	**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:28
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.0000740**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:39
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW22_120821_a
Collection Date: 08-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,2-Dichloroethane	**5.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:55
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 13:55
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 13:55
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 13:55
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 13:55
Benzene	**0.89**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:55
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 13:55
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Chloroform	**2.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW22_120821_a
Collection Date: 08-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
cis-1,2-Dichloroethene	**3.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:55
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 13:55
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Dec-2021 13:55
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 13:55
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 13:55
Trichloroethene	**370**		**1.0**	**2.5**	**5.0**	**ug/L**	5	22-Dec-2021 18:22
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 13:55
Vinyl chloride	**0.51**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 13:55
Surr: 1,2-Dichloroethane-d4	*81.1*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 13:55*
Surr: 1,2-Dichloroethane-d4	*81.1*			**0**	*81-118*	*%REC*	*5*	*22-Dec-2021 18:22*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 13:55*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*5*	*22-Dec-2021 18:22*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 13:55*
Surr: Dibromofluoromethane	*95.7*			**0**	*80-119*	*%REC*	*5*	*22-Dec-2021 18:22*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*22-Dec-2021 18:22*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 13:55*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW22_120821_a
Collection Date: 08-Dec-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.0220**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:30
Antimony	**0.000509**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Arsenic	**0.00143**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Barium	**0.972**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:30
Cadmium	**0.000436**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:30
Calcium	**91.3**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:30
Chromium	**1.00**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Cobalt	**0.00965**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Copper	**0.0207**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Iron	**12.3**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:30
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:30
Magnesium	**25.9**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:30
Manganese	**0.267**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Nickel	**0.865**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Potassium	**1.95**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:30
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:30
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:30
Sodium	**351**		**0.280**	**1.00**	**4.00**	**mg/L**	20	28-Dec-2021 12:49
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:30
Vanadium	**0.00521**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
Zinc	**0.00243**	J	**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:30
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.0000910**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:41
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW06_120821
Collection Date: 08-Dec-2021 09:45

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 16:31
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 16:31
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 16:31
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 16:31
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 16:31
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW06_120821
Collection Date: 08-Dec-2021 09:45

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 16:31
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 16:31
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:31
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Trichloroethene	**2.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 16:31
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:31
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:31
Surr: 1,2-Dichloroethane-d4	*86.6*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 16:31*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 16:31*
Surr: Dibromofluoromethane	*102*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 16:31*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 16:31*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.79**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Dec-2021 17:08
Surr: 2-Fluorobiphenyl	*40.7*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:08*
Surr: 4-Terphenyl-d14	*64.5*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:08*
Surr: Nitrobenzene-d5	*89.7*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:08*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww06_120821
Collection Date: 08-Dec-2021 10:30

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 16:53
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 16:53
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 16:53
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 16:53
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 16:53
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww06_120821
Collection Date: 08-Dec-2021 10:30

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 16:53
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Dec-2021 16:53
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 16:53
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 16:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 16:53
Surr: 1,2-Dichloroethane-d4	*85.3*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 16:53*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 16:53*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 16:53*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 16:53*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.81**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Dec-2021 17:26
Surr: 2-Fluorobiphenyl	*51.6*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:26*
Surr: 4-Terphenyl-d14	*122*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:26*
Surr: Nitrobenzene-d5	*91.1*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:26*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww02-120821
Collection Date: 08-Dec-2021 11:15

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 17:15
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 17:15
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 17:15
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 17:15
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 17:15
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww02-120821
Collection Date: 08-Dec-2021 11:15

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 17:15
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 17:15
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:15
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:15
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:15
Surr: 1,2-Dichloroethane-d4	*83.8*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 17:15*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 17:15*
Surr: Dibromofluoromethane	*98.8*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 17:15*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 17:15*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.92**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Dec-2021 17:43
Surr: 2-Fluorobiphenyl	*42.6*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:43*
Surr: 4-Terphenyl-d14	*102*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:43*
Surr: Nitrobenzene-d5	*115*			**0**	*40-140*	*%REC*	*10*	*18-Dec-2021 17:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww02-120821
Collection Date: 08-Dec-2021 11:15

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.408**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:32
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	27-Dec-2021 14:32
Arsenic	**0.000528**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Barium	**0.0445**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:32
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:32
Calcium	**7.00**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:32
Chromium	**0.0151**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Cobalt	**0.000189**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Copper	**0.00254**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Iron	**0.896**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:32
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:32
Magnesium	**1.32**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:32
Manganese	**0.0803**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Nickel	**0.00942**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Potassium	**1.93**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:32
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:32
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:32
Sodium	**29.0**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:32
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:32
Vanadium	**0.00225**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
Zinc	**0.00230**	J	**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:32
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 14-Dec-2021		Analyst: MSC
Mercury	**0.0000370**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	14-Dec-2021 11:42
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW15-120821
Collection Date: 08-Dec-2021 13:05

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 17:38
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 17:38
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 17:38
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 17:38
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 17:38
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW15-120821
Collection Date: 08-Dec-2021 13:05

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 17:38
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Dec-2021 17:38
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 17:38
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Trichloroethene	**1.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 17:38
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 17:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 17:38
Surr: 1,2-Dichloroethane-d4	*84.5*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 17:38*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 17:38*
Surr: Dibromofluoromethane	*98.4*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 17:38*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 17:38*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 10-Dec-2021		Analyst: GEY
1,4-Dioxane	**1.7**		**0.25**	**0.25**	**0.25**	**ug/L**	25	18-Dec-2021 18:19
Surr: 2-Fluorobiphenyl	*41.5*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 18:19*
Surr: 4-Terphenyl-d14	*104*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 18:19*
Surr: Nitrobenzene-d5	*45.9*			**0**	*40-140*	*%REC*	*25*	*18-Dec-2021 18:19*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 17:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 08-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 12:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 12:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 12:26
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 12:26
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 12:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 08-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120589
Lab ID:HS21120589-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 12:26
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 12:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 12:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 12:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 12:26
Surr: 1,2-Dichloroethane-d4	*81.0*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 12:26*
Surr: 4-Bromofluorobenzene	*98.8*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 12:26*
Surr: Dibromofluoromethane	*92.6*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 12:26*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 12:26*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

Batch ID: 173430 **Start Date:** 10 Dec 2021 11:30 **End Date:** 10 Dec 2021 15:00
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120589-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120589-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120589-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120589-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120589-07	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120589-08	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173516 **Start Date:** 14 Dec 2021 08:00 **End Date:** 14 Dec 2021 10:30
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120589-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120589-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120589-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120589-07		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 173884 **Start Date:** 22 Dec 2021 13:00 **End Date:** 22 Dec 2021 17:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120589-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120589-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120589-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120589-07		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173430 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21120589-01	18CPTMW04SW-120821	08 Dec 2021 07:30		10 Dec 2021 16:47	18 Dec 2021 16:32	10
HS21120589-02	18CPTMW04-120821	08 Dec 2021 08:10		10 Dec 2021 16:47	18 Dec 2021 16:50	10
HS21120589-05	18CPTMW06_120821	08 Dec 2021 09:45		10 Dec 2021 16:47	18 Dec 2021 17:08	10
HS21120589-06	18ww06_120821	08 Dec 2021 10:30		10 Dec 2021 16:47	18 Dec 2021 17:26	10
HS21120589-07	18ww02-120821	08 Dec 2021 11:15		10 Dec 2021 16:47	18 Dec 2021 17:43	10
HS21120589-08	18CPTMW15-120821	08 Dec 2021 13:05		10 Dec 2021 16:47	18 Dec 2021 18:19	25
Batch ID: 173516 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS21120589-01	18CPTMW04SW-120821	08 Dec 2021 07:30		14 Dec 2021 08:00	14 Dec 2021 11:37	1
HS21120589-03	MW22_120821	08 Dec 2021 08:55		14 Dec 2021 08:00	14 Dec 2021 11:39	1
HS21120589-04	MW22_120821_a	08 Dec 2021 08:55		14 Dec 2021 08:00	14 Dec 2021 11:41	1
HS21120589-07	18ww02-120821	08 Dec 2021 11:15		14 Dec 2021 08:00	14 Dec 2021 11:42	1
Batch ID: 173884 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21120589-01	18CPTMW04SW-120821	08 Dec 2021 07:30		22 Dec 2021 17:00	27 Dec 2021 14:20	1
HS21120589-03	MW22_120821	08 Dec 2021 08:55		22 Dec 2021 17:00	28 Dec 2021 12:41	20
HS21120589-03	MW22_120821	08 Dec 2021 08:55		22 Dec 2021 17:00	27 Dec 2021 14:28	1
HS21120589-04	MW22_120821_a	08 Dec 2021 08:55		22 Dec 2021 17:00	28 Dec 2021 12:49	20
HS21120589-04	MW22_120821_a	08 Dec 2021 08:55		22 Dec 2021 17:00	27 Dec 2021 14:30	1
HS21120589-07	18ww02-120821	08 Dec 2021 11:15		22 Dec 2021 17:00	27 Dec 2021 14:32	1
Batch ID: R398031 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21120589-01	18CPTMW04SW-120821	08 Dec 2021 07:30			20 Dec 2021 17:40	1
HS21120589-02	18CPTMW04-120821	08 Dec 2021 08:10			20 Dec 2021 17:40	1
HS21120589-03	MW22_120821	08 Dec 2021 08:55			20 Dec 2021 17:40	1
HS21120589-04	MW22_120821_a	08 Dec 2021 08:55			20 Dec 2021 17:40	1
HS21120589-05	18CPTMW06_120821	08 Dec 2021 09:45			20 Dec 2021 17:40	1
HS21120589-06	18ww06_120821	08 Dec 2021 10:30			20 Dec 2021 17:40	1
HS21120589-07	18ww02-120821	08 Dec 2021 11:15			20 Dec 2021 17:40	1
HS21120589-08	18CPTMW15-120821	08 Dec 2021 13:05			20 Dec 2021 17:40	1
Batch ID: R398300 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120589-09	Trip Blank	08 Dec 2021 00:00			22 Dec 2021 12:26	1

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R398300 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120589-01	18CPTMW04SW-120821	08 Dec 2021 07:30			22 Dec 2021 12:49	1
HS21120589-02	18CPTMW04-120821	08 Dec 2021 08:10			22 Dec 2021 15:02	5
HS21120589-02	18CPTMW04-120821	08 Dec 2021 08:10			22 Dec 2021 13:11	1
HS21120589-03	MW22_120821	08 Dec 2021 08:55			22 Dec 2021 18:00	5
HS21120589-03	MW22_120821	08 Dec 2021 08:55			22 Dec 2021 13:33	1
HS21120589-04	MW22_120821_a	08 Dec 2021 08:55			22 Dec 2021 18:22	5
HS21120589-04	MW22_120821_a	08 Dec 2021 08:55			22 Dec 2021 13:55	1
HS21120589-05	18CPTMW06_120821	08 Dec 2021 09:45			22 Dec 2021 16:31	1
HS21120589-06	18ww06_120821	08 Dec 2021 10:30			22 Dec 2021 16:53	1
HS21120589-07	18ww02-120821	08 Dec 2021 11:15			22 Dec 2021 17:15	1
HS21120589-08	18CPTMW15-120821	08 Dec 2021 13:05			22 Dec 2021 17:38	1

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173516 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173516** Units: **mg/L** Analysis Date: **14-Dec-2021 10:52**
Client ID: Run ID: **HG03_397541** SeqNo: **6419855** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173516** Units: **mg/L** Analysis Date: **14-Dec-2021 10:54**
Client ID: Run ID: **HG03_397541** SeqNo: **6419856** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.000200	0.005	0	105	82 - 119				

MS Sample ID: **HS21120092-05MS** Units: **mg/L** Analysis Date: **14-Dec-2021 10:58**
Client ID: Run ID: **HG03_397541** SeqNo: **6419858** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00475	0.000200	0.005	0.00007100	93.6	82 - 119				

MSD Sample ID: **HS21120092-05MSD** Units: **mg/L** Analysis Date: **14-Dec-2021 10:59**
Client ID: Run ID: **HG03_397541** SeqNo: **6419859** PrepDate: **14-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00497	0.000200	0.005	0.00007100	98.0	82 - 119	0.004750	4.53	20	

The following samples were analyzed in this batch: HS21120589-01 HS21120589-03 HS21120589-04 HS21120589-07

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-173884** Units: **mg/L** Analysis Date: **27-Dec-2021 14:06**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440945** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002567	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

LCS Sample ID: **LCS-173884** Units: **mg/L** Analysis Date: **28-Dec-2021 12:47**
Client ID: Run ID: **ICPMS06_398464** SeqNo: **6442385** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1061	0.0100	0.1	0	106	84 - 117				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-173884** Units: **mg/L** Analysis Date: **27-Dec-2021 14:08**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440946** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.04961	0.00500	0.05	0	99.2	85 - 117				
Arsenic	0.0525	0.00500	0.05	0	105	84 - 116				
Barium	0.05465	0.00500	0.05	0	109	86 - 114				
Beryllium	0.05308	0.00200	0.05	0	106	83 - 121				
Cadmium	0.05494	0.00200	0.05	0	110	87 - 115				
Calcium	5.213	0.500	5	0	104	87 - 118				
Chromium	0.0529	0.00500	0.05	0	106	85 - 116				
Cobalt	0.05162	0.00500	0.05	0	103	86 - 115				
Copper	0.05174	0.00500	0.05	0	103	85 - 118				
Iron	5.179	0.200	5	0	104	87 - 118				
Lead	0.0517	0.00500	0.05	0	103	88 - 115				
Magnesium	5.412	0.200	5	0	108	83 - 118				
Manganese	0.05175	0.00500	0.05	0	104	87 - 115				
Nickel	0.05258	0.00500	0.05	0	105	85 - 117				
Potassium	5.429	0.200	5	0	109	87 - 115				
Selenium	0.05509	0.00500	0.05	0	110	80 - 120				
Silver	0.05314	0.00500	0.05	0	106	85 - 116				
Sodium	5.25	0.200	5	0	105	85 - 117				
Thallium	0.05539	0.00200	0.05	0	111	82 - 116				
Vanadium	0.0527	0.00500	0.05	0	105	86 - 115				
Zinc	0.05408	0.00500	0.05	0	108	83 - 119				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **27-Dec-2021 14:14**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440949** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1183	0.0100	0.1	0.01179	106	84 - 117				
Antimony	0.04941	0.00500	0.05	0.000166	98.5	85 - 117				
Arsenic	0.05273	0.00500	0.05	0.000461	105	84 - 116				
Barium	0.5943	0.00500	0.05	0.5511	86.4	86 - 114				O
Beryllium	0.05423	0.00200	0.05	0.000025	108	83 - 121				
Cadmium	0.05416	0.00200	0.05	0.000341	108	87 - 115				
Calcium	35.53	0.500	5	31.73	75.9	87 - 118				SO
Chromium	0.05738	0.00500	0.05	0.003046	109	85 - 116				
Cobalt	0.05464	0.00500	0.05	0.004515	100	86 - 115				
Copper	0.05172	0.00500	0.05	0.001385	101	85 - 118				
Iron	5.76	0.200	5	0.8081	99.0	87 - 118				
Lead	0.05161	0.00500	0.05	0.000075	103	88 - 115				
Magnesium	22.3	0.200	5	17.89	88.4	83 - 118				
Manganese	2.264	0.00500	0.05	2.308	-87.7	87 - 115				SEO
Nickel	0.05729	0.00500	0.05	0.007222	100	85 - 117				
Potassium	6.819	0.200	5	1.717	102	87 - 115				
Selenium	0.05307	0.00500	0.05	0.000657	105	80 - 120				
Silver	0.04958	0.00500	0.05	0.000001	99.2	85 - 116				
Sodium	265.1	0.200	5	268.7	-72.6	85 - 117				SEO
Thallium	0.05383	0.00200	0.05	0.000065	108	82 - 116				
Vanadium	0.05272	0.00500	0.05	0.000602	104	86 - 115				
Zinc	0.0604	0.00500	0.05	0.006957	107	83 - 119				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **27-Dec-2021 14:16**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440950** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1161	0.0100	0.1	0.01179	104	84 - 117	0.1183	1.89	20	
Antimony	0.04958	0.00500	0.05	0.000166	98.8	85 - 117	0.04941	0.345	20	
Arsenic	0.0532	0.00500	0.05	0.000461	105	84 - 116	0.05273	0.891	20	
Barium	0.5843	0.00500	0.05	0.5511	66.3	86 - 114	0.5943	1.7	20	SO
Beryllium	0.05364	0.00200	0.05	0.000025	107	83 - 121	0.05423	1.09	20	
Cadmium	0.05339	0.00200	0.05	0.000341	106	87 - 115	0.05416	1.43	20	
Calcium	35.29	0.500	5	31.73	71.2	87 - 118	35.53	0.671	20	SO
Chromium	0.05448	0.00500	0.05	0.003046	103	85 - 116	0.05738	5.17	20	
Cobalt	0.05339	0.00500	0.05	0.004515	97.8	86 - 115	0.05464	2.31	20	
Copper	0.05058	0.00500	0.05	0.001385	98.4	85 - 118	0.05172	2.24	20	
Iron	5.807	0.200	5	0.8081	100.0	87 - 118	5.76	0.812	20	
Lead	0.05148	0.00500	0.05	0.000075	103	88 - 115	0.05161	0.248	20	
Magnesium	22.05	0.200	5	17.89	83.2	83 - 118	22.3	1.17	20	
Manganese	2.236	0.00500	0.05	2.308	-145	87 - 115	2.264	1.26	20	SEO
Nickel	0.05645	0.00500	0.05	0.007222	98.5	85 - 117	0.05729	1.47	20	
Potassium	6.77	0.200	5	1.717	101	87 - 115	6.819	0.722	20	
Selenium	0.05222	0.00500	0.05	0.000657	103	80 - 120	0.05307	1.61	20	
Silver	0.05036	0.00500	0.05	0.000001	101	85 - 116	0.04958	1.56	20	
Sodium	259.2	0.200	5	268.7	-191	85 - 117	265.1	2.26	20	SEO
Thallium	0.05475	0.00200	0.05	0.000065	109	82 - 116	0.05383	1.7	20	
Vanadium	0.05262	0.00500	0.05	0.000602	104	86 - 115	0.05272	0.203	20	
Zinc	0.05876	0.00500	0.05	0.006957	104	83 - 119	0.0604	2.75	20	

PDS Sample ID: **HS21120658-04PDS** Units: **mg/L** Analysis Date: **27-Dec-2021 14:18**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440951** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.6632	0.00500	0.1	0.5511	112	80 - 120				O
Calcium	42.46	0.500	10	31.73	107	80 - 120				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21120658-04PDS** Units: **mg/L** Analysis Date: **28-Dec-2021 12:39**
Client ID: Run ID: **ICPMS06_398464** SeqNo: **6442381** PrepDate: **22-Dec-2021** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.677	0.100	2	2.394	114	80 - 120				
Sodium	492.8	4.00	200	277.2	108	80 - 120				

SD Sample ID: **HS21120658-04SD** Units: **mg/L** Analysis Date: **27-Dec-2021 14:12**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440948** PrepDate: **22-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.01849	0.0500					0.01179	0	10	J
Antimony	0.00500	0.0250					0.000166	0	10	U
Arsenic	0.00500	0.0250					0.000461	0	10	U
Barium	0.5511	0.0250					0.5511	0.00109	10	
Beryllium	0.00250	0.0100					0.000025	0	10	U
Cadmium	0.00250	0.0100					0.000341	0	10	U
Calcium	30.27	2.50					31.73	4.6	10	
Chromium	0.003208	0.0250					0.003046	0	10	J
Cobalt	0.004493	0.0250					0.004515	0	10	J
Copper	0.0125	0.0250					0.001385	0	10	U
Iron	0.8436	1.00					0.8081	0	10	J
Lead	0.00500	0.0250					0.000075	0	10	U
Magnesium	17.8	1.00					17.89	0.51	10	
Nickel	0.007263	0.0250					0.007222	0	10	J
Potassium	1.578	1.00					1.717	8.09	10	
Selenium	0.0125	0.0250					0.000657	0	10	U
Silver	0.00250	0.0250					0.000001	0	10	U
Thallium	0.00250	0.0100					0.000065	0	10	U
Vanadium	0.00500	0.0250					0.000602	0	10	U
Zinc	0.0125	0.0250					0.006957	0	10	U

SD Sample ID: **HS21120658-04SD** Units: **mg/L** Analysis Date: **28-Dec-2021 12:37**
Client ID: Run ID: **ICPMS06_398464** SeqNo: **6442380** PrepDate: **22-Dec-2021** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	2.453	0.500					2.394	2.45	10	
Sodium	273.9	20.0					277.2	1.19	10	

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

The following samples were analyzed in this batch:

HS21120589-01	HS21120589-03	HS21120589-04	HS21120589-07

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: 173430 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 14:17**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437290** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.06631*	*0*	*0.08*	*0*	*82.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08801*	*0*	*0.08*	*0*	*110*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.0668*	*0*	*0.08*	*0*	*83.5*	*40 - 140*				

LCS Sample ID: **LCS-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 14:34**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437291** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08377	0.010	0.08	0	105	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07207*	*0*	*0.08*	*0*	*90.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.07597*	*0*	*0.08*	*0*	*95.0*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08181*	*0*	*0.08*	*0*	*102*	*40 - 140*				

LCSD Sample ID: **LCSD-173430** Units: **ug/L** Analysis Date: **17-Dec-2021 15:03**
Client ID: Run ID: **SV-6_397880** SeqNo: **6437292** PrepDate: **10-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.0729	0.010	0.08	0	91.1	40 - 140	0.08377	13.9	20	
Surr: 2-Fluorobiphenyl	*0.07341*	*0*	*0.08*	*0*	*91.8*	*40 - 140*	*0.07207*	*1.84*	*20*	
Surr: 4-Terphenyl-d14	*0.07482*	*0*	*0.08*	*0*	*93.5*	*40 - 140*	*0.07597*	*1.52*	*20*	
Surr: Nitrobenzene-d5	*0.07738*	*0*	*0.08*	*0*	*96.7*	*40 - 140*	*0.08181*	*5.56*	*20*	

The following samples were analyzed in this batch: HS21120589-01 HS21120589-02 HS21120589-05 HS21120589-06 HS21120589-07 HS21120589-08

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 12:04**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438035** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 12:04**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438035** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*41.78*	*1.0*	*50*	*0*	*83.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.92*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*48.39*	*1.0*	*50*	*0*	*96.8*	*80 - 119*				
Surr: Toluene-d8	*55.6*	*1.0*	*50*	*0*	*111*	*89 - 112*				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 11:20**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438034** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.54	1.0	20	0	103	78 - 124				
1,1,1-Trichloroethane	17.25	1.0	20	0	86.2	74 - 131				
1,1,2,2-Tetrachloroethane	18.33	1.0	20	0	91.7	71 - 121				
1,1,2-Trichloroethane	20.65	1.0	20	0	103	80 - 119				
1,1-Dichloroethane	21.08	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	21.72	1.0	20	0	109	71 - 131				
1,1-Dichloropropene	19.34	1.0	20	0	96.7	78 - 125				
1,2,3-Trichlorobenzene	21.63	1.0	20	0	108	69 - 129				
1,2,3-Trichloropropane	17.79	1.0	20	0	89.0	73 - 122				
1,2,4-Trichlorobenzene	21.89	1.0	20	0	109	69 - 130				
1,2,4-Trimethylbenzene	19.37	1.0	20	0	96.8	76 - 124				
1,2-Dibromo-3-chloropropane	16.4	1.0	20	0	82.0	62 - 128				
1,2-Dibromoethane	21.54	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	21.73	1.0	20	0	109	80 - 119				
1,2-Dichloroethane	17.96	1.0	20	0	89.8	73 - 128				
1,2-Dichloropropane	20.23	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	19.09	1.0	20	0	95.5	75 - 124				
1,3-Dichlorobenzene	21.36	1.0	20	0	107	80 - 119				
1,3-Dichloropropane	19.96	1.0	20	0	99.8	80 - 119				
1,4-Dichlorobenzene	22.14	1.0	20	0	111	79 - 118				
2,2-Dichloropropane	17.2	1.0	20	0	86.0	60 - 139				
2-Butanone	27.37	2.0	40	0	68.4	56 - 143				
2-Chlorotoluene	19.15	1.0	20	0	95.8	79 - 122				
2-Hexanone	33.09	2.0	40	0	82.7	57 - 139				
4-Chlorotoluene	19.29	1.0	20	0	96.5	78 - 122				
4-Isopropyltoluene	20.39	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	30.72	2.0	40	0	76.8	67 - 130				
Acetone	38.69	2.0	40	0	96.7	39 - 160				
Benzene	20.78	1.0	20	0	104	79 - 120				
Bromobenzene	22.43	1.0	20	0	112	80 - 120				
Bromochloromethane	20.95	1.0	20	0	105	78 - 123				
Bromodichloromethane	18.25	1.0	20	0	91.2	79 - 125				
Bromoform	18.35	1.0	20	0	91.7	66 - 130				
Bromomethane	31.22	1.0	20	0	156	53 - 141				S

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 11:20**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438034** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	44.77	2.0	40	0	112	64 - 133				
Carbon tetrachloride	17.96	1.0	20	0	89.8	72 - 136				
Chlorobenzene	21.74	1.0	20	0	109	82 - 118				
Chloroethane	21.42	1.0	20	0	107	60 - 138				
Chloroform	18.03	1.0	20	0	90.2	79 - 124				
Chloromethane	22.55	1.0	20	0	113	50 - 139				
cis-1,2-Dichloroethene	18.9	1.0	20	0	94.5	78 - 123				
cis-1,3-Dichloropropene	17.76	1.0	20	0	88.8	75 - 124				
Dibromochloromethane	18.41	1.0	20	0	92.0	74 - 126				
Dibromomethane	20.22	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	17.13	1.0	20	0	85.6	32 - 152				
Ethylbenzene	21.28	1.0	20	0	106	79 - 121				
Hexachlorobutadiene	27.44	1.0	20	0	137	66 - 134				S
Isopropylbenzene	20.58	1.0	20	0	103	72 - 131				
m,p-Xylene	43.77	2.0	40	0	109	80 - 121				
Methylene chloride	21.15	2.0	20	0	106	74 - 124				
Naphthalene	17.65	1.0	20	0	88.2	61 - 128				
n-Butylbenzene	19.29	1.0	20	0	96.5	75 - 128				
n-Propylbenzene	19.29	1.0	20	0	96.4	76 - 126				
o-Xylene	21.71	1.0	20	0	109	78 - 122				
sec-Butylbenzene	19.44	1.0	20	0	97.2	77 - 126				
Styrene	22.29	1.0	20	0	111	78 - 123				
tert-Butylbenzene	19.71	1.0	20	0	98.6	78 - 124				
Tetrachloroethene	23.18	1.0	20	0	116	74 - 129				
Toluene	20.42	1.0	20	0	102	80 - 121				
trans-1,2-Dichloroethene	22.2	1.0	20	0	111	75 - 124				
trans-1,3-Dichloropropene	16.95	1.0	20	0	84.8	73 - 127				
Trichloroethene	22.66	1.0	20	0	113	79 - 123				
Trichlorofluoromethane	20.3	1.0	20	0	101	65 - 141				
Vinyl chloride	21.39	1.0	20	0	107	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.06*	*1.0*	*50*	*0*	*86.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*55.06*	*1.0*	*50*	*0*	*110*	*85 - 114*				
Surr: Dibromofluoromethane	*51.06*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*54.1*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120589-01MS** Units: **ug/L** Analysis Date: **22-Dec-2021 14:18**
Client ID: **18CPTMW04SW-120821** Run ID: **VOA9_398300** SeqNo: **6438041** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.22	1.0	20	0	91.1	78 - 124				
1,1,1-Trichloroethane	15.55	1.0	20	0	77.8	74 - 131				
1,1,2,2-Tetrachloroethane	15.72	1.0	20	0	78.6	71 - 121				
1,1,2-Trichloroethane	17.96	1.0	20	0	89.8	80 - 119				
1,1-Dichloroethane	18.91	1.0	20	0	94.5	77 - 125				
1,1-Dichloroethene	19.88	1.0	20	0	99.4	71 - 131				
1,1-Dichloropropene	17.47	1.0	20	0	87.4	78 - 125				
1,2,3-Trichlorobenzene	17.12	1.0	20	0	85.6	69 - 129				
1,2,3-Trichloropropane	15.02	1.0	20	0	75.1	73 - 122				
1,2,4-Trichlorobenzene	17.56	1.0	20	0	87.8	69 - 130				
1,2,4-Trimethylbenzene	16.51	1.0	20	0	82.5	76 - 124				
1,2-Dibromo-3-chloropropane	13.91	1.0	20	0	69.5	62 - 128				
1,2-Dibromoethane	18.69	1.0	20	0	93.5	77 - 121				
1,2-Dichlorobenzene	18.62	1.0	20	0	93.1	80 - 119				
1,2-Dichloroethane	15.29	1.0	20	0	76.4	73 - 128				
1,2-Dichloropropane	17.37	1.0	20	0	86.8	78 - 122				
1,3,5-Trimethylbenzene	16.58	1.0	20	0	82.9	75 - 124				
1,3-Dichlorobenzene	18.49	1.0	20	0	92.4	80 - 119				
1,3-Dichloropropane	17.17	1.0	20	0	85.8	80 - 119				
1,4-Dichlorobenzene	18.75	1.0	20	0	93.7	79 - 118				
2,2-Dichloropropane	15.06	1.0	20	0	75.3	60 - 139				
2-Butanone	21.97	2.0	40	0	54.9	56 - 143				S
2-Chlorotoluene	16.53	1.0	20	0	82.7	79 - 122				
2-Hexanone	26.95	2.0	40	0	67.4	57 - 139				
4-Chlorotoluene	16.72	1.0	20	0	83.6	78 - 122				
4-Isopropyltoluene	17.47	1.0	20	0	87.3	77 - 127				
4-Methyl-2-pentanone	26.39	2.0	40	0	66.0	67 - 130				S
Acetone	25.72	2.0	40	0	64.3	39 - 160				
Benzene	18.01	1.0	20	0	90.1	79 - 120				
Bromobenzene	19.7	1.0	20	0	98.5	80 - 120				
Bromochloromethane	18.84	1.0	20	0	94.2	78 - 123				
Bromodichloromethane	15.67	1.0	20	0	78.4	79 - 125				S
Bromoform	16.07	1.0	20	0	80.3	66 - 130				
Bromomethane	25.39	1.0	20	0	127	53 - 141				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120589-01MS** Units: **ug/L** Analysis Date: **22-Dec-2021 14:18**
Client ID: **18CPTMW04SW-120821** Run ID: **VOA9_398300** SeqNo: **6438041** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.43	2.0	40	0	96.1	64 - 133				
Carbon tetrachloride	17.01	1.0	20	0	85.0	72 - 136				
Chlorobenzene	19.18	1.0	20	0	95.9	82 - 118				
Chloroethane	20.18	1.0	20	0	101	60 - 138				
Chloroform	16.18	1.0	20	0	80.9	79 - 124				
Chloromethane	17.82	1.0	20	0	89.1	50 - 139				
cis-1,2-Dichloroethene	16.92	1.0	20	0	84.6	78 - 123				
cis-1,3-Dichloropropene	15.26	1.0	20	0	76.3	75 - 124				
Dibromochloromethane	16.49	1.0	20	0	82.4	74 - 126				
Dibromomethane	17.39	1.0	20	0	87.0	79 - 123				
Dichlorodifluoromethane	10.09	1.0	20	0	50.5	32 - 152				
Ethylbenzene	18.83	1.0	20	0	94.1	79 - 121				
Hexachlorobutadiene	23.3	1.0	20	0	117	66 - 134				
Isopropylbenzene	18.48	1.0	20	0	92.4	72 - 131				
m,p-Xylene	39.23	2.0	40	0	98.1	80 - 121				
Methylene chloride	18.77	2.0	20	0	93.8	74 - 124				
Naphthalene	14.34	1.0	20	0	71.7	61 - 128				
n-Butylbenzene	16.19	1.0	20	0	81.0	75 - 128				
n-Propylbenzene	17.14	1.0	20	0	85.7	76 - 126				
o-Xylene	19.3	1.0	20	0	96.5	78 - 122				
sec-Butylbenzene	17.05	1.0	20	0	85.3	77 - 126				
Styrene	19.5	1.0	20	0	97.5	78 - 123				
tert-Butylbenzene	17.48	1.0	20	0	87.4	78 - 124				
Tetrachloroethene	21.05	1.0	20	0	105	74 - 129				
Toluene	18.64	1.0	20	0	93.2	80 - 121				
trans-1,2-Dichloroethene	20.37	1.0	20	0	102	75 - 124				
trans-1,3-Dichloropropene	14.3	1.0	20	0	71.5	73 - 127				S
Trichloroethene	21.66	1.0	20	0	108	79 - 123				
Trichlorofluoromethane	18.11	1.0	20	0	90.6	65 - 141				
Vinyl chloride	18.21	1.0	20	0	91.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*41.87*	*1.0*	*50*	*0*	*83.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.15*	*1.0*	*50*	*0*	*108*	*85 - 114*				
Surr: Dibromofluoromethane	*50.62*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*54.89*	*1.0*	*50*	*0*	*110*	*89 - 112*				

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120589-01MSD** Units: **ug/L** Analysis Date: **22-Dec-2021 14:40**
Client ID: **18CPTMW04SW-120821** Run ID: **VOA9_398300** SeqNo: **6438042** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.02	1.0	20	0	95.1	78 - 124	18.22	4.3	20	
1,1,1-Trichloroethane	16.11	1.0	20	0	80.5	74 - 131	15.55	3.49	20	
1,1,2,2-Tetrachloroethane	15.92	1.0	20	0	79.6	71 - 121	15.72	1.26	20	
1,1,2-Trichloroethane	18.13	1.0	20	0	90.7	80 - 119	17.96	0.926	20	
1,1-Dichloroethane	19.44	1.0	20	0	97.2	77 - 125	18.91	2.76	20	
1,1-Dichloroethene	19.86	1.0	20	0	99.3	71 - 131	19.88	0.117	20	
1,1-Dichloropropene	17.74	1.0	20	0	88.7	78 - 125	17.47	1.53	20	
1,2,3-Trichlorobenzene	19	1.0	20	0	95.0	69 - 129	17.12	10.4	20	
1,2,3-Trichloropropane	15.04	1.0	20	0	75.2	73 - 122	15.02	0.153	20	
1,2,4-Trichlorobenzene	18.92	1.0	20	0	94.6	69 - 130	17.56	7.45	20	
1,2,4-Trimethylbenzene	17.85	1.0	20	0	89.3	76 - 124	16.51	7.82	20	
1,2-Dibromo-3-chloropropane	14.87	1.0	20	0	74.4	62 - 128	13.91	6.7	20	
1,2-Dibromoethane	18.8	1.0	20	0	94.0	77 - 121	18.69	0.556	20	
1,2-Dichlorobenzene	19.48	1.0	20	0	97.4	80 - 119	18.62	4.54	20	
1,2-Dichloroethane	15.63	1.0	20	0	78.2	73 - 128	15.29	2.22	20	
1,2-Dichloropropane	17.82	1.0	20	0	89.1	78 - 122	17.37	2.55	20	
1,3,5-Trimethylbenzene	17.27	1.0	20	0	86.3	75 - 124	16.58	4.05	20	
1,3-Dichlorobenzene	19.13	1.0	20	0	95.7	80 - 119	18.49	3.42	20	
1,3-Dichloropropane	17.59	1.0	20	0	87.9	80 - 119	17.17	2.42	20	
1,4-Dichlorobenzene	19.73	1.0	20	0	98.7	79 - 118	18.75	5.1	20	
2,2-Dichloropropane	15.39	1.0	20	0	77.0	60 - 139	15.06	2.17	20	
2-Butanone	22.66	2.0	40	0	56.6	56 - 143	21.97	3.09	20	
2-Chlorotoluene	17.22	1.0	20	0	86.1	79 - 122	16.53	4.08	20	
2-Hexanone	27.53	2.0	40	0	68.8	57 - 139	26.95	2.14	20	
4-Chlorotoluene	17.33	1.0	20	0	86.6	78 - 122	16.72	3.58	20	
4-Isopropyltoluene	18.07	1.0	20	0	90.3	77 - 127	17.47	3.4	20	
4-Methyl-2-pentanone	26.03	2.0	40	0	65.1	67 - 130	26.39	1.37	20	S
Acetone	27.31	2.0	40	0	68.3	39 - 160	25.72	6	20	
Benzene	18.6	1.0	20	0	93.0	79 - 120	18.01	3.22	20	
Bromobenzene	20.22	1.0	20	0	101	80 - 120	19.7	2.6	20	
Bromochloromethane	19.68	1.0	20	0	98.4	78 - 123	18.84	4.37	20	
Bromodichloromethane	16.12	1.0	20	0	80.6	79 - 125	15.67	2.82	20	
Bromoform	15.91	1.0	20	0	79.5	66 - 130	16.07	0.989	20	
Bromomethane	25.2	1.0	20	0	126	53 - 141	25.39	0.734	20	

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120589-01MSD** Units: **ug/L** Analysis Date: **22-Dec-2021 14:40**
Client ID: **18CPTMW04SW-120821** Run ID: **VOA9_398300** SeqNo: **6438042** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	39.58	2.0	40	0	98.9	64 - 133	38.43	2.95	20	
Carbon tetrachloride	17.15	1.0	20	0	85.7	72 - 136	17.01	0.804	20	
Chlorobenzene	19.22	1.0	20	0	96.1	82 - 118	19.18	0.252	20	
Chloroethane	20.01	1.0	20	0	100	60 - 138	20.18	0.843	20	
Chloroform	16.27	1.0	20	0	81.3	79 - 124	16.18	0.558	20	
Chloromethane	17.35	1.0	20	0	86.8	50 - 139	17.82	2.64	20	
cis-1,2-Dichloroethene	17.52	1.0	20	0	87.6	78 - 123	16.92	3.53	20	
cis-1,3-Dichloropropene	15.71	1.0	20	0	78.6	75 - 124	15.26	2.95	20	
Dibromochloromethane	16.21	1.0	20	0	81.0	74 - 126	16.49	1.7	20	
Dibromomethane	17.42	1.0	20	0	87.1	79 - 123	17.39	0.161	20	
Dichlorodifluoromethane	9.753	1.0	20	0	48.8	32 - 152	10.09	3.43	20	
Ethylbenzene	19.6	1.0	20	0	98.0	79 - 121	18.83	4.03	20	
Hexachlorobutadiene	23.07	1.0	20	0	115	66 - 134	23.3	1	20	
Isopropylbenzene	19.15	1.0	20	0	95.7	72 - 131	18.48	3.56	20	
m,p-Xylene	40.07	2.0	40	0	100	80 - 121	39.23	2.13	20	
Methylene chloride	19.41	2.0	20	0	97.1	74 - 124	18.77	3.37	20	
Naphthalene	15.63	1.0	20	0	78.1	61 - 128	14.34	8.59	20	
n-Butylbenzene	16.81	1.0	20	0	84.0	75 - 128	16.19	3.76	20	
n-Propylbenzene	17.19	1.0	20	0	85.9	76 - 126	17.14	0.285	20	
o-Xylene	19.42	1.0	20	0	97.1	78 - 122	19.3	0.574	20	
sec-Butylbenzene	17.43	1.0	20	0	87.2	77 - 126	17.05	2.2	20	
Styrene	19.73	1.0	20	0	98.6	78 - 123	19.5	1.14	20	
tert-Butylbenzene	18.12	1.0	20	0	90.6	78 - 124	17.48	3.58	20	
Tetrachloroethene	21.61	1.0	20	0	108	74 - 129	21.05	2.62	20	
Toluene	18.51	1.0	20	0	92.6	80 - 121	18.64	0.711	20	
trans-1,2-Dichloroethene	20.49	1.0	20	0	102	75 - 124	20.37	0.574	20	
trans-1,3-Dichloropropene	14.82	1.0	20	0	74.1	73 - 127	14.3	3.6	20	
Trichloroethene	21.5	1.0	20	0	107	79 - 123	21.66	0.729	20	
Trichlorofluoromethane	17.75	1.0	20	0	88.8	65 - 141	18.11	1.99	20	
Vinyl chloride	18.49	1.0	20	0	92.5	58 - 137	18.21	1.54	20	
Surr: 1,2-Dichloroethane-d4	*43.27*	*1.0*	*50*	*0*	*86.5*	*81 - 118*	*41.87*	*3.28*	*20*	
Surr: 4-Bromofluorobenzene	*53.47*	*1.0*	*50*	*0*	*107*	*85 - 114*	*54.15*	*1.27*	*20*	
Surr: Dibromofluoromethane	*51.99*	*1.0*	*50*	*0*	*104*	*80 - 119*	*50.62*	*2.68*	*20*	
Surr: Toluene-d8	*54.44*	*1.0*	*50*	*0*	*109*	*89 - 112*	*54.89*	*0.821*	*20*	

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120589

QC BATCH REPORT

Batch ID:	R398300 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21120589-01	HS21120589-02	HS21120589-03	HS21120589-04
HS21120589-05	HS21120589-06	HS21120589-07	HS21120589-08
HS21120589-09			

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: **HS21120589**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 28-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120589

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21120589-01	18CPTMW04SW-120821	Login	12/10/2021 12:31:35 PM	NDR	MET099
HS21120589-01	18CPTMW04SW-120821	Login	12/10/2021 12:31:35 PM	NDR	Sub
HS21120589-01	18CPTMW04SW-120821	Login	12/10/2021 12:31:35 PM	NDR	EXT169
HS21120589-01	18CPTMW04SW-120821	Login	12/10/2021 12:31:35 PM	NDR	VOA303
HS21120589-02	18CPTMW04-120821	Login	12/10/2021 12:31:35 PM	NDR	Sub
HS21120589-02	18CPTMW04-120821	Login	12/10/2021 12:31:35 PM	NDR	EXT169
HS21120589-02	18CPTMW04-120821	Login	12/10/2021 12:31:35 PM	NDR	VOA303
HS21120589-03	MW22_120821	Login	12/10/2021 12:31:35 PM	NDR	MET099
HS21120589-03	MW22_120821	Login	12/10/2021 12:31:35 PM	NDR	Sub
HS21120589-03	MW22_120821	Login	12/10/2021 12:31:35 PM	NDR	VOA303

ALS Houston, US Date: 28-Dec-21

Sample Receipt Checklist

Work Order ID: HS21120589 **Date/Time Received:** **09-Dec-2021 10:10**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: /S/ Nilesh D. Ranchod (eSignature) 10-Dec-2021 13:01 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 11-Dec-2021 13:24 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s): 0.9°C UC/C IR31

Cooler(s)/Kit(s): 46357

Date/Time sample(s) sent to storage: 12/09/2021 20:00

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENGINEERING

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control	Cooler ID
18CPTMW02/SW-120821	08 DEC 2021	0730	-	N		WG	6	X	X	X	X									
18CPTMW04-120821	08 DEC 2021	0810	-	N		WG	5	X	X		X									
MW22-120821	08 DEC 2021	0855	-	N		WG	5	X	X	X										
MW22-120821-a	08 DEC 2021	0855		FD		WG	5	X	X	X										
18CPTMW06-120821	08 DEC 2021	0945		N		WG	5	X	X		X									
18WW06-120821	08 DEC 2021	1030	-	N		WG	5	X	X		X									
18WW02-120821	08 DEC 2021	1115	-	N		WG	6	X	X	X	X									
18CPTMW15-120821	08 DEC 2021	1305	-	N		WG	5	X	X		X									
TRIP BLANK	08 DEC 2021		-	TB		W	2	X												
			-																	
			-																	

Sample Analysis Requested (5) | Quality Assurance Samples (6)

COMMENTS: STANDARD TAT

Cooler 46357 1231
Temp 0.9°C CFO

Bhate Environmental Associates, Inc.
LHAAP/Site 18/24
HS2120589

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/8/21	1430	1. J. [illegible]	12/9/21	10:10
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46357

CUSTODY SEAL

Date: 12/8/21 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: CM
Date: 12/09/21

46357 DEC 0 9 2021

Part # 159469-494 NTW EXP 07/22

ALS

46357

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG

RMA:

FedEx Express

E

FRI
0221 5300 5225 1630

PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

230674 08Dec2021 GGGA 56DG3/E934/1B23

December 20, 2021

Service Request No:E2101269

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120589

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 10, 2021
For your reference, these analyses have been assigned our service request number **E2101269.**

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.:**	E2101269
Project:	HS21120589	**Date Received:**	12/10/21
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 IV. 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 12/10/21.

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:

EQ2100685: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

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:**E2101269
Project: HS21120589

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101269-001	18CPTMW04SW-120821	12/8/2021	0730
E2101269-002	18CPTMW04-120821	12/8/2021	0810
E2101269-003	MW22-120821	12/8/2021	0855
E2101269-004	MW22-120821_a	12/8/2021	0855
E2101269-005	18CPTMW06-120821	12/8/2021	0945
E2101269-006	18WW06_120821	12/8/2021	1030
E2101269-007	18WW02_120821	12/8/2021	1115
E2101269-008	18CPTMW15-120821	12/8/2021	1305

Service Request Summary

Folder #: **E2101269**
Client Name: ALS Environmental - US
Project Name: HS21120589
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: TWOODS
Date Received: 12/10/21
Internal Due Date: 12/27/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120589
EDD: No EDD Specified

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
E2101269-001	18CPTMW04SW-120821	Ground Water	12/08/21 0730	**IV**
E2101269-002	18CPTMW04-120821	Ground Water	12/08/21 0810	**IV**
E2101269-003	MW22-120821	Ground Water	12/08/21 0855	**IV**
E2101269-004	MW22-120821_a	Ground Water	12/08/21 0855	**IV**
E2101269-005	18CPTMW06-120821	Ground Water	12/08/21 0945	**IV**
E2101269-006	18WW06_120821	Ground Water	12/08/21 1030	**IV**
E2101269-007	18WW02_120821	Ground Water	12/08/21 1115	**IV**
E2101269-008	18CPTMW15-120821	Ground Water	12/08/21 1305	**IV**

Service Request Summary

Folder #: **E2101269**
Client Name: ALS Environmental - US
Project Name: HS21120589
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: TWOODS
Date Received: 12/10/21
Internal Due Date: 12/27/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120589
EDD: No EDD Specified

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	Level IV due 1/4

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: **Texas**

COC ID: **17643**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21120589
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120589-01**	**18CPTMW04SW-120821**	**Groundwater**	**08 Dec 2021 07:30**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
2.	**HS21120589-02**	**18CPTMW04-120821**	**Groundwater**	**08 Dec 2021 08:10**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
3.	**HS21120589-03**	**MW22_120821**	**Groundwater**	**08 Dec 2021 08:55**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
4.	**HS21120589-04**	**MW22_120821_a**	**Groundwater**	**08 Dec 2021 08:55**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
5.	**HS21120589-05**	**18CPTMW06_120821**	**Groundwater**	**08 Dec 2021 09:45**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
6.	**HS21120589-06**	**18ww06_120821**	**Groundwater**	**08 Dec 2021 10:30**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
7.	**HS21120589-07**	**18ww02-120821**	**Groundwater**	**08 Dec 2021 11:15**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021
8.	**HS21120589-08**	**18CPTMW15-120821**	**Groundwater**	**08 Dec 2021 13:05**
	Provide Level II and Level IV reports in separate pdf			23 Dec 2021

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17643**

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:	LORETA	Date/Time:	12-16-21 1423
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-H

Thermometer ID: 1R21

Date/Time Received: 12-10-21 Initials: CG

Date/Time Logged in: 12-10-21 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		12-10-21	1523	CG	4.8	☒
						☐
						☐
						☐

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:

Effective 10/04/2013

ALS Environmental - Houston HRMS

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#: 392607 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/13/21 09:18

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101263-001	MW-6-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101263-002	MW-8-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101263-003	MW-19-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101263-004	MW-12-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101263-005	MW-21-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101263-006	MW-1R2-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101263-007	MW-10R-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101263-008	MW-4-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101263-009	DUP-1-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2101263-010	DUP-2-120921	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2101269-001	18CPTMW04SW-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2101269-002	18CPTMW04-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2101269-003	MW22-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2101269-004	MW22-120821_a	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2101269-005	18CPTMW06-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2101269-006	18WW06_120821	.01	6850/ClO4 DOD			Ground Water	10mL	
17	E2101269-007	18WW02_120821	.01	6850/ClO4 DOD			Ground Water	10mL	
18	E2101269-008	18CPTMW15-120821	.01	6850/ClO4 DOD			Ground Water	10mL	
19	EQ2100685-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2100685-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2100685-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101263-001	100.00µL	E2101263-002	100.00µL	E2101263-003	100.00µL	E2101263-004	100.00µL	E2101263-005	100.00µL	E2101263-006	100.00µL
E2101263-007	100.00µL	E2101263-008	100.00µL	E2101263-009	100.00µL	E2101263-010	100.00µL	E2101269-001	100.00µL	E2101269-002	100.00µL
E2101269-003	100.00µL	E2101269-004	100.00µL	E2101269-005	100.00µL	E2101269-006	100.00µL	E2101269-007	100.00µL	E2101269-008	100.00µL
EQ2100685-01	100.00µL	EQ2100685-02	100.00µL	EQ2100685-03	100.00µL						

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100685-02	1.00µL	EQ2100685-03	1.00µL

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Information Benchsheet

Prep Run#: 392607
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 12/13/21 09:18

Preparation Steps

Step: Preparation
Started: 12/13/21 09:18
Finished: 12/13/21 11:00
By: GRIVERA
Comments

Comments:

Reviewed By: GR Date: 12/13/21

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:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 0730
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	18CPTMW04SW-120821	**Units:**	µg/L
Lab Code:	E2101269-001	**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	**0.0581**	J	0.100	0.0500	0.0250	1	12/13/21	12/15/21 00:20	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 0810
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	18CPTMW04-120821	**Units:**	µg/L
Lab Code:	E2101269-002	**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	**129**		1.00	0.500	0.250	10	12/13/21	12/14/21 18:48	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 0855
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	MW22-120821	**Units:**	µg/L
Lab Code:	E2101269-003	**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	**1060**		5.00	2.50	1.25	50	12/13/21	12/16/21 16:54	392607	749388	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 0855
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	MW22-120821_a	**Units:**	µg/L
Lab Code:	E2101269-004	**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	**1180**		10.0	5.00	2.50	100	12/13/21	12/14/21 19:04	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 0945
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	18CPTMW06-120821	**Units:**	µg/L
Lab Code:	E2101269-005	**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	**0.0396**	J	0.100	0.0500	0.0250	1	12/13/21	12/15/21 00:28	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 1030
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	18WW06_120821	**Units:**	µg/L
Lab Code:	E2101269-006	**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	12/13/21	12/15/21 00:36	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 1115
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	18WW02_120821	**Units:**	µg/L
Lab Code:	E2101269-007	**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	**0.0331**	J	0.100	0.0500	0.0250	1	12/13/21	12/15/21 00:44	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	12/ 8/21 1305
Sample Matrix:	Ground Water	**Date Received:**	12/10/21
Sample Name:	18CPTMW15-120821	**Units:**	µg/L
Lab Code:	E2101269-008	**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	**0.364**		0.100	0.0500	0.0250	1	12/13/21	12/15/21 00:52	392607	749353	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100685-01	**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	12/13/21	12/14/21 23:40	392607	749353	

Accuracy & Precision

ALS Environmental - Houston HRMS
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Analyzed:**	12/17/21
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	392607

	Lab Control Sample EQ2100685-02			Duplicate Lab Control Sample EQ2100685-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.108	0.100	108	0.117	0.100	117	84 - 119	8	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:**	E2101269
Project:	HS21120589	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100685-02	**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	**0.108**		0.100	0.0500	0.0250	1	12/13/21	12/17/21 12:44	392607	749485	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101269
Project:	HS21120589	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100685-03	**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	**0.117**		0.100	0.0500	0.0250	1	12/13/21	12/17/21 12:52	392607	749485	

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January 06, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120658**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia Olive,

ALS Environmental received 9 sample(s) on Dec 10, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21120658

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120658-01	MW-2_120921	Groundwater		09-Dec-2021 07:35	10-Dec-2021 10:10	☐
HS21120658-02	MW-2_120921_a	Groundwater		09-Dec-2021 07:35	10-Dec-2021 10:10	☐
HS21120658-03	18CPTMW01SW_120921	Groundwater		09-Dec-2021 08:20	10-Dec-2021 10:10	☐
HS21120658-04	MW3_120921	Groundwater		09-Dec-2021 09:10	10-Dec-2021 10:10	☐
HS21120658-05	18WW10_120921	Groundwater		09-Dec-2021 10:05	10-Dec-2021 10:10	☐
HS21120658-06	MW17_120921	Groundwater		09-Dec-2021 10:45	10-Dec-2021 10:10	☐
HS21120658-07	18CPTMW14_120921	Groundwater		09-Dec-2021 11:30	10-Dec-2021 10:10	☐
HS21120658-08	AWD1_120921	Groundwater		09-Dec-2021 12:50	10-Dec-2021 10:10	☐
HS21120658-09	Trip Blank	Water	CG-111221-68	09-Dec-2021 00:00	10-Dec-2021 10:10	☐

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21120658

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS High Res Lab Houston, TX. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173598

Sample ID: LCSD-173598

- The RPD between the LCS and LCSD was outside of the control limit.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21120658

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R398221

Sample ID: 18CPTMW01SW_120921 (HS21120658-03)

- Surrogate failure due to matrix. Confirmed by re-analaysis @ dilution.

Sample ID: 18CPTMW14_120921 (HS21120658-07)

- Lowest practical dilution due to matrix.

Sample ID: HS21121307-01MS

- MS and MSD are for an unrelated sample

Sample ID: MW-2_120921 (HS21120658-01)

- Surrogate failure due to matrix. confirmed by re-analysis @ dilution.

Sample ID: MW-2_120921_a (HS21120658-02)

- Surrogate failure due to matrix. confirmed by re-analysis @ dilution.

Sample ID: MW3_120921 (HS21120658-04)

- Surrogate Toluene_d8 exceeded recovery limits due to matrix. confirmed by re-analysis @ dilution.

Sample ID: MW3_120921 (HS21120658-04MS)

- MS/MSD failed QC limits for several compounds. No RPDs

Sample ID: VLCSW-211223

- Bromomethane is also high for LCS.

Sample ID: VSTD050

- Bromomethane, Carbon Disulfide and Hexachlorobutadiene exceeded %D limits for CCV . Samples are ND for these compounds.

Batch ID: R398300

Sample ID: VLCSW-211222

- Bromomethane and Hexachlorobutadiene are also high for LCS.

Sample ID: VSTD050

- Bromomethane, Acetone and Hexachlorobutadiene exceeded %D limits for CCV. Samples are ND.

Sample ID: HS21120589-01MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21120658

CASE NARRATIVE

Metals by Method SW6020A

Batch ID: 173884

Sample ID: MW3_120921 (HS21120658-04MSD)

- 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. (Barium,Calcium,Manganese,Sodium)

Metals by Method SW7470A

Batch ID: 173861

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW-2_120921
Collection Date: 09-Dec-2021 07:35

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 13:35
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
1,1-Dichloroethane	**18**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 13:35
1,1-Dichloroethene	**160**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 13:35
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2-Dibromo-3-chloropropane	10	U	2.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	23-Dec-2021 13:35
1,2-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 13:35
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
2-Butanone	10	U	5.0	10	20	ug/L	10	23-Dec-2021 13:35
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
2-Hexanone	20	U	10	20	20	ug/L	10	23-Dec-2021 13:35
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	23-Dec-2021 13:35
Acetone	20	U	4.0	20	20	ug/L	10	23-Dec-2021 13:35
Benzene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
Bromobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
Bromoform	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
Bromomethane	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
Carbon disulfide	20	U	6.0	20	20	ug/L	10	23-Dec-2021 13:35
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	23-Dec-2021 13:35
Chlorobenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Chloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Chloroform	**22**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 13:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW-2_120921
Collection Date: 09-Dec-2021 07:35

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
cis-1,2-Dichloroethene	**18,000**		**20**	**50**	**100**	**ug/L**	100	23-Dec-2021 13:58
cis-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Ethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	23-Dec-2021 13:35
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
m,p-Xylene	10	U	5.0	10	20	ug/L	10	23-Dec-2021 13:35
Methylene chloride	**1,600**		**4.0**	**20**	**20**	**ug/L**	10	23-Dec-2021 13:35
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 13:35
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Naphthalene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
o-Xylene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Styrene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Tetrachloroethene	**31**		**3.0**	**10**	**10**	**ug/L**	10	23-Dec-2021 13:35
Toluene	**7.7**	J	**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 13:35
trans-1,2-Dichloroethene	**37**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 13:35
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 13:35
Trichloroethene	**3,600**		**20**	**50**	**100**	**ug/L**	100	23-Dec-2021 13:58
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 13:35
Vinyl chloride	**8.4**	J	**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 13:35
Surr: 1,2-Dichloroethane-d4	*70.0*	*S*		**0**	*81-118*	*%REC*	*10*	*23-Dec-2021 13:35*
Surr: 1,2-Dichloroethane-d4	*82.1*			**0**	*81-118*	*%REC*	*100*	*23-Dec-2021 13:58*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*10*	*23-Dec-2021 13:35*
Surr: 4-Bromofluorobenzene	*91.7*			**0**	*85-114*	*%REC*	*100*	*23-Dec-2021 13:58*
Surr: Dibromofluoromethane	*83.0*			**0**	*80-119*	*%REC*	*100*	*23-Dec-2021 13:58*
Surr: Dibromofluoromethane	*84.2*			**0**	*80-119*	*%REC*	*10*	*23-Dec-2021 13:35*
Surr: Toluene-d8	*96.2*			**0**	*89-112*	*%REC*	*10*	*23-Dec-2021 13:35*
Surr: Toluene-d8	*96.5*			**0**	*89-112*	*%REC*	*100*	*23-Dec-2021 13:58*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: JLJ
1,4-Dioxane	**1.8**		**0.10**	**0.10**	**0.10**	**ug/L**	10	03-Jan-2022 13:56
Surr: 2-Fluorobiphenyl	*123*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 13:56*
Surr: 4-Terphenyl-d14	*107*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 13:56*
Surr: Nitrobenzene-d5	*115*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 13:56*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW-2_120921
Collection Date: 09-Dec-2021 07:35

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.0230**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:34
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	27-Dec-2021 14:34
Arsenic	**0.0259**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
Barium	**2.68**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	28-Dec-2021 12:51
Beryllium	**0.000349**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:34
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:34
Calcium	**71.5**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:34
Chromium	**0.218**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
Cobalt	**0.136**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
Copper	**0.00670**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
Iron	**31.8**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:34
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:34
Magnesium	**53.5**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:34
Manganese	**7.69**		**0.0140**	**0.0500**	**0.100**	**mg/L**	20	28-Dec-2021 12:51
Nickel	**0.396**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
Potassium	**2.91**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:34
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:34
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:34
Sodium	**201**		**0.280**	**1.00**	**4.00**	**mg/L**	20	28-Dec-2021 12:51
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:34
Vanadium	**0.00119**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
Zinc	**0.0630**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:34
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	23-Dec-2021 11:04
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW-2_120921_a
Collection Date: 09-Dec-2021 07:35

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 14:20
1,1,2-Trichloroethane	**5.7**	J	**3.0**	**10**	**10**	**ug/L**	10	23-Dec-2021 14:20
1,1-Dichloroethane	**22**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 14:20
1,1-Dichloroethene	**190**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 14:20
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2-Dibromo-3-chloropropane	10	U	2.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	23-Dec-2021 14:20
1,2-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 14:20
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
2-Butanone	10	U	5.0	10	20	ug/L	10	23-Dec-2021 14:20
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
2-Hexanone	20	U	10	20	20	ug/L	10	23-Dec-2021 14:20
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	23-Dec-2021 14:20
Acetone	20	U	4.0	20	20	ug/L	10	23-Dec-2021 14:20
Benzene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
Bromobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
Bromoform	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
Bromomethane	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
Carbon disulfide	20	U	6.0	20	20	ug/L	10	23-Dec-2021 14:20
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	23-Dec-2021 14:20
Chlorobenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Chloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Chloroform	**26**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 14:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW-2_120921_a
Collection Date: 09-Dec-2021 07:35

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
cis-1,2-Dichloroethene	**17,000**		**20**	**50**	**100**	**ug/L**	100	23-Dec-2021 17:57
cis-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Ethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	23-Dec-2021 14:20
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
m,p-Xylene	10	U	5.0	10	20	ug/L	10	23-Dec-2021 14:20
Methylene chloride	**1,900**		**4.0**	**20**	**20**	**ug/L**	10	23-Dec-2021 14:20
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 14:20
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Naphthalene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
o-Xylene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Styrene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Tetrachloroethene	**37**		**3.0**	**10**	**10**	**ug/L**	10	23-Dec-2021 14:20
Toluene	**9.4**	J	**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 14:20
trans-1,2-Dichloroethene	**44**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 14:20
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 14:20
Trichloroethene	**3,300**		**20**	**50**	**100**	**ug/L**	100	23-Dec-2021 17:57
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 14:20
Vinyl chloride	**10**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 14:20
Surr: 1,2-Dichloroethane-d4	*86.2*			**0**	*81-118*	*%REC*	*10*	*23-Dec-2021 14:20*
Surr: 1,2-Dichloroethane-d4	*81.4*			**0**	*81-118*	*%REC*	*100*	*23-Dec-2021 17:57*
Surr: 4-Bromofluorobenzene	*113*			**0**	*85-114*	*%REC*	*10*	*23-Dec-2021 14:20*
Surr: 4-Bromofluorobenzene	*98.3*			**0**	*85-114*	*%REC*	*100*	*23-Dec-2021 17:57*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*10*	*23-Dec-2021 14:20*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*100*	*23-Dec-2021 17:57*
Surr: Toluene-d8	*122*	*S*		**0**	*89-112*	*%REC*	*10*	*23-Dec-2021 14:20*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*100*	*23-Dec-2021 17:57*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: JLJ
1,4-Dioxane	**1.2**		**0.10**	**0.10**	**0.10**	**ug/L**	10	03-Jan-2022 14:13
Surr: 2-Fluorobiphenyl	*108*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 14:13*
Surr: 4-Terphenyl-d14	*112*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 14:13*
Surr: Nitrobenzene-d5	*113*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 14:13*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW-2_120921_a
Collection Date: 09-Dec-2021 07:35

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.0232**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:36
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	27-Dec-2021 14:36
Arsenic	**0.0265**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
Barium	**3.06**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	28-Dec-2021 12:53
Beryllium	**0.000350**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:36
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:36
Calcium	**73.8**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:36
Chromium	**0.252**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
Cobalt	**0.145**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
Copper	**0.00651**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
Iron	**33.1**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:36
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:36
Magnesium	**55.8**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:36
Manganese	**8.83**		**0.0140**	**0.0500**	**0.100**	**mg/L**	20	28-Dec-2021 12:53
Nickel	**0.408**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
Potassium	**3.07**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:36
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:36
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:36
Sodium	**234**		**0.280**	**1.00**	**4.00**	**mg/L**	20	28-Dec-2021 12:53
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:36
Vanadium	**0.00127**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
Zinc	**0.0680**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:36
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	23-Dec-2021 11:06
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW01SW_120921
Collection Date: 09-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 15:15
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
1,1-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
1,1-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2-Dibromo-3-chloropropane	10	U	2.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	23-Dec-2021 15:15
1,2-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	23-Dec-2021 15:15
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
2-Butanone	10	U	5.0	10	20	ug/L	10	23-Dec-2021 15:15
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
2-Hexanone	20	U	10	20	20	ug/L	10	23-Dec-2021 15:15
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	23-Dec-2021 15:15
Acetone	20	U	4.0	20	20	ug/L	10	23-Dec-2021 15:15
Benzene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
Bromobenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
Bromochloromethane	**20**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 15:15
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
Bromoform	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
Bromomethane	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
Carbon disulfide	20	U	6.0	20	20	ug/L	10	23-Dec-2021 15:15
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	23-Dec-2021 15:15
Chlorobenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Chloroethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Chloroform	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW01SW_120921
Collection Date: 09-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
cis-1,2-Dichloroethene	**1,600**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 15:15
cis-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Ethylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	23-Dec-2021 15:15
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
m,p-Xylene	10	U	5.0	10	20	ug/L	10	23-Dec-2021 15:15
Methylene chloride	**21,000**		**100**	**250**	**500**	**ug/L**	250	23-Dec-2021 18:20
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	23-Dec-2021 15:15
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Naphthalene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
o-Xylene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Styrene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Tetrachloroethene	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Toluene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
trans-1,2-Dichloroethene	**5.7**	J	**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 15:15
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
Trichloroethene	**230**		**2.0**	**5.0**	**10**	**ug/L**	10	23-Dec-2021 15:15
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	23-Dec-2021 15:15
Vinyl chloride	5.0	U	2.0	5.0	10	ug/L	10	23-Dec-2021 15:15
Surr: 1,2-Dichloroethane-d4	*69.9*	*S*		**0**	*81-118*	*%REC*	*10*	*23-Dec-2021 15:15*
Surr: 1,2-Dichloroethane-d4	*81.3*			**0**	*81-118*	*%REC*	*250*	*23-Dec-2021 18:20*
Surr: 4-Bromofluorobenzene	*92.8*			**0**	*85-114*	*%REC*	*250*	*23-Dec-2021 18:20*
Surr: 4-Bromofluorobenzene	*90.0*			**0**	*85-114*	*%REC*	*10*	*23-Dec-2021 15:15*
Surr: Dibromofluoromethane	*86.7*			**0**	*80-119*	*%REC*	*250*	*23-Dec-2021 18:20*
Surr: Dibromofluoromethane	*83.0*			**0**	*80-119*	*%REC*	*10*	*23-Dec-2021 15:15*
Surr: Toluene-d8	*96.3*			**0**	*89-112*	*%REC*	*10*	*23-Dec-2021 15:15*
Surr: Toluene-d8	*99.8*			**0**	*89-112*	*%REC*	*250*	*23-Dec-2021 18:20*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.052**		**0.010**	**0.010**	**0.010**	**ug/L**	1	18-Dec-2021 19:13
Surr: 2-Fluorobiphenyl	*85.2*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:13*
Surr: 4-Terphenyl-d14	*90.8*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:13*
Surr: Nitrobenzene-d5	*68.9*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:13*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW01SW_120921
Collection Date: 09-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.0257**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:38
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	27-Dec-2021 14:38
Arsenic	**0.0108**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
Barium	**1.13**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:38
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:38
Calcium	**37.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:38
Chromium	**0.00254**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
Cobalt	**0.000996**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	27-Dec-2021 14:38
Iron	**54.2**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:38
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:38
Magnesium	**23.4**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:38
Manganese	**0.576**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
Nickel	**0.00192**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
Potassium	**8.39**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:38
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:38
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:38
Sodium	**109**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:38
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:38
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:38
Zinc	**0.00769**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:38
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	23-Dec-2021 11:08
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW3_120921
Collection Date: 09-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,1-Dichloroethane	**4.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Dec-2021 13:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Dec-2021 13:11
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Dec-2021 13:11
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Dec-2021 13:11
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Dec-2021 13:11
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Dec-2021 13:11
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Chloroform	**1.00**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Dec-2021 13:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW3_120921
Collection Date: 09-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
cis-1,2-Dichloroethene	**55**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Dec-2021 13:11
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Dec-2021 13:11
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Dec-2021 13:11
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Dec-2021 13:11
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Tetrachloroethene	**1.3**		**0.30**	**1.0**	**1.0**	**ug/L**	1	23-Dec-2021 13:11
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
trans-1,2-Dichloroethene	**2.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Dec-2021 13:11
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Dec-2021 13:11
Trichloroethene	**270**		**1.0**	**2.5**	**5.0**	**ug/L**	5	23-Dec-2021 15:44
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Dec-2021 13:11
Vinyl chloride	**23**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Dec-2021 13:11
Surr: 1,2-Dichloroethane-d4	*83.9*			**0**	*81-118*	*%REC*	*1*	*23-Dec-2021 13:11*
Surr: 1,2-Dichloroethane-d4	*81.5*			**0**	*81-118*	*%REC*	*5*	*23-Dec-2021 15:44*
Surr: 4-Bromofluorobenzene	*112*			**0**	*85-114*	*%REC*	*1*	*23-Dec-2021 13:11*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*5*	*23-Dec-2021 15:44*
Surr: Dibromofluoromethane	*99.0*			**0**	*80-119*	*%REC*	*1*	*23-Dec-2021 13:11*
Surr: Dibromofluoromethane	*86.4*			**0**	*80-119*	*%REC*	*5*	*23-Dec-2021 15:44*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*5*	*23-Dec-2021 15:44*
Surr: Toluene-d8	*113*	*S*		**0**	*89-112*	*%REC*	*1*	*23-Dec-2021 13:11*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW3_120921
Collection Date: 09-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.0118**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:10
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	27-Dec-2021 14:10
Arsenic	**0.000461**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Barium	**0.551**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:10
Cadmium	**0.000341**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:10
Calcium	**31.7**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:10
Chromium	**0.00305**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Cobalt	**0.00452**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Copper	**0.00138**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Iron	**0.808**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:10
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:10
Magnesium	**17.9**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:10
Manganese	**2.39**		**0.0140**	**0.0500**	**0.100**	**mg/L**	20	28-Dec-2021 16:05
Nickel	**0.00722**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Potassium	**1.72**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:10
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:10
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:10
Sodium	**277**		**0.280**	**1.00**	**4.00**	**mg/L**	20	28-Dec-2021 16:05
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:10
Vanadium	**0.000602**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
Zinc	**0.00696**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:10
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000540**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 10:46
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW10_120921
Collection Date: 09-Dec-2021 10:05

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 20:13
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 20:13
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 20:13
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 20:13
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 20:13
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW10_120921
Collection Date: 09-Dec-2021 10:05

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 20:13
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 20:13
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 20:13
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 20:13
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 20:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 20:13
Surr: 1,2-Dichloroethane-d4	*84.5*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 20:13*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 20:13*
Surr: Dibromofluoromethane	*98.5*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 20:13*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 20:13*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.078**		**0.010**	**0.010**	**0.010**	**ug/L**	1	18-Dec-2021 19:30
Surr: 2-Fluorobiphenyl	*93.2*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:30*
Surr: 4-Terphenyl-d14	*78.8*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:30*
Surr: Nitrobenzene-d5	*86.6*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:30*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW17_120921
Collection Date: 09-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.11**		**0.010**	**0.010**	**0.010**	**ug/L**	1	18-Dec-2021 19:48
Surr: 2-Fluorobiphenyl	*91.4*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:48*
Surr: 4-Terphenyl-d14	*69.6*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:48*
Surr: Nitrobenzene-d5	*92.7*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 19:48*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW14_120921
Collection Date: 09-Dec-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,3,5-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	23-Dec-2021 18:42
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
2-Hexanone	10	U	5.0	10	10	ug/L	5	23-Dec-2021 18:42
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
4-Isopropyltoluene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	23-Dec-2021 18:42
Acetone	10	U	2.0	10	10	ug/L	5	23-Dec-2021 18:42
Benzene	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Carbon disulfide	10	U	3.0	10	10	ug/L	5	23-Dec-2021 18:42
Carbon tetrachloride	5.0	U	2.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Chloroform	**9.0**		**1.0**	**2.5**	**5.0**	**ug/L**	5	23-Dec-2021 18:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW14_120921
Collection Date: 09-Dec-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
cis-1,2-Dichloroethene	**11**		**1.0**	**2.5**	**5.0**	**ug/L**	5	23-Dec-2021 18:42
cis-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	23-Dec-2021 18:42
Methylene chloride	**23**		**2.0**	**10**	**10**	**ug/L**	5	23-Dec-2021 18:42
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	23-Dec-2021 18:42
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Trichloroethene	**890**		**1.0**	**2.5**	**5.0**	**ug/L**	5	23-Dec-2021 18:42
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	23-Dec-2021 18:42
Vinyl chloride	2.5	U	1.0	2.5	5.0	ug/L	5	23-Dec-2021 18:42
Surr: 1,2-Dichloroethane-d4	*81.9*			**0**	*81-118*	*%REC*	*5*	*23-Dec-2021 18:42*
Surr: 4-Bromofluorobenzene	*95.8*			**0**	*85-114*	*%REC*	*5*	*23-Dec-2021 18:42*
Surr: Dibromofluoromethane	*90.5*			**0**	*80-119*	*%REC*	*5*	*23-Dec-2021 18:42*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*5*	*23-Dec-2021 18:42*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: GEY
1,4-Dioxane	**0.17**		**0.010**	**0.010**	**0.010**	**ug/L**	1	18-Dec-2021 20:06
Surr: 2-Fluorobiphenyl	*94.1*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 20:06*
Surr: 4-Terphenyl-d14	*103*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 20:06*
Surr: Nitrobenzene-d5	*107*			**0**	*40-140*	*%REC*	*1*	*18-Dec-2021 20:06*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW14_120921
Collection Date: 09-Dec-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**0.532**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	27-Dec-2021 14:40
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	27-Dec-2021 14:40
Arsenic	**0.00205**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
Barium	**3.95**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	28-Dec-2021 12:55
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:40
Cadmium	**0.000270**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:40
Calcium	**440**		**0.680**	**1.00**	**10.0**	**mg/L**	20	28-Dec-2021 12:55
Chromium	**0.0213**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
Cobalt	**0.00530**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	27-Dec-2021 14:40
Iron	**0.797**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:40
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	27-Dec-2021 14:40
Magnesium	**124**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:40
Manganese	**0.285**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
Nickel	**0.00476**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
Potassium	**10.5**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:40
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	27-Dec-2021 14:40
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:40
Sodium	**637**		**0.280**	**1.00**	**4.00**	**mg/L**	20	28-Dec-2021 12:55
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:40
Vanadium	**0.00242**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
Zinc	**0.00528**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:40
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000640**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:09
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: AWD1_120921
Collection Date: 09-Dec-2021 12:50

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Dec-2021		Analyst: JLJ
1,4-Dioxane	**3.5**		**0.10**	**0.10**	**0.10**	**ug/L**	10	03-Jan-2022 14:31
Surr: 2-Fluorobiphenyl	*108*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 14:31*
Surr: 4-Terphenyl-d14	*120*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 14:31*
Surr: Nitrobenzene-d5	*98.2*			**0**	*40-140*	*%REC*	*10*	*03-Jan-2022 14:31*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 22-Dec-2021		Analyst: JHD
Aluminum	**1.61**		**0.0360**	**0.100**	**0.200**	**mg/L**	20	28-Dec-2021 12:57
Antimony	**0.000856**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Arsenic	**0.0127**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Barium	**0.298**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Beryllium	**0.000305**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	27-Dec-2021 14:42
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:42
Calcium	**2.58**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	27-Dec-2021 14:42
Chromium	**0.0181**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Cobalt	**0.00786**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Copper	**0.00226**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Iron	**6.11**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:42
Lead	**0.00179**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Magnesium	**2.93**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:42
Manganese	**0.242**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Nickel	**0.0320**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Potassium	**2.98**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:42
Selenium	**0.00325**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	27-Dec-2021 14:42
Sodium	**105**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	27-Dec-2021 14:42
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	27-Dec-2021 14:42
Vanadium	**0.00600**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
Zinc	**0.0113**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	27-Dec-2021 14:42
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.000145**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:11
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 09-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 19:51
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Dec-2021 19:51
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Dec-2021 19:51
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Dec-2021 19:51
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Dec-2021 19:51
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 09-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120658
Lab ID:HS21120658-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Dec-2021 19:51
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Dec-2021 19:51
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Dec-2021 19:51
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Trichloroethene	**2.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Dec-2021 19:51
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Dec-2021 19:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Dec-2021 19:51
Surr: 1,2-Dichloroethane-d4	*83.2*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2021 19:51*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2021 19:51*
Surr: Dibromofluoromethane	*97.3*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2021 19:51*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2021 19:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

Batch ID: 173598 **Start Date:** 15 Dec 2021 11:30 **End Date:** 15 Dec 2021 15:00
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120658-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120658-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120658-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120658-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120658-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120658-07	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120658-08	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173861 **Start Date:** 23 Dec 2021 07:00 **End Date:** 23 Dec 2021 10:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120658-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-08		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 173884 **Start Date:** 22 Dec 2021 13:00 **End Date:** 22 Dec 2021 17:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120658-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120658-08		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173598 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21120658-01	MW-2_120921	09 Dec 2021 07:35		15 Dec 2021 13:50	03 Jan 2022 13:56	10
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35		15 Dec 2021 13:50	03 Jan 2022 14:13	10
HS21120658-03	18CPTMW01SW_120921	09 Dec 2021 08:20		15 Dec 2021 13:50	18 Dec 2021 19:13	1
HS21120658-05	18WW10_120921	09 Dec 2021 10:05		15 Dec 2021 13:50	18 Dec 2021 19:30	1
HS21120658-06	MW17_120921	09 Dec 2021 10:45		15 Dec 2021 13:50	18 Dec 2021 19:48	1
HS21120658-07	18CPTMW14_120921	09 Dec 2021 11:30		15 Dec 2021 13:50	18 Dec 2021 20:06	1
HS21120658-08	AWD1_120921	09 Dec 2021 12:50		15 Dec 2021 13:50	03 Jan 2022 14:31	10
Batch ID: 173861 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS21120658-01	MW-2_120921	09 Dec 2021 07:35		23 Dec 2021 10:00	23 Dec 2021 11:04	1
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35		23 Dec 2021 10:00	23 Dec 2021 11:06	1
HS21120658-03	18CPTMW01SW_120921	09 Dec 2021 08:20		23 Dec 2021 10:00	23 Dec 2021 11:08	1
HS21120658-04	MW3_120921	09 Dec 2021 09:10		23 Dec 2021 10:00	23 Dec 2021 10:46	1
HS21120658-07	18CPTMW14_120921	09 Dec 2021 11:30		23 Dec 2021 10:00	23 Dec 2021 11:09	1
HS21120658-08	AWD1_120921	09 Dec 2021 12:50		23 Dec 2021 10:00	23 Dec 2021 11:11	1
Batch ID: 173884 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21120658-01	MW-2_120921	09 Dec 2021 07:35		22 Dec 2021 17:00	28 Dec 2021 12:51	20
HS21120658-01	MW-2_120921	09 Dec 2021 07:35		22 Dec 2021 17:00	27 Dec 2021 14:34	1
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35		22 Dec 2021 17:00	28 Dec 2021 12:53	20
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35		22 Dec 2021 17:00	27 Dec 2021 14:36	1
HS21120658-03	18CPTMW01SW_120921	09 Dec 2021 08:20		22 Dec 2021 17:00	27 Dec 2021 14:38	1
HS21120658-04	MW3_120921	09 Dec 2021 09:10		22 Dec 2021 17:00	28 Dec 2021 16:05	20
HS21120658-04	MW3_120921	09 Dec 2021 09:10		22 Dec 2021 17:00	27 Dec 2021 14:10	1
HS21120658-07	18CPTMW14_120921	09 Dec 2021 11:30		22 Dec 2021 17:00	28 Dec 2021 12:55	20
HS21120658-07	18CPTMW14_120921	09 Dec 2021 11:30		22 Dec 2021 17:00	27 Dec 2021 14:40	1
HS21120658-08	AWD1_120921	09 Dec 2021 12:50		22 Dec 2021 17:00	28 Dec 2021 12:57	20
HS21120658-08	AWD1_120921	09 Dec 2021 12:50		22 Dec 2021 17:00	27 Dec 2021 14:42	1
Batch ID: R398221 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120658-01	MW-2_120921	09 Dec 2021 07:35			23 Dec 2021 13:58	100
HS21120658-01	MW-2_120921	09 Dec 2021 07:35			23 Dec 2021 13:35	10
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35			23 Dec 2021 17:57	100
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35			23 Dec 2021 14:20	10
HS21120658-03	18CPTMW01SW_120921	09 Dec 2021 08:20			23 Dec 2021 18:20	250
HS21120658-03	18CPTMW01SW_120921	09 Dec 2021 08:20			23 Dec 2021 15:15	10
HS21120658-04	MW3_120921	09 Dec 2021 09:10			23 Dec 2021 15:44	5
HS21120658-04	MW3_120921	09 Dec 2021 09:10			23 Dec 2021 13:11	1
HS21120658-07	18CPTMW14_120921	09 Dec 2021 11:30			23 Dec 2021 18:42	5

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R398284 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21120658-01	MW-2_120921	09 Dec 2021 07:35			23 Dec 2021 11:42	1
HS21120658-02	MW-2_120921_a	09 Dec 2021 07:35			23 Dec 2021 11:42	1
HS21120658-03	18CPTMW01SW_120921	09 Dec 2021 08:20			23 Dec 2021 11:42	1
HS21120658-04	MW3_120921	09 Dec 2021 09:10			23 Dec 2021 11:42	1
HS21120658-05	18WW10_120921	09 Dec 2021 10:05			23 Dec 2021 11:42	1
HS21120658-06	MW17_120921	09 Dec 2021 10:45			23 Dec 2021 11:42	1
HS21120658-07	18CPTMW14_120921	09 Dec 2021 11:30			23 Dec 2021 11:42	1
HS21120658-08	AWD1_120921	09 Dec 2021 12:50			23 Dec 2021 11:42	1
Batch ID: R398300 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120658-09	Trip Blank	09 Dec 2021 00:00			22 Dec 2021 19:51	1
Batch ID: R398300 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120658-05	18WW10_120921	09 Dec 2021 10:05			22 Dec 2021 20:13	1

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173861 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:42**
Client ID: Run ID: **HG03_398265** SeqNo: **6437934** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:44**
Client ID: Run ID: **HG03_398265** SeqNo: **6437935** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	0	106	82 - 119				

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 11:01**
Client ID: Run ID: **HG03_398265** SeqNo: **6437942** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119				

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 10:48**
Client ID: **MW3_120921** Run ID: **HG03_398265** SeqNo: **6437937** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00477	0.000200	0.005	0.00005400	94.3	82 - 119				

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 11:03**
Client ID: Run ID: **HG03_398265** SeqNo: **6437943** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119	0.004830	0	20	

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 10:49**
Client ID: **MW3_120921** Run ID: **HG03_398265** SeqNo: **6437938** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.000200	0.005	0.00005400	98.5	82 - 119	0.004770	4.31	20	

The following samples were analyzed in this batch: HS21120658-01 HS21120658-02 HS21120658-03 HS21120658-04 HS21120658-07 HS21120658-08

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-173884** Units: **mg/L** Analysis Date: **27-Dec-2021 14:06**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440945** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002567	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.0500	0.200								U
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

LCS Sample ID: **LCS-173884** Units: **mg/L** Analysis Date: **28-Dec-2021 12:47**
Client ID: Run ID: **ICPMS06_398464** SeqNo: **6442385** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1061	0.0100	0.1	0	106	84 - 117				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-173884** Units: **mg/L** Analysis Date: **27-Dec-2021 14:08**
Client ID: Run ID: **ICPMS06_398395** SeqNo: **6440946** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.04961	0.00500	0.05	0	99.2	85 - 117				
Arsenic	0.0525	0.00500	0.05	0	105	84 - 116				
Barium	0.05465	0.00500	0.05	0	109	86 - 114				
Beryllium	0.05308	0.00200	0.05	0	106	83 - 121				
Cadmium	0.05494	0.00200	0.05	0	110	87 - 115				
Calcium	5.213	0.500	5	0	104	87 - 118				
Chromium	0.0529	0.00500	0.05	0	106	85 - 116				
Cobalt	0.05162	0.00500	0.05	0	103	86 - 115				
Copper	0.05174	0.00500	0.05	0	103	85 - 118				
Iron	5.179	0.200	5	0	104	87 - 118				
Lead	0.0517	0.00500	0.05	0	103	88 - 115				
Magnesium	5.412	0.200	5	0	108	83 - 118				
Manganese	0.05175	0.00500	0.05	0	104	87 - 115				
Nickel	0.05258	0.00500	0.05	0	105	85 - 117				
Potassium	5.429	0.200	5	0	109	87 - 115				
Selenium	0.05509	0.00500	0.05	0	110	80 - 120				
Silver	0.05314	0.00500	0.05	0	106	85 - 116				
Sodium	5.25	0.200	5	0	105	85 - 117				
Thallium	0.05539	0.00200	0.05	0	111	82 - 116				
Vanadium	0.0527	0.00500	0.05	0	105	86 - 115				
Zinc	0.05408	0.00500	0.05	0	108	83 - 119				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument:** ICPMS06 **Method:** METALS BY ICPMS BY SW6020A

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **27-Dec-2021 14:14**
Client ID: **MW3_120921** Run ID: **ICPMS06_398395** SeqNo: **6440949** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1183	0.0100	0.1	0.01179	106	84 - 117				
Antimony	0.04941	0.00500	0.05	0.000166	98.5	85 - 117				
Arsenic	0.05273	0.00500	0.05	0.000461	105	84 - 116				
Barium	0.5943	0.00500	0.05	0.5511	86.4	86 - 114				O
Beryllium	0.05423	0.00200	0.05	0.000025	108	83 - 121				
Cadmium	0.05416	0.00200	0.05	0.000341	108	87 - 115				
Calcium	35.53	0.500	5	31.73	75.9	87 - 118				SO
Chromium	0.05738	0.00500	0.05	0.003046	109	85 - 116				
Cobalt	0.05464	0.00500	0.05	0.004515	100	86 - 115				
Copper	0.05172	0.00500	0.05	0.001385	101	85 - 118				
Iron	5.76	0.200	5	0.8081	99.0	87 - 118				
Lead	0.05161	0.00500	0.05	0.000075	103	88 - 115				
Magnesium	22.3	0.200	5	17.89	88.4	83 - 118				
Manganese	2.264	0.00500	0.05	2.308	-87.7	87 - 115				SEO
Nickel	0.05729	0.00500	0.05	0.007222	100	85 - 117				
Potassium	6.819	0.200	5	1.717	102	87 - 115				
Selenium	0.05307	0.00500	0.05	0.000657	105	80 - 120				
Silver	0.04958	0.00500	0.05	0.000001	99.2	85 - 116				
Sodium	265.1	0.200	5	268.7	-72.6	85 - 117				SEO
Thallium	0.05383	0.00200	0.05	0.000065	108	82 - 116				
Vanadium	0.05272	0.00500	0.05	0.000602	104	86 - 115				
Zinc	0.0604	0.00500	0.05	0.006957	107	83 - 119				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **27-Dec-2021 14:16**
Client ID: **MW3_120921** Run ID: **ICPMS06_398395** SeqNo: **6440950** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1161	0.0100	0.1	0.01179	104	84 - 117	0.1183	1.89	20	
Antimony	0.04958	0.00500	0.05	0.000166	98.8	85 - 117	0.04941	0.345	20	
Arsenic	0.0532	0.00500	0.05	0.000461	105	84 - 116	0.05273	0.891	20	
Barium	0.5843	0.00500	0.05	0.5511	66.3	86 - 114	0.5943	1.7	20	SO
Beryllium	0.05364	0.00200	0.05	0.000025	107	83 - 121	0.05423	1.09	20	
Cadmium	0.05339	0.00200	0.05	0.000341	106	87 - 115	0.05416	1.43	20	
Calcium	35.29	0.500	5	31.73	71.2	87 - 118	35.53	0.671	20	SO
Chromium	0.05448	0.00500	0.05	0.003046	103	85 - 116	0.05738	5.17	20	
Cobalt	0.05339	0.00500	0.05	0.004515	97.8	86 - 115	0.05464	2.31	20	
Copper	0.05058	0.00500	0.05	0.001385	98.4	85 - 118	0.05172	2.24	20	
Iron	5.807	0.200	5	0.8081	100.0	87 - 118	5.76	0.812	20	
Lead	0.05148	0.00500	0.05	0.000075	103	88 - 115	0.05161	0.248	20	
Magnesium	22.05	0.200	5	17.89	83.2	83 - 118	22.3	1.17	20	
Manganese	2.236	0.00500	0.05	2.308	-145	87 - 115	2.264	1.26	20	SEO
Nickel	0.05645	0.00500	0.05	0.007222	98.5	85 - 117	0.05729	1.47	20	
Potassium	6.77	0.200	5	1.717	101	87 - 115	6.819	0.722	20	
Selenium	0.05222	0.00500	0.05	0.000657	103	80 - 120	0.05307	1.61	20	
Silver	0.05036	0.00500	0.05	0.000001	101	85 - 116	0.04958	1.56	20	
Sodium	259.2	0.200	5	268.7	-191	85 - 117	265.1	2.26	20	SEO
Thallium	0.05475	0.00200	0.05	0.000065	109	82 - 116	0.05383	1.7	20	
Vanadium	0.05262	0.00500	0.05	0.000602	104	86 - 115	0.05272	0.203	20	
Zinc	0.05876	0.00500	0.05	0.006957	104	83 - 119	0.0604	2.75	20	

PDS Sample ID: **HS21120658-04PDS** Units: **mg/L** Analysis Date: **27-Dec-2021 14:18**
Client ID: **MW3_120921** Run ID: **ICPMS06_398395** SeqNo: **6440951** PrepDate: **22-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.6632	0.00500	0.1	0.5511	112	80 - 120				O
Calcium	42.46	0.500	10	31.73	107	80 - 120				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21120658-04PDS** Units: **mg/L** Analysis Date: **28-Dec-2021 12:39**
Client ID: **MW3_120921** Run ID: **ICPMS06_398464** SeqNo: **6442381** PrepDate: **22-Dec-2021** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.677	0.100	2	2.394	114	80 - 120				
Sodium	492.8	4.00	200	277.2	108	80 - 120				

SD Sample ID: **HS21120658-04SD** Units: **mg/L** Analysis Date: **27-Dec-2021 14:12**
Client ID: **MW3_120921** Run ID: **ICPMS06_398395** SeqNo: **6440948** PrepDate: **22-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.01849	0.0500					0.01179	0	10	J
Antimony	0.00500	0.0250					0.000166	0	10	U
Arsenic	0.00500	0.0250					0.000461	0	10	U
Barium	0.5511	0.0250					0.5511	0.00109	10	
Beryllium	0.00250	0.0100					0.000025	0	10	U
Cadmium	0.00250	0.0100					0.000341	0	10	U
Calcium	30.27	2.50					31.73	4.6	10	
Chromium	0.003208	0.0250					0.003046	0	10	J
Cobalt	0.004493	0.0250					0.004515	0	10	J
Copper	0.0125	0.0250					0.001385	0	10	U
Iron	0.8436	1.00					0.8081	0	10	J
Lead	0.00500	0.0250					0.000075	0	10	U
Magnesium	17.8	1.00					17.89	0.51	10	
Nickel	0.007263	0.0250					0.007222	0	10	J
Potassium	1.578	1.00					1.717	8.09	10	
Selenium	0.0125	0.0250					0.000657	0	10	U
Silver	0.00250	0.0250					0.000001	0	10	U
Thallium	0.00250	0.0100					0.000065	0	10	U
Vanadium	0.00500	0.0250					0.000602	0	10	U
Zinc	0.0125	0.0250					0.006957	0	10	U

SD Sample ID: **HS21120658-04SD** Units: **mg/L** Analysis Date: **28-Dec-2021 12:37**
Client ID: **MW3_120921** Run ID: **ICPMS06_398464** SeqNo: **6442380** PrepDate: **22-Dec-2021** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	2.453	0.500					2.394	2.45	10	
Sodium	273.9	20.0					277.2	1.19	10	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173884 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

The following samples were analyzed in this batch:

HS21120658-01	HS21120658-02	HS21120658-03	HS21120658-04
HS21120658-07	HS21120658-08		

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: 173598 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173598** Units: **ug/L** Analysis Date: **18-Dec-2021 11:46**
Client ID: Run ID: **SV-6_398027** SeqNo: **6449389** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.0627*	*0*	*0.08*	*0*	*78.4*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.08809*	*0*	*0.08*	*0*	*110*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06117*	*0*	*0.08*	*0*	*76.5*	*40 - 140*				

LCS Sample ID: **LCS-173598** Units: **ug/L** Analysis Date: **03-Jan-2022 12:44**
Client ID: Run ID: **SV-6_398759** SeqNo: **6449402** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.1084	0.010	0.08	0	135	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07533*	*0*	*0.08*	*0*	*94.2*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.06273*	*0*	*0.08*	*0*	*78.4*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07281*	*0*	*0.08*	*0*	*91.0*	*40 - 140*				

LCSD Sample ID: **LCSD-173598** Units: **ug/L** Analysis Date: **03-Jan-2022 13:02**
Client ID: Run ID: **SV-6_398759** SeqNo: **6449403** PrepDate: **15-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.1113	0.010	0.08	0	139	40 - 140	0.1084	2.67	20	
Surr: 2-Fluorobiphenyl	*0.06872*	*0*	*0.08*	*0*	*85.9*	*40 - 140*	*0.07533*	*9.17*	*20*	
Surr: 4-Terphenyl-d14	*0.08019*	*0*	*0.08*	*0*	*100*	*40 - 140*	*0.06273*	*24.4*	*20*	R
Surr: Nitrobenzene-d5	*0.07701*	*0*	*0.08*	*0*	*96.3*	*40 - 140*	*0.07281*	*5.61*	*20*	

The following samples were analyzed in this batch: HS21120658-01 HS21120658-02 HS21120658-03 HS21120658-05 HS21120658-06 HS21120658-07 HS21120658-08

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211223** Units: **ug/L** Analysis Date: **23-Dec-2021 12:40**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439881** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211223** Units: **ug/L** Analysis Date: **23-Dec-2021 12:40**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439881** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*41.87*	*1.0*	*50*	*0*	*83.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.1*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*49.44*	*1.0*	*50*	*0*	*98.9*	*80 - 119*				
Surr: Toluene-d8	*55.91*	*1.0*	*50*	*0*	*112*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211223** Units: **ug/L** Analysis Date: **23-Dec-2021 11:56**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439880** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.08	1.0	20	0	105	78 - 124				
1,1,1-Trichloroethane	17.56	1.0	20	0	87.8	74 - 131				
1,1,2,2-Tetrachloroethane	19.23	1.0	20	0	96.1	71 - 121				
1,1,2-Trichloroethane	22.05	1.0	20	0	110	80 - 119				
1,1-Dichloroethane	22.18	1.0	20	0	111	77 - 125				
1,1-Dichloroethene	22.62	1.0	20	0	113	71 - 131				
1,1-Dichloropropene	19.14	1.0	20	0	95.7	78 - 125				
1,2,3-Trichlorobenzene	20.18	1.0	20	0	101	69 - 129				
1,2,3-Trichloropropane	19.08	1.0	20	0	95.4	73 - 122				
1,2,4-Trichlorobenzene	20.29	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	18.73	1.0	20	0	93.6	76 - 124				
1,2-Dibromo-3-chloropropane	17.34	1.0	20	0	86.7	62 - 128				
1,2-Dibromoethane	22.23	1.0	20	0	111	77 - 121				
1,2-Dichlorobenzene	21.3	1.0	20	0	107	80 - 119				
1,2-Dichloroethane	18.36	1.0	20	0	91.8	73 - 128				
1,2-Dichloropropane	20.24	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	18.04	1.0	20	0	90.2	75 - 124				
1,3-Dichlorobenzene	20.67	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	20.67	1.0	20	0	103	80 - 119				
1,4-Dichlorobenzene	21.15	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	17.95	1.0	20	0	89.8	60 - 139				
2-Butanone	28.67	2.0	40	0	71.7	56 - 143				
2-Chlorotoluene	18.7	1.0	20	0	93.5	79 - 122				
2-Hexanone	34.87	2.0	40	0	87.2	57 - 139				
4-Chlorotoluene	19	1.0	20	0	95.0	78 - 122				
4-Isopropyltoluene	18.13	1.0	20	0	90.6	77 - 127				
4-Methyl-2-pentanone	32.72	2.0	40	0	81.8	67 - 130				
Acetone	36.62	2.0	40	0	91.5	39 - 160				
Benzene	21.26	1.0	20	0	106	79 - 120				
Bromobenzene	22.58	1.0	20	0	113	80 - 120				
Bromochloromethane	22.39	1.0	20	0	112	78 - 123				
Bromodichloromethane	18.91	1.0	20	0	94.5	79 - 125				
Bromoform	18.64	1.0	20	0	93.2	66 - 130				
Bromomethane	31.56	1.0	20	0	158	53 - 141				S

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211223** Units: **ug/L** Analysis Date: **23-Dec-2021 11:56**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439880** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	45.84	2.0	40	0	115	64 - 133				
Carbon tetrachloride	17.98	1.0	20	0	89.9	72 - 136				
Chlorobenzene	21.67	1.0	20	0	108	82 - 118				
Chloroethane	21.7	1.0	20	0	109	60 - 138				
Chloroform	18.71	1.0	20	0	93.6	79 - 124				
Chloromethane	23.45	1.0	20	0	117	50 - 139				
cis-1,2-Dichloroethene	19.78	1.0	20	0	98.9	78 - 123				
cis-1,3-Dichloropropene	18.51	1.0	20	0	92.6	75 - 124				
Dibromochloromethane	19.29	1.0	20	0	96.5	74 - 126				
Dibromomethane	20.7	1.0	20	0	103	79 - 123				
Dichlorodifluoromethane	17.01	1.0	20	0	85.0	32 - 152				
Ethylbenzene	20.64	1.0	20	0	103	79 - 121				
Hexachlorobutadiene	23.1	1.0	20	0	115	66 - 134				
Isopropylbenzene	19.3	1.0	20	0	96.5	72 - 131				
m,p-Xylene	42.39	2.0	40	0	106	80 - 121				
Methylene chloride	22.15	2.0	20	0	111	74 - 124				
Naphthalene	17.8	1.0	20	0	89.0	61 - 128				
n-Butylbenzene	16.83	1.0	20	0	84.2	75 - 128				
n-Propylbenzene	17.46	1.0	20	0	87.3	76 - 126				
o-Xylene	21.07	1.0	20	0	105	78 - 122				
sec-Butylbenzene	17.11	1.0	20	0	85.6	77 - 126				
Styrene	22.07	1.0	20	0	110	78 - 123				
tert-Butylbenzene	17.65	1.0	20	0	88.2	78 - 124				
Tetrachloroethene	21.69	1.0	20	0	108	74 - 129				
Toluene	20.72	1.0	20	0	104	80 - 121				
trans-1,2-Dichloroethene	22.94	1.0	20	0	115	75 - 124				
trans-1,3-Dichloropropene	17.65	1.0	20	0	88.3	73 - 127				
Trichloroethene	23.06	1.0	20	0	115	79 - 123				
Trichlorofluoromethane	20.69	1.0	20	0	103	65 - 141				
Vinyl chloride	22.47	1.0	20	0	112	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.09*	*1.0*	*50*	*0*	*90.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*56*	*1.0*	*50*	*0*	*112*	*85 - 114*				
Surr: Dibromofluoromethane	*53.55*	*1.0*	*50*	*0*	*107*	*80 - 119*				
Surr: Toluene-d8	*56*	*1.0*	*50*	*0*	*112*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21121307-01MS** Units: **ug/L** Analysis Date: **23-Dec-2021 17:13**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439891** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	12.8	1.0	20	0	64.0	78 - 124				S
1,1,1-Trichloroethane	10.09	1.0	20	0	50.5	74 - 131				S
1,1,2,2-Tetrachloroethane	10.68	1.0	20	0	53.4	71 - 121				S
1,1,2-Trichloroethane	11.97	1.0	20	0	59.9	80 - 119				S
1,1-Dichloroethane	12.07	1.0	20	0	60.4	77 - 125				S
1,1-Dichloroethene	13.19	1.0	20	0	66.0	71 - 131				S
1,1-Dichloropropene	11.56	1.0	20	0	57.8	78 - 125				S
1,2,3-Trichlorobenzene	12.69	1.0	20	0	63.4	69 - 129				S
1,2,3-Trichloropropane	10.03	1.0	20	0	50.2	73 - 122				S
1,2,4-Trichlorobenzene	12.53	1.0	20	0	62.7	69 - 130				S
1,2,4-Trimethylbenzene	11.31	1.0	20	0	56.5	76 - 124				S
1,2-Dibromo-3-chloropropane	10.22	1.0	20	0	51.1	62 - 128				S
1,2-Dibromoethane	13.04	1.0	20	0	65.2	77 - 121				S
1,2-Dichlorobenzene	12.89	1.0	20	0	64.4	80 - 119				S
1,2-Dichloroethane	9.935	1.0	20	0	49.7	73 - 128				S
1,2-Dichloropropane	11.55	1.0	20	0	57.8	78 - 122				S
1,3,5-Trimethylbenzene	11.37	1.0	20	0	56.9	75 - 124				S
1,3-Dichlorobenzene	12.7	1.0	20	0	63.5	80 - 119				S
1,3-Dichloropropane	11.79	1.0	20	0	59.0	80 - 119				S
1,4-Dichlorobenzene	12.95	1.0	20	0	64.8	79 - 118				S
2,2-Dichloropropane	9.768	1.0	20	0	48.8	60 - 139				S
2-Butanone	13.98	2.0	40	0	35.0	56 - 143				S
2-Chlorotoluene	11.06	1.0	20	0	55.3	79 - 122				S
2-Hexanone	18.29	2.0	40	0	45.7	57 - 139				S
4-Chlorotoluene	11.07	1.0	20	0	55.3	78 - 122				S
4-Isopropyltoluene	11.79	1.0	20	0	59.0	77 - 127				S
4-Methyl-2-pentanone	16.81	2.0	40	0	42.0	67 - 130				S
Acetone	13.66	2.0	40	0	34.1	39 - 160				S
Benzene	12.2	1.0	20	0	61.0	79 - 120				S
Bromobenzene	13.91	1.0	20	0	69.5	80 - 120				S
Bromochloromethane	12.2	1.0	20	0	61.0	78 - 123				S
Bromodichloromethane	10.59	1.0	20	0	52.9	79 - 125				S
Bromoform	11.22	1.0	20	0	56.1	66 - 130				S
Bromomethane	16.25	1.0	20	0	81.2	53 - 141				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21121307-01MS** Units: **ug/L** Analysis Date: **23-Dec-2021 17:13**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439891** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	24.95	2.0	40	0	62.4	64 - 133				S
Carbon tetrachloride	12.11	1.0	20	0	60.5	72 - 136				S
Chlorobenzene	13.11	1.0	20	0	65.5	82 - 118				S
Chloroethane	13.09	1.0	20	0	65.5	60 - 138				
Chloroform	10.13	1.0	20	0	50.7	79 - 124				S
Chloromethane	10.82	1.0	20	0	54.1	50 - 139				
cis-1,2-Dichloroethene	11.08	1.0	20	0	55.4	78 - 123				S
cis-1,3-Dichloropropene	10.52	1.0	20	0	52.6	75 - 124				S
Dibromochloromethane	11.45	1.0	20	0	57.2	74 - 126				S
Dibromomethane	11.66	1.0	20	0	58.3	79 - 123				S
Dichlorodifluoromethane	6.269	1.0	20	0	31.3	32 - 152				S
Ethylbenzene	13.19	1.0	20	0	66.0	79 - 121				S
Hexachlorobutadiene	14.99	1.0	20	0	75.0	66 - 134				
Isopropylbenzene	12.8	1.0	20	0	64.0	72 - 131				S
m,p-Xylene	26.93	2.0	40	0	67.3	80 - 121				S
Methylene chloride	12.54	2.0	20	0	62.7	74 - 124				S
Naphthalene	10.23	1.0	20	0	51.2	61 - 128				S
n-Butylbenzene	10.39	1.0	20	0	52.0	75 - 128				S
n-Propylbenzene	11.24	1.0	20	0	56.2	76 - 126				S
o-Xylene	13.13	1.0	20	0	65.7	78 - 122				S
sec-Butylbenzene	11.51	1.0	20	0	57.6	77 - 126				S
Styrene	13.17	1.0	20	0	65.9	78 - 123				S
tert-Butylbenzene	11.85	1.0	20	0	59.2	78 - 124				S
Tetrachloroethene	14.66	1.0	20	0	73.3	74 - 129				S
Toluene	12.55	1.0	20	0	62.7	80 - 121				S
trans-1,2-Dichloroethene	13.52	1.0	20	0	67.6	75 - 124				S
trans-1,3-Dichloropropene	9.997	1.0	20	0	50.0	73 - 127				S
Trichloroethene	14.33	1.0	20	0	71.7	79 - 123				S
Trichlorofluoromethane	11.6	1.0	20	0	58.0	65 - 141				S
Vinyl chloride	11.74	1.0	20	0	58.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*36.65*	*1.0*	*50*	*0*	*73.3*	*81 - 118*				S
Surr: 4-Bromofluorobenzene	*50.4*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*44.51*	*1.0*	*50*	*0*	*89.0*	*80 - 119*				
Surr: Toluene-d8	*51.36*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120658-04MS** Units: **ug/L** Analysis Date: **23-Dec-2021 16:29**
Client ID: **MW3_120921** Run ID: **VOA9_398221** SeqNo: **6439889** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	15.15	1.0	20	0	75.8	78 - 124				S
1,1,1-Trichloroethane	12.12	1.0	20	0	60.6	74 - 131				S
1,1,2,2-Tetrachloroethane	12.4	1.0	20	0	62.0	71 - 121				S
1,1,2-Trichloroethane	14.17	1.0	20	0	70.8	80 - 119				S
1,1-Dichloroethane	15.05	1.0	20	4.029	55.1	77 - 125				S
1,1-Dichloroethene	20.52	1.0	20	0	103	71 - 131				
1,1-Dichloropropene	14.51	1.0	20	0	72.5	78 - 125				S
1,2,3-Trichlorobenzene	14.87	1.0	20	0	74.3	69 - 129				
1,2,3-Trichloropropane	11.61	1.0	20	0	58.0	73 - 122				S
1,2,4-Trichlorobenzene	15.28	1.0	20	0	76.4	69 - 130				
1,2,4-Trimethylbenzene	13.62	1.0	20	0	68.1	76 - 124				S
1,2-Dibromo-3-chloropropane	11.64	1.0	20	0	58.2	62 - 128				S
1,2-Dibromoethane	15.19	1.0	20	0	75.9	77 - 121				S
1,2-Dichlorobenzene	15.55	1.0	20	0	77.7	80 - 119				S
1,2-Dichloroethane	11.66	1.0	20	0	58.3	73 - 128				S
1,2-Dichloropropane	13.64	1.0	20	0	68.2	78 - 122				S
1,3,5-Trimethylbenzene	13.99	1.0	20	0	69.9	75 - 124				S
1,3-Dichlorobenzene	15.75	1.0	20	0	78.7	80 - 119				S
1,3-Dichloropropane	13.76	1.0	20	0	68.8	80 - 119				S
1,4-Dichlorobenzene	15.58	1.0	20	0	77.9	79 - 118				S
2,2-Dichloropropane	11.59	1.0	20	0	58.0	60 - 139				S
2-Butanone	16.04	2.0	40	0	40.1	56 - 143				S
2-Chlorotoluene	13.67	1.0	20	0	68.3	79 - 122				S
2-Hexanone	20.52	2.0	40	0	51.3	57 - 139				S
4-Chlorotoluene	13.79	1.0	20	0	69.0	78 - 122				S
4-Isopropyltoluene	15.15	1.0	20	0	75.8	77 - 127				S
4-Methyl-2-pentanone	19.55	2.0	40	0	48.9	67 - 130				S
Acetone	16.87	2.0	40	0	42.2	39 - 160				
Benzene	14.62	1.0	20	0	73.1	79 - 120				S
Bromobenzene	16.3	1.0	20	0	81.5	80 - 120				
Bromochloromethane	13.98	1.0	20	0	69.9	78 - 123				S
Bromodichloromethane	12.58	1.0	20	0	62.9	79 - 125				S
Bromoform	13	1.0	20	0	65.0	66 - 130				S
Bromomethane	19.33	1.0	20	0	96.7	53 - 141				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120658-04MS** Units: **ug/L** Analysis Date: **23-Dec-2021 16:29**
Client ID: **MW3_120921** Run ID: **VOA9_398221** SeqNo: **6439889** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	30.05	2.0	40	0	75.1	64 - 133				
Carbon tetrachloride	14.65	1.0	20	0	73.2	72 - 136				
Chlorobenzene	15.61	1.0	20	0	78.1	82 - 118				S
Chloroethane	14.08	1.0	20	0	70.4	60 - 138				
Chloroform	12	1.0	20	0.999	55.0	79 - 124				S
Chloromethane	13.37	1.0	20	0	66.9	50 - 139				
cis-1,2-Dichloroethene	20.57	1.0	20	54.56	-170	78 - 123				S
cis-1,3-Dichloropropene	12.12	1.0	20	0	60.6	75 - 124				S
Dibromochloromethane	13.51	1.0	20	0	67.6	74 - 126				S
Dibromomethane	13.68	1.0	20	0	68.4	79 - 123				S
Dichlorodifluoromethane	8.534	1.0	20	0	42.7	32 - 152				
Ethylbenzene	15.88	1.0	20	0	79.4	79 - 121				
Hexachlorobutadiene	20.32	1.0	20	0	102	66 - 134				
Isopropylbenzene	15.88	1.0	20	0	79.4	72 - 131				
m,p-Xylene	32.28	2.0	40	0	80.7	80 - 121				
Methylene chloride	16.21	2.0	20	0	81.0	74 - 124				
Naphthalene	11.72	1.0	20	0	58.6	61 - 128				S
n-Butylbenzene	13.96	1.0	20	0	69.8	75 - 128				S
n-Propylbenzene	14.3	1.0	20	0	71.5	76 - 126				S
o-Xylene	15.53	1.0	20	0	77.7	78 - 122				S
sec-Butylbenzene	15.08	1.0	20	0	75.4	77 - 126				S
Styrene	15.68	1.0	20	0	78.4	78 - 123				
tert-Butylbenzene	15.2	1.0	20	0	76.0	78 - 124				S
Tetrachloroethene	19.43	1.0	20	1.323	90.5	74 - 129				
Toluene	15.08	1.0	20	0	75.4	80 - 121				S
trans-1,2-Dichloroethene	16.68	1.0	20	2.581	70.5	75 - 124				S
trans-1,3-Dichloropropene	11.44	1.0	20	0	57.2	73 - 127				S
Trichloroethene	70.85	1.0	20	367.7	-1480	79 - 123				SO
Trichlorofluoromethane	15.24	1.0	20	0	76.2	65 - 141				
Vinyl chloride	17.46	1.0	20	23.18	-28.6	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*34.05*	*1.0*	*50*	*0*	*68.1*	*81 - 118*				S
Surr: 4-Bromofluorobenzene	*48.04*	*1.0*	*50*	*0*	*96.1*	*85 - 114*				
Surr: Dibromofluoromethane	*42.48*	*1.0*	*50*	*0*	*85.0*	*80 - 119*				
Surr: Toluene-d8	*49.06*	*1.0*	*50*	*0*	*98.1*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121307-01MSD** Units: **ug/L** Analysis Date: **23-Dec-2021 17:35**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439892** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	12.84	1.0	20	0	64.2	78 - 124	12.8	0.341	20	S
1,1,1-Trichloroethane	10.16	1.0	20	0	50.8	74 - 131	10.09	0.708	20	S
1,1,2,2-Tetrachloroethane	11	1.0	20	0	55.0	71 - 121	10.68	2.9	20	S
1,1,2-Trichloroethane	12.28	1.0	20	0	61.4	80 - 119	11.97	2.5	20	S
1,1-Dichloroethane	12.19	1.0	20	0	60.9	77 - 125	12.07	0.972	20	S
1,1-Dichloroethene	13.53	1.0	20	0	67.6	71 - 131	13.19	2.5	20	S
1,1-Dichloropropene	11.65	1.0	20	0	58.3	78 - 125	11.56	0.763	20	S
1,2,3-Trichlorobenzene	12.7	1.0	20	0	63.5	69 - 129	12.69	0.0865	20	S
1,2,3-Trichloropropane	10.27	1.0	20	0	51.4	73 - 122	10.03	2.39	20	S
1,2,4-Trichlorobenzene	12.29	1.0	20	0	61.4	69 - 130	12.53	1.99	20	S
1,2,4-Trimethylbenzene	11.53	1.0	20	0	57.7	76 - 124	11.31	1.97	20	S
1,2-Dibromo-3-chloropropane	10.74	1.0	20	0	53.7	62 - 128	10.22	4.95	20	S
1,2-Dibromoethane	12.8	1.0	20	0	64.0	77 - 121	13.04	1.85	20	S
1,2-Dichlorobenzene	13.33	1.0	20	0	66.7	80 - 119	12.89	3.41	20	S
1,2-Dichloroethane	10.24	1.0	20	0	51.2	73 - 128	9.935	3.04	20	S
1,2-Dichloropropane	11.57	1.0	20	0	57.9	78 - 122	11.55	0.162	20	S
1,3,5-Trimethylbenzene	11.42	1.0	20	0	57.1	75 - 124	11.37	0.443	20	S
1,3-Dichlorobenzene	12.84	1.0	20	0	64.2	80 - 119	12.7	1.02	20	S
1,3-Dichloropropane	11.82	1.0	20	0	59.1	80 - 119	11.79	0.284	20	S
1,4-Dichlorobenzene	13.06	1.0	20	0	65.3	79 - 118	12.95	0.828	20	S
2,2-Dichloropropane	9.671	1.0	20	0	48.4	60 - 139	9.768	1	20	S
2-Butanone	13.57	2.0	40	0	33.9	56 - 143	13.98	2.98	20	S
2-Chlorotoluene	11.26	1.0	20	0	56.3	79 - 122	11.06	1.76	20	S
2-Hexanone	18.34	2.0	40	0	45.8	57 - 139	18.29	0.287	20	S
4-Chlorotoluene	11.38	1.0	20	0	56.9	78 - 122	11.07	2.79	20	S
4-Isopropyltoluene	11.43	1.0	20	0	57.1	77 - 127	11.79	3.13	20	S
4-Methyl-2-pentanone	17.45	2.0	40	0	43.6	67 - 130	16.81	3.7	20	S
Acetone	15.41	2.0	40	0	38.5	39 - 160	13.66	12.1	20	S
Benzene	12.16	1.0	20	0	60.8	79 - 120	12.2	0.387	20	S
Bromobenzene	14.07	1.0	20	0	70.3	80 - 120	13.91	1.13	20	S
Bromochloromethane	12.46	1.0	20	0	62.3	78 - 123	12.2	2.09	20	S
Bromodichloromethane	10.63	1.0	20	0	53.1	79 - 125	10.59	0.4	20	S
Bromoform	11.15	1.0	20	0	55.7	66 - 130	11.22	0.669	20	S
Bromomethane	15.84	1.0	20	0	79.2	53 - 141	16.25	2.52	20	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121307-01MSD** Units: **ug/L** Analysis Date: **23-Dec-2021 17:35**
Client ID: Run ID: **VOA9_398221** SeqNo: **6439892** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	25.06	2.0	40	0	62.6	64 - 133	24.95	0.422	20	S
Carbon tetrachloride	12.01	1.0	20	0	60.0	72 - 136	12.11	0.838	20	S
Chlorobenzene	13.11	1.0	20	0	65.5	82 - 118	13.11	0.00332	20	S
Chloroethane	11.97	1.0	20	0	59.8	60 - 138	13.09	9.01	20	S
Chloroform	10.17	1.0	20	0	50.9	79 - 124	10.13	0.385	20	S
Chloromethane	10.64	1.0	20	0	53.2	50 - 139	10.82	1.62	20	
cis-1,2-Dichloroethene	11.16	1.0	20	0	55.8	78 - 123	11.08	0.764	20	S
cis-1,3-Dichloropropene	10.65	1.0	20	0	53.3	75 - 124	10.52	1.28	20	S
Dibromochloromethane	11.74	1.0	20	0	58.7	74 - 126	11.45	2.53	20	S
Dibromomethane	11.78	1.0	20	0	58.9	79 - 123	11.66	0.988	20	S
Dichlorodifluoromethane	6.271	1.0	20	0	31.4	32 - 152	6.269	0.0347	20	S
Ethylbenzene	12.82	1.0	20	0	64.1	79 - 121	13.19	2.9	20	S
Hexachlorobutadiene	12.75	1.0	20	0	63.8	66 - 134	14.99	16.1	20	S
Isopropylbenzene	12.85	1.0	20	0	64.2	72 - 131	12.8	0.357	20	S
m,p-Xylene	26.73	2.0	40	0	66.8	80 - 121	26.93	0.761	20	S
Methylene chloride	12.37	2.0	20	0	61.9	74 - 124	12.54	1.32	20	S
Naphthalene	10.57	1.0	20	0	52.9	61 - 128	10.23	3.27	20	S
n-Butylbenzene	9.831	1.0	20	0	49.2	75 - 128	10.39	5.56	20	S
n-Propylbenzene	11.09	1.0	20	0	55.4	76 - 126	11.24	1.41	20	S
o-Xylene	13.04	1.0	20	0	65.2	78 - 122	13.13	0.687	20	S
sec-Butylbenzene	11.08	1.0	20	0	55.4	77 - 126	11.51	3.8	20	S
Styrene	13.15	1.0	20	0	65.7	78 - 123	13.17	0.171	20	S
tert-Butylbenzene	11.89	1.0	20	0	59.4	78 - 124	11.85	0.326	20	S
Tetrachloroethene	15.19	1.0	20	0	76.0	74 - 129	14.66	3.57	20	
Toluene	12.65	1.0	20	0	63.3	80 - 121	12.55	0.832	20	S
trans-1,2-Dichloroethene	13.6	1.0	20	0	68.0	75 - 124	13.52	0.619	20	S
trans-1,3-Dichloropropene	10.08	1.0	20	0	50.4	73 - 127	9.997	0.871	20	S
Trichloroethene	14.18	1.0	20	0	70.9	79 - 123	14.33	1.09	20	S
Trichlorofluoromethane	11.9	1.0	20	0	59.5	65 - 141	11.6	2.53	20	S
Vinyl chloride	11.61	1.0	20	0	58.0	58 - 137	11.74	1.19	20	
Surr: 1,2-Dichloroethane-d4	*37.26*	*1.0*	*50*	*0*	*74.5*	*81 - 118*	*36.65*	*1.66*	*20*	S
Surr: 4-Bromofluorobenzene	*49.72*	*1.0*	*50*	*0*	*99.4*	*85 - 114*	*50.4*	*1.37*	*20*	
Surr: Dibromofluoromethane	*45.14*	*1.0*	*50*	*0*	*90.3*	*80 - 119*	*44.51*	*1.42*	*20*	
Surr: Toluene-d8	*51.06*	*1.0*	*50*	*0*	*102*	*89 - 112*	*51.36*	*0.584*	*20*	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120658-04MSD** Units: **ug/L** Analysis Date: **23-Dec-2021 16:51**
Client ID: **MW3_120921** Run ID: **VOA9_398221** SeqNo: **6439890** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	15.12	1.0	20	0	75.6	78 - 124	15.15	0.209	20	S
1,1,1-Trichloroethane	12.35	1.0	20	0	61.7	74 - 131	12.12	1.82	20	S
1,1,2,2-Tetrachloroethane	12.51	1.0	20	0	62.5	71 - 121	12.4	0.855	20	S
1,1,2-Trichloroethane	14.38	1.0	20	0	71.9	80 - 119	14.17	1.47	20	S
1,1-Dichloroethane	14.98	1.0	20	4.029	54.8	77 - 125	15.05	0.451	20	S
1,1-Dichloroethene	20.12	1.0	20	0	101	71 - 131	20.52	2	20	
1,1-Dichloropropene	14.34	1.0	20	0	71.7	78 - 125	14.51	1.17	20	S
1,2,3-Trichlorobenzene	15.11	1.0	20	0	75.6	69 - 129	14.87	1.63	20	
1,2,3-Trichloropropane	11.62	1.0	20	0	58.1	73 - 122	11.61	0.163	20	S
1,2,4-Trichlorobenzene	15.48	1.0	20	0	77.4	69 - 130	15.28	1.31	20	
1,2,4-Trimethylbenzene	13.73	1.0	20	0	68.7	76 - 124	13.62	0.794	20	S
1,2-Dibromo-3-chloropropane	12.14	1.0	20	0	60.7	62 - 128	11.64	4.14	20	S
1,2-Dibromoethane	15.3	1.0	20	0	76.5	77 - 121	15.19	0.721	20	S
1,2-Dichlorobenzene	15.79	1.0	20	0	78.9	80 - 119	15.55	1.52	20	S
1,2-Dichloroethane	11.86	1.0	20	0	59.3	73 - 128	11.66	1.7	20	S
1,2-Dichloropropane	13.27	1.0	20	0	66.3	78 - 122	13.64	2.78	20	S
1,3,5-Trimethylbenzene	13.93	1.0	20	0	69.7	75 - 124	13.99	0.379	20	S
1,3-Dichlorobenzene	15.5	1.0	20	0	77.5	80 - 119	15.75	1.6	20	S
1,3-Dichloropropane	13.93	1.0	20	0	69.7	80 - 119	13.76	1.24	20	S
1,4-Dichlorobenzene	15.58	1.0	20	0	77.9	79 - 118	15.58	0.0086	20	S
2,2-Dichloropropane	11.43	1.0	20	0	57.2	60 - 139	11.59	1.36	20	S
2-Butanone	16.37	2.0	40	0	40.9	56 - 143	16.04	2.01	20	S
2-Chlorotoluene	13.53	1.0	20	0	67.7	79 - 122	13.67	0.99	20	S
2-Hexanone	21.53	2.0	40	0	53.8	57 - 139	20.52	4.78	20	S
4-Chlorotoluene	13.52	1.0	20	0	67.6	78 - 122	13.79	1.96	20	S
4-Isopropyltoluene	14.98	1.0	20	0	74.9	77 - 127	15.15	1.18	20	S
4-Methyl-2-pentanone	20.47	2.0	40	0	51.2	67 - 130	19.55	4.64	20	S
Acetone	17.88	2.0	40	0	44.7	39 - 160	16.87	5.81	20	
Benzene	14.72	1.0	20	0	73.6	79 - 120	14.62	0.71	20	S
Bromobenzene	16.19	1.0	20	0	80.9	80 - 120	16.3	0.679	20	
Bromochloromethane	14.8	1.0	20	0	74.0	78 - 123	13.98	5.68	20	S
Bromodichloromethane	12.5	1.0	20	0	62.5	79 - 125	12.58	0.612	20	S
Bromoform	13.46	1.0	20	0	67.3	66 - 130	13	3.52	20	
Bromomethane	18.54	1.0	20	0	92.7	53 - 141	19.33	4.19	20	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398221 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120658-04MSD** Units: **ug/L** Analysis Date: **23-Dec-2021 16:51**
Client ID: **MW3_120921** Run ID: **VOA9_398221** SeqNo: **6439890** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	29.97	2.0	40	0	74.9	64 - 133	30.05	0.292	20	
Carbon tetrachloride	14.49	1.0	20	0	72.5	72 - 136	14.65	1.08	20	
Chlorobenzene	15.87	1.0	20	0	79.3	82 - 118	15.61	1.61	20	S
Chloroethane	14.03	1.0	20	0	70.2	60 - 138	14.08	0.361	20	
Chloroform	12.04	1.0	20	0.999	55.2	79 - 124	12	0.324	20	S
Chloromethane	13.25	1.0	20	0	66.3	50 - 139	13.37	0.887	20	
cis-1,2-Dichloroethene	20.64	1.0	20	54.56	-170	78 - 123	20.57	0.375	20	S
cis-1,3-Dichloropropene	12.34	1.0	20	0	61.7	75 - 124	12.12	1.79	20	S
Dibromochloromethane	13.93	1.0	20	0	69.6	74 - 126	13.51	3.03	20	S
Dibromomethane	14.05	1.0	20	0	70.3	79 - 123	13.68	2.69	20	S
Dichlorodifluoromethane	8.521	1.0	20	0	42.6	32 - 152	8.534	0.152	20	
Ethylbenzene	15.87	1.0	20	0	79.3	79 - 121	15.88	0.0784	20	
Hexachlorobutadiene	19.38	1.0	20	0	96.9	66 - 134	20.32	4.74	20	
Isopropylbenzene	15.91	1.0	20	0	79.5	72 - 131	15.88	0.154	20	
m,p-Xylene	32.67	2.0	40	0	81.7	80 - 121	32.28	1.22	20	
Methylene chloride	16.21	2.0	20	0	81.1	74 - 124	16.21	0.0327	20	
Naphthalene	12.48	1.0	20	0	62.4	61 - 128	11.72	6.3	20	
n-Butylbenzene	13.77	1.0	20	0	68.8	75 - 128	13.96	1.36	20	S
n-Propylbenzene	14.09	1.0	20	0	70.4	76 - 126	14.3	1.52	20	S
o-Xylene	15.7	1.0	20	0	78.5	78 - 122	15.53	1.07	20	
sec-Butylbenzene	14.76	1.0	20	0	73.8	77 - 126	15.08	2.17	20	S
Styrene	15.7	1.0	20	0	78.5	78 - 123	15.68	0.13	20	
tert-Butylbenzene	15.12	1.0	20	0	75.6	78 - 124	15.2	0.54	20	S
Tetrachloroethene	19.25	1.0	20	1.323	89.6	74 - 129	19.43	0.931	20	
Toluene	14.97	1.0	20	0	74.9	80 - 121	15.08	0.679	20	S
trans-1,2-Dichloroethene	16.54	1.0	20	2.581	69.8	75 - 124	16.68	0.817	20	S
trans-1,3-Dichloropropene	11.66	1.0	20	0	58.3	73 - 127	11.44	1.98	20	S
Trichloroethene	70.98	1.0	20	367.7	-1480	79 - 123	70.85	0.187	20	SO
Trichlorofluoromethane	15.51	1.0	20	0	77.5	65 - 141	15.24	1.76	20	
Vinyl chloride	17.54	1.0	20	23.18	-28.2	58 - 137	17.46	0.482	20	S
Surr: 1,2-Dichloroethane-d4	*35.72*	*1.0*	*50*	*0*	*71.4*	*81 - 118*	*34.05*	*4.78*	*20*	S
Surr: 4-Bromofluorobenzene	*47.87*	*1.0*	*50*	*0*	*95.7*	*85 - 114*	*48.04*	*0.342*	*20*	
Surr: Dibromofluoromethane	*42.54*	*1.0*	*50*	*0*	*85.1*	*80 - 119*	*42.48*	*0.141*	*20*	
Surr: Toluene-d8	*49.12*	*1.0*	*50*	*0*	*98.2*	*89 - 112*	*49.06*	*0.127*	*20*	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID:	R398221 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21120658-01	HS21120658-02	HS21120658-03	HS21120658-04
HS21120658-07			

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 12:04**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438035** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 12:04**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438035** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*41.78*	*1.0*	*50*	*0*	*83.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.92*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*48.39*	*1.0*	*50*	*0*	*96.8*	*80 - 119*				
Surr: Toluene-d8	*55.6*	*1.0*	*50*	*0*	*111*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 11:20**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438034** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.54	1.0	20	0	103	78 - 124				
1,1,1-Trichloroethane	17.25	1.0	20	0	86.2	74 - 131				
1,1,2,2-Tetrachloroethane	18.33	1.0	20	0	91.7	71 - 121				
1,1,2-Trichloroethane	20.65	1.0	20	0	103	80 - 119				
1,1-Dichloroethane	21.08	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	21.72	1.0	20	0	109	71 - 131				
1,1-Dichloropropene	19.34	1.0	20	0	96.7	78 - 125				
1,2,3-Trichlorobenzene	21.63	1.0	20	0	108	69 - 129				
1,2,3-Trichloropropane	17.79	1.0	20	0	89.0	73 - 122				
1,2,4-Trichlorobenzene	21.89	1.0	20	0	109	69 - 130				
1,2,4-Trimethylbenzene	19.37	1.0	20	0	96.8	76 - 124				
1,2-Dibromo-3-chloropropane	16.4	1.0	20	0	82.0	62 - 128				
1,2-Dibromoethane	21.54	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	21.73	1.0	20	0	109	80 - 119				
1,2-Dichloroethane	17.96	1.0	20	0	89.8	73 - 128				
1,2-Dichloropropane	20.23	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	19.09	1.0	20	0	95.5	75 - 124				
1,3-Dichlorobenzene	21.36	1.0	20	0	107	80 - 119				
1,3-Dichloropropane	19.96	1.0	20	0	99.8	80 - 119				
1,4-Dichlorobenzene	22.14	1.0	20	0	111	79 - 118				
2,2-Dichloropropane	17.2	1.0	20	0	86.0	60 - 139				
2-Butanone	27.37	2.0	40	0	68.4	56 - 143				
2-Chlorotoluene	19.15	1.0	20	0	95.8	79 - 122				
2-Hexanone	33.09	2.0	40	0	82.7	57 - 139				
4-Chlorotoluene	19.29	1.0	20	0	96.5	78 - 122				
4-Isopropyltoluene	20.39	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	30.72	2.0	40	0	76.8	67 - 130				
Acetone	38.69	2.0	40	0	96.7	39 - 160				
Benzene	20.78	1.0	20	0	104	79 - 120				
Bromobenzene	22.43	1.0	20	0	112	80 - 120				
Bromochloromethane	20.95	1.0	20	0	105	78 - 123				
Bromodichloromethane	18.25	1.0	20	0	91.2	79 - 125				
Bromoform	18.35	1.0	20	0	91.7	66 - 130				
Bromomethane	31.22	1.0	20	0	156	53 - 141				S

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211222** Units: **ug/L** Analysis Date: **22-Dec-2021 11:20**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438034** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	44.77	2.0	40	0	112	64 - 133				
Carbon tetrachloride	17.96	1.0	20	0	89.8	72 - 136				
Chlorobenzene	21.74	1.0	20	0	109	82 - 118				
Chloroethane	21.42	1.0	20	0	107	60 - 138				
Chloroform	18.03	1.0	20	0	90.2	79 - 124				
Chloromethane	22.55	1.0	20	0	113	50 - 139				
cis-1,2-Dichloroethene	18.9	1.0	20	0	94.5	78 - 123				
cis-1,3-Dichloropropene	17.76	1.0	20	0	88.8	75 - 124				
Dibromochloromethane	18.41	1.0	20	0	92.0	74 - 126				
Dibromomethane	20.22	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	17.13	1.0	20	0	85.6	32 - 152				
Ethylbenzene	21.28	1.0	20	0	106	79 - 121				
Hexachlorobutadiene	27.44	1.0	20	0	137	66 - 134				S
Isopropylbenzene	20.58	1.0	20	0	103	72 - 131				
m,p-Xylene	43.77	2.0	40	0	109	80 - 121				
Methylene chloride	21.15	2.0	20	0	106	74 - 124				
Naphthalene	17.65	1.0	20	0	88.2	61 - 128				
n-Butylbenzene	19.29	1.0	20	0	96.5	75 - 128				
n-Propylbenzene	19.29	1.0	20	0	96.4	76 - 126				
o-Xylene	21.71	1.0	20	0	109	78 - 122				
sec-Butylbenzene	19.44	1.0	20	0	97.2	77 - 126				
Styrene	22.29	1.0	20	0	111	78 - 123				
tert-Butylbenzene	19.71	1.0	20	0	98.6	78 - 124				
Tetrachloroethene	23.18	1.0	20	0	116	74 - 129				
Toluene	20.42	1.0	20	0	102	80 - 121				
trans-1,2-Dichloroethene	22.2	1.0	20	0	111	75 - 124				
trans-1,3-Dichloropropene	16.95	1.0	20	0	84.8	73 - 127				
Trichloroethene	22.66	1.0	20	0	113	79 - 123				
Trichlorofluoromethane	20.3	1.0	20	0	101	65 - 141				
Vinyl chloride	21.39	1.0	20	0	107	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.06*	*1.0*	*50*	*0*	*86.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*55.06*	*1.0*	*50*	*0*	*110*	*85 - 114*				
Surr: Dibromofluoromethane	*51.06*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*54.1*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120589-01MS** Units: **ug/L** Analysis Date: **22-Dec-2021 14:18**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438041** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.22	1.0	20	0	91.1	78 - 124				
1,1,1-Trichloroethane	15.55	1.0	20	0	77.8	74 - 131				
1,1,2,2-Tetrachloroethane	15.72	1.0	20	0	78.6	71 - 121				
1,1,2-Trichloroethane	17.96	1.0	20	0	89.8	80 - 119				
1,1-Dichloroethane	18.91	1.0	20	0	94.5	77 - 125				
1,1-Dichloroethene	19.88	1.0	20	0	99.4	71 - 131				
1,1-Dichloropropene	17.47	1.0	20	0	87.4	78 - 125				
1,2,3-Trichlorobenzene	17.12	1.0	20	0	85.6	69 - 129				
1,2,3-Trichloropropane	15.02	1.0	20	0	75.1	73 - 122				
1,2,4-Trichlorobenzene	17.56	1.0	20	0	87.8	69 - 130				
1,2,4-Trimethylbenzene	16.51	1.0	20	0	82.5	76 - 124				
1,2-Dibromo-3-chloropropane	13.91	1.0	20	0	69.5	62 - 128				
1,2-Dibromoethane	18.69	1.0	20	0	93.5	77 - 121				
1,2-Dichlorobenzene	18.62	1.0	20	0	93.1	80 - 119				
1,2-Dichloroethane	15.29	1.0	20	0	76.4	73 - 128				
1,2-Dichloropropane	17.37	1.0	20	0	86.8	78 - 122				
1,3,5-Trimethylbenzene	16.58	1.0	20	0	82.9	75 - 124				
1,3-Dichlorobenzene	18.49	1.0	20	0	92.4	80 - 119				
1,3-Dichloropropane	17.17	1.0	20	0	85.8	80 - 119				
1,4-Dichlorobenzene	18.75	1.0	20	0	93.7	79 - 118				
2,2-Dichloropropane	15.06	1.0	20	0	75.3	60 - 139				
2-Butanone	21.97	2.0	40	0	54.9	56 - 143				S
2-Chlorotoluene	16.53	1.0	20	0	82.7	79 - 122				
2-Hexanone	26.95	2.0	40	0	67.4	57 - 139				
4-Chlorotoluene	16.72	1.0	20	0	83.6	78 - 122				
4-Isopropyltoluene	17.47	1.0	20	0	87.3	77 - 127				
4-Methyl-2-pentanone	26.39	2.0	40	0	66.0	67 - 130				S
Acetone	25.72	2.0	40	0	64.3	39 - 160				
Benzene	18.01	1.0	20	0	90.1	79 - 120				
Bromobenzene	19.7	1.0	20	0	98.5	80 - 120				
Bromochloromethane	18.84	1.0	20	0	94.2	78 - 123				
Bromodichloromethane	15.67	1.0	20	0	78.4	79 - 125				S
Bromoform	16.07	1.0	20	0	80.3	66 - 130				
Bromomethane	25.39	1.0	20	0	127	53 - 141				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120589-01MS** Units: **ug/L** Analysis Date: **22-Dec-2021 14:18**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438041** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.43	2.0	40	0	96.1	64 - 133				
Carbon tetrachloride	17.01	1.0	20	0	85.0	72 - 136				
Chlorobenzene	19.18	1.0	20	0	95.9	82 - 118				
Chloroethane	20.18	1.0	20	0	101	60 - 138				
Chloroform	16.18	1.0	20	0	80.9	79 - 124				
Chloromethane	17.82	1.0	20	0	89.1	50 - 139				
cis-1,2-Dichloroethene	16.92	1.0	20	0	84.6	78 - 123				
cis-1,3-Dichloropropene	15.26	1.0	20	0	76.3	75 - 124				
Dibromochloromethane	16.49	1.0	20	0	82.4	74 - 126				
Dibromomethane	17.39	1.0	20	0	87.0	79 - 123				
Dichlorodifluoromethane	10.09	1.0	20	0	50.5	32 - 152				
Ethylbenzene	18.83	1.0	20	0	94.1	79 - 121				
Hexachlorobutadiene	23.3	1.0	20	0	117	66 - 134				
Isopropylbenzene	18.48	1.0	20	0	92.4	72 - 131				
m,p-Xylene	39.23	2.0	40	0	98.1	80 - 121				
Methylene chloride	18.77	2.0	20	0	93.8	74 - 124				
Naphthalene	14.34	1.0	20	0	71.7	61 - 128				
n-Butylbenzene	16.19	1.0	20	0	81.0	75 - 128				
n-Propylbenzene	17.14	1.0	20	0	85.7	76 - 126				
o-Xylene	19.3	1.0	20	0	96.5	78 - 122				
sec-Butylbenzene	17.05	1.0	20	0	85.3	77 - 126				
Styrene	19.5	1.0	20	0	97.5	78 - 123				
tert-Butylbenzene	17.48	1.0	20	0	87.4	78 - 124				
Tetrachloroethene	21.05	1.0	20	0	105	74 - 129				
Toluene	18.64	1.0	20	0	93.2	80 - 121				
trans-1,2-Dichloroethene	20.37	1.0	20	0	102	75 - 124				
trans-1,3-Dichloropropene	14.3	1.0	20	0	71.5	73 - 127				S
Trichloroethene	21.66	1.0	20	0	108	79 - 123				
Trichlorofluoromethane	18.11	1.0	20	0	90.6	65 - 141				
Vinyl chloride	18.21	1.0	20	0	91.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*41.87*	*1.0*	*50*	*0*	*83.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.15*	*1.0*	*50*	*0*	*108*	*85 - 114*				
Surr: Dibromofluoromethane	*50.62*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*54.89*	*1.0*	*50*	*0*	*110*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120589-01MSD** Units: **ug/L** Analysis Date: **22-Dec-2021 14:40**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438042** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.02	1.0	20	0	95.1	78 - 124	18.22	4.3	20	
1,1,1-Trichloroethane	16.11	1.0	20	0	80.5	74 - 131	15.55	3.49	20	
1,1,2,2-Tetrachloroethane	15.92	1.0	20	0	79.6	71 - 121	15.72	1.26	20	
1,1,2-Trichloroethane	18.13	1.0	20	0	90.7	80 - 119	17.96	0.926	20	
1,1-Dichloroethane	19.44	1.0	20	0	97.2	77 - 125	18.91	2.76	20	
1,1-Dichloroethene	19.86	1.0	20	0	99.3	71 - 131	19.88	0.117	20	
1,1-Dichloropropene	17.74	1.0	20	0	88.7	78 - 125	17.47	1.53	20	
1,2,3-Trichlorobenzene	19	1.0	20	0	95.0	69 - 129	17.12	10.4	20	
1,2,3-Trichloropropane	15.04	1.0	20	0	75.2	73 - 122	15.02	0.153	20	
1,2,4-Trichlorobenzene	18.92	1.0	20	0	94.6	69 - 130	17.56	7.45	20	
1,2,4-Trimethylbenzene	17.85	1.0	20	0	89.3	76 - 124	16.51	7.82	20	
1,2-Dibromo-3-chloropropane	14.87	1.0	20	0	74.4	62 - 128	13.91	6.7	20	
1,2-Dibromoethane	18.8	1.0	20	0	94.0	77 - 121	18.69	0.556	20	
1,2-Dichlorobenzene	19.48	1.0	20	0	97.4	80 - 119	18.62	4.54	20	
1,2-Dichloroethane	15.63	1.0	20	0	78.2	73 - 128	15.29	2.22	20	
1,2-Dichloropropane	17.82	1.0	20	0	89.1	78 - 122	17.37	2.55	20	
1,3,5-Trimethylbenzene	17.27	1.0	20	0	86.3	75 - 124	16.58	4.05	20	
1,3-Dichlorobenzene	19.13	1.0	20	0	95.7	80 - 119	18.49	3.42	20	
1,3-Dichloropropane	17.59	1.0	20	0	87.9	80 - 119	17.17	2.42	20	
1,4-Dichlorobenzene	19.73	1.0	20	0	98.7	79 - 118	18.75	5.1	20	
2,2-Dichloropropane	15.39	1.0	20	0	77.0	60 - 139	15.06	2.17	20	
2-Butanone	22.66	2.0	40	0	56.6	56 - 143	21.97	3.09	20	
2-Chlorotoluene	17.22	1.0	20	0	86.1	79 - 122	16.53	4.08	20	
2-Hexanone	27.53	2.0	40	0	68.8	57 - 139	26.95	2.14	20	
4-Chlorotoluene	17.33	1.0	20	0	86.6	78 - 122	16.72	3.58	20	
4-Isopropyltoluene	18.07	1.0	20	0	90.3	77 - 127	17.47	3.4	20	
4-Methyl-2-pentanone	26.03	2.0	40	0	65.1	67 - 130	26.39	1.37	20	S
Acetone	27.31	2.0	40	0	68.3	39 - 160	25.72	6	20	
Benzene	18.6	1.0	20	0	93.0	79 - 120	18.01	3.22	20	
Bromobenzene	20.22	1.0	20	0	101	80 - 120	19.7	2.6	20	
Bromochloromethane	19.68	1.0	20	0	98.4	78 - 123	18.84	4.37	20	
Bromodichloromethane	16.12	1.0	20	0	80.6	79 - 125	15.67	2.82	20	
Bromoform	15.91	1.0	20	0	79.5	66 - 130	16.07	0.989	20	
Bromomethane	25.2	1.0	20	0	126	53 - 141	25.39	0.734	20	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID: R398300 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120589-01MSD** Units: **ug/L** Analysis Date: **22-Dec-2021 14:40**
Client ID: Run ID: **VOA9_398300** SeqNo: **6438042** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	39.58	2.0	40	0	98.9	64 - 133	38.43	2.95	20	
Carbon tetrachloride	17.15	1.0	20	0	85.7	72 - 136	17.01	0.804	20	
Chlorobenzene	19.22	1.0	20	0	96.1	82 - 118	19.18	0.252	20	
Chloroethane	20.01	1.0	20	0	100	60 - 138	20.18	0.843	20	
Chloroform	16.27	1.0	20	0	81.3	79 - 124	16.18	0.558	20	
Chloromethane	17.35	1.0	20	0	86.8	50 - 139	17.82	2.64	20	
cis-1,2-Dichloroethene	17.52	1.0	20	0	87.6	78 - 123	16.92	3.53	20	
cis-1,3-Dichloropropene	15.71	1.0	20	0	78.6	75 - 124	15.26	2.95	20	
Dibromochloromethane	16.21	1.0	20	0	81.0	74 - 126	16.49	1.7	20	
Dibromomethane	17.42	1.0	20	0	87.1	79 - 123	17.39	0.161	20	
Dichlorodifluoromethane	9.753	1.0	20	0	48.8	32 - 152	10.09	3.43	20	
Ethylbenzene	19.6	1.0	20	0	98.0	79 - 121	18.83	4.03	20	
Hexachlorobutadiene	23.07	1.0	20	0	115	66 - 134	23.3	1	20	
Isopropylbenzene	19.15	1.0	20	0	95.7	72 - 131	18.48	3.56	20	
m,p-Xylene	40.07	2.0	40	0	100	80 - 121	39.23	2.13	20	
Methylene chloride	19.41	2.0	20	0	97.1	74 - 124	18.77	3.37	20	
Naphthalene	15.63	1.0	20	0	78.1	61 - 128	14.34	8.59	20	
n-Butylbenzene	16.81	1.0	20	0	84.0	75 - 128	16.19	3.76	20	
n-Propylbenzene	17.19	1.0	20	0	85.9	76 - 126	17.14	0.285	20	
o-Xylene	19.42	1.0	20	0	97.1	78 - 122	19.3	0.574	20	
sec-Butylbenzene	17.43	1.0	20	0	87.2	77 - 126	17.05	2.2	20	
Styrene	19.73	1.0	20	0	98.6	78 - 123	19.5	1.14	20	
tert-Butylbenzene	18.12	1.0	20	0	90.6	78 - 124	17.48	3.58	20	
Tetrachloroethene	21.61	1.0	20	0	108	74 - 129	21.05	2.62	20	
Toluene	18.51	1.0	20	0	92.6	80 - 121	18.64	0.711	20	
trans-1,2-Dichloroethene	20.49	1.0	20	0	102	75 - 124	20.37	0.574	20	
trans-1,3-Dichloropropene	14.82	1.0	20	0	74.1	73 - 127	14.3	3.6	20	
Trichloroethene	21.5	1.0	20	0	107	79 - 123	21.66	0.729	20	
Trichlorofluoromethane	17.75	1.0	20	0	88.8	65 - 141	18.11	1.99	20	
Vinyl chloride	18.49	1.0	20	0	92.5	58 - 137	18.21	1.54	20	
Surr: 1,2-Dichloroethane-d4	*43.27*	*1.0*	*50*	*0*	*86.5*	*81 - 118*	*41.87*	*3.28*	*20*	
Surr: 4-Bromofluorobenzene	*53.47*	*1.0*	*50*	*0*	*107*	*85 - 114*	*54.15*	*1.27*	*20*	
Surr: Dibromofluoromethane	*51.99*	*1.0*	*50*	*0*	*104*	*80 - 119*	*50.62*	*2.68*	*20*	
Surr: Toluene-d8	*54.44*	*1.0*	*50*	*0*	*109*	*89 - 112*	*54.89*	*0.821*	*20*	

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21120658

QC BATCH REPORT

Batch ID:	R398300 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21120658-05 HS21120658-09

ALS Houston, US Date: 06-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS21120658**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 06-Jan-22

Sample Receipt Checklist

Work Order ID: HS21120658 **Date/Time Received:** **10-Dec-2021 10:10**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Paresh M. Giga (eSignature) 10-Dec-2021 19:47 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 14-Dec-2021 11:19 (Date/Time)

Matrices: **GW/Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:none
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.1C U/c	IR31
Cooler(s)/Kit(s):	47998	
Date/Time sample(s) sent to storage:	12/9/2021 20:05	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
							Sample Analysis Requested (5)											Quality Assurance Samples (6)			
MW2_120921	09 DEC 2021	0735	-	N		WG	6	X	X	X	X										
MW2_120921_a	09 DEC 2021	0735	-	FD		WG	6	X	X	X	X										
18CPTMW01SW_120921	09 DEC 2021	0820	-	N		WG	6	X	X	X	X										
MW3_120921	09 DEC 2021	0910		N		WG	5	X	X	X											
MW3_120921_MS	09 DEC 2021	0910		MS		WG	5	X	X	X											
MW3_120921_MSD	09 DEC 2021	0910	-	SD		WG	5	X	X	X											
18WW10_120921	09 DEC 2021	1005	-	N		WG	5	X	X		X										
MW17_120921	09 DEC 2021	1045	-	N		WG	2		X		X										
18CPTMW14_120921	09 DEC 2021	1130	-	N		WG	6	X	X	X	X										
AWD1_120921	09 DEC 2021	1250	-	N		WG	3		X	X	X										
TRIP BLANK			-	TB		W	2	X													

HS21120658

Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS:

STANDARD TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. [signature]	12/9/21	1430	1. [signature]	12/10/2021	10:10
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

Method of Shipment: _____

Fed _____ Ex _____ Airbill _____ Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

47998 1.1 831 ar 00

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

47998

CUSTODY SEAL

Date: 12/9/21 Time: 1430
Name: Susan Beesiner
Company: BHATE

Seal Broken By: SM
Date: 12/10/21

47998 DEC 10 2021

Part # 150469-494 INTW EXP 07/23

47998

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1703-B EAST GRAND AVE. PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG
RMA:

FedEx Express

TRK# 5300 5225 1592

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

4230674 09Dec2021 GGGA 56DG3/E934/1023

December 23, 2021

Service Request No:E2101270

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120658

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 13, 2021
For your reference, these analyses have been assigned our service request number **E2101270.**

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.:**	E2101270
Project:	HS21120658	**Date Received:**	12/13/21
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 IV. 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 12/13/21.

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:

EQ2100690: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits. MS/MSD parent sample result 8220 ug/L.

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:**E2101270
Project: HS21120658

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101270-001	MW-2_120921	12/9/2021	0735
E2101270-002	MW-2_120921_a	12/9/2021	0735
E2101270-003	18CPTMW01SW_120921	12/9/2021	0820
E2101270-004	MW3_120921	12/9/2021	0910
E2101270-005	18WW10_120921	12/9/2021	1005
E2101270-006	MW17_120921	12/9/2021	1045
E2101270-007	18CPTMW14_120921	12/9/2021	1130
E2101270-008	AWDI_120921	12/9/2021	1250

Service Request Summary

Folder #: **E2101270**
Client Name: ALS Environmental - US
Project Name: HS21120658
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/13/21
Internal Due Date: 12/27/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120658
EDD: No EDD Specified

10 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101270-001	MW-2_120921	Ground Water	12/09/21 0735	**IV**
E2101270-002	MW-2_120921_a	Ground Water	12/09/21 0735	**IV**
E2101270-003	18CPTMW01SW_120921	Ground Water	12/09/21 0820	**IV**
E2101270-004	MW3_120921	Ground Water	12/09/21 0910	**IV**
E2101270-005	18WW10_120921	Ground Water	12/09/21 1005	**IV**
E2101270-006	MW17_120921	Ground Water	12/09/21 1045	**IV**
E2101270-007	18CPTMW14_120921	Ground Water	12/09/21 1130	**IV**
E2101270-008	AWDI_120921	Ground Water	12/09/21 1250	**IV**

Folder Comments:

Send DWELR confirmation to Middletown PM for PADEP samples.

Service Request Summary

Folder #: **E2101270**
Client Name: ALS Environmental - US
Project Name: HS21120658
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/13/21
Internal Due Date: 12/27/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120658
EDD: No EDD Specified

10 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	7	Level IV due 1/3
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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F: +1 281 530 5887
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Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17652**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21120658
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120658-01**	**MW-2_120921**	**Groundwater**	**09 Dec 2021 07:35**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
2.	**HS21120658-02**	**MW-2_120921_a**	**Groundwater**	**09 Dec 2021 07:35**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
3.	**HS21120658-03**	**18CPTMW01SW_120921**	**Groundwater**	**09 Dec 2021 08:20**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
4.	**HS21120658-04**	**MW3_120921**	**Groundwater**	**09 Dec 2021 09:10**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
5.	**HS21120658-05**	**18WW10_120921**	**Groundwater**	**09 Dec 2021 10:05**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
6.	**HS21120658-06**	**MW17_120921**	**Groundwater**	**09 Dec 2021 10:45**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
7.	**HS21120658-07**	**18CPTMW14_120921**	**Groundwater**	**09 Dec 2021 11:30**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021
8.	**HS21120658-08**	**AWDI_120921**	**Groundwater**	**09 Dec 2021 12:50**
	Provide Level II and Level IV reports in separate pdf			27 Dec 2021

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17652**

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS21120658-04 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. McCord	Date/Time:	12/13/21 09:15
Received By:	Robert G	Date/Time:	12/13/21 0915
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-H

Thermometer ID: IR31

Date/Time Received: 12-13-21 Initials: CG Date/Time Logged in: 12-13-21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL (X) Courier ○ Client
2. Samples received in: (X) Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes (X) No
   Were they intact? ○ Yes ○ No (X) N/A
   Were they signed and dated? ○ Yes ○ No (X) N/A
   If yes, how many and where?
4. Packing Material: ○ Inserts (X) Baggies ○ Bubble Wrap ○ Gel Packs (X) 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		12-13-21	0915	CG	1.1	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? (X) Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? (X) Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? (X) Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? (X) Yes ○ No
10. Did sample labels and tags agree with custody documents? (X) Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

HS-HRMSCoolerReceipt R1.0

ALS Environmental - Houston HRMS

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Houston, TX 77099
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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#: 392837 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/16/21 13:43

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101270-001	MW-2_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101270-002	MW-2_120921_a	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101270-003	18CPTMW01SW_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101270-004	MW3_120921	.02	6850/ClO4 DOD			Ground Water	10mL	
5	E2101270-005	18WW10_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101270-006	MW17_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101270-007	18CPTMW14_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101270-008	AWDI_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101274-001	LH18/24-SP650_121421_AIX	.01	6850/ClO4 DOD			Water	10mL	
10	E2101275-001	LH18/24-SP650_121421_AIX	.01	6850/ClO4 DOD			Water	10mL	
11	E2101276-001	LH18/24-SP140_121421	.01	6850/ClO4 DOD			Water	10mL	
12	EQ2100690-01	MB		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100690-02	LCS		6850/ClO4 DOD			Liquid	10mL	
14	EQ2100690-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
15	EQ2100690-04	MW3_120921 MS	.02	6850/ClO4 DOD			Liquid	10mL	
16	EQ2100690-05	MW3_120921 DMS	.02	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101270-001	100.00µL	E2101270-002	100.00µL	E2101270-003	100.00µL	E2101270-004	100.00µL	E2101270-005	100.00µL	E2101270-006	100.00µL
E2101270-007	100.00µL	E2101270-008	100.00µL	E2101274-001	100.00µL	E2101275-001	100.00µL	E2101276-001	100.00µL	EQ2100690-01	100.00µL
EQ2100690-02	100.00µL	EQ2100690-03	100.00µL	EQ2100690-04	100.00µL	EQ2100690-05	100.00µL				

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100690-02	1.00µL	EQ2100690-03	1.00µL	EQ2100690-04	1.00µL	EQ2100690-05	1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/16/21 13:43
Finished: 12/16/21 14:15
By: GRIVERA
Comments

Preparation Information Benchsheet

Prep Run#: 392837
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 12/16/21 13:43

Comments:

Reviewed By: GR Date: 12/16/21

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:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 0735
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	MW-2_120921	**Units:**	µg/L
Lab Code:	E2101270-001	**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	**0.263**		0.100	0.0500	0.0250	1	12/16/21	12/20/21 13:41	392837	749660	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 0735
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	MW-2_120921_a	**Units:**	µg/L
Lab Code:	E2101270-002	**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	**0.281**		0.100	0.0500	0.0250	1	12/16/21	12/20/21 12:29	392837	749660	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 0820
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	18CPTMW01SW_120921	**Units:**	µg/L
Lab Code:	E2101270-003	**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	ND	U	0.100	0.0500	0.0250	1	12/16/21	12/17/21 14:09	392837	749485	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 0910
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	MW3_120921	**Units:**	µg/L
Lab Code:	E2101270-004	**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	**8220**		50.0	25.0	12.5	500	12/16/21	12/21/21 15:18	392837	749910	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 1005
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	18WW10_120921	**Units:**	µg/L
Lab Code:	E2101270-005	**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	**0.147**		0.100	0.0500	0.0250	1	12/16/21	12/20/21 12:37	392837	749660	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 1045
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	MW17_120921	**Units:**	µg/L
Lab Code:	E2101270-006	**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	**0.0282**	J	0.100	0.0500	0.0250	1	12/16/21	12/17/21 14:25	392837	749485	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 1130
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	18CPTMW14_120921	**Units:**	µg/L
Lab Code:	E2101270-007	**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	**4300**		40.0	20.0	10.0	400	12/16/21	12/21/21 16:17	392837	749910	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 1250
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	AWDI_120921	**Units:**	µg/L
Lab Code:	E2101270-008	**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	**0.345**		0.100	0.0500	0.0250	1	12/16/21	12/20/21 13:05	392837	749660	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100690-01	**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	12/16/21	12/17/21 12:13	392837	749485	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Analyzed:**	12/17/21
Sample Matrix:	Ground Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	392837

	Lab Control Sample EQ2100690-02			Duplicate Lab Control Sample EQ2100690-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.119	0.100	119	0.107	0.100	107	84 - 119	11	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:**	E2101270
Project:	HS21120658	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100690-02	**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	**0.119**		0.100	0.0500	0.0250	1	12/16/21	12/17/21 13:29	392837	749485	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100690-03	**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	**0.107**		0.100	0.0500	0.0250	1	12/16/21	12/17/21 12:28	392837	749485	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/9/21
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
		Date Analyzed:	12/21/21

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	MW3_120921	**Units:**	µg/L
Lab Code:	E2101270-004	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		MW3_120921MS Matrix Spike EQ2100690-04				MW3_120921DMS Duplicate Matrix Spike EQ2100690-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	8220	7730	0.100	-489900#	8290	0.100	69850 #	84 - 119	7	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 0910
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	MW3_120921	**Units:**	µg/L
Lab Code:	EQ2100690-04	**Basis:**	NA
Run Type:	Matrix Spike		

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	**7730**		50.0	25.0	12.5	500	12/16/21	12/21/21 15:02	392837	749910	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101270
Project:	HS21120658	**Date Collected:**	12/ 9/21 0910
Sample Matrix:	Ground Water	**Date Received:**	12/13/21
Sample Name:	MW3_120921	**Units:**	µg/L
Lab Code:	EQ2100690-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**8290**		50.0	25.0	12.5	500	12/16/21	12/21/21 15:10	392837	749910	

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January 14, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120917**

Laboratory Results for: **LHAAP/Site 18 /24**

Dear Marcia Olive,

ALS Environmental received 9 sample(s) on Dec 15, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120917

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120917-01	18CPTMW03SW_121321	Groundwater		13-Dec-2021 07:40	15-Dec-2021 10:40	☐
HS21120917-02	18DPTMW05_121321	Groundwater		13-Dec-2021 08:30	15-Dec-2021 10:40	☐
HS21120917-03	MW21_121321	Groundwater		13-Dec-2021 09:25	15-Dec-2021 10:40	☐
HS21120917-04	18CPTMW10DW_121321	Groundwater		13-Dec-2021 10:10	15-Dec-2021 10:40	☐
HS21120917-05	18CPTMW10DW_121321_a	Groundwater		13-Dec-2021 10:10	15-Dec-2021 10:40	☐
HS21120917-06	18CPTMW10SW_121321	Groundwater		13-Dec-2021 10:55	15-Dec-2021 10:40	☐
HS21120917-07	18ww08_121321	Groundwater		13-Dec-2021 11:40	15-Dec-2021 10:40	☐
HS21120917-08	18CPTMW19_121321	Groundwater		13-Dec-2021 12:25	15-Dec-2021 10:40	☐
HS21120917-09	Trip Blank	Water		13-Dec-2021 00:00	15-Dec-2021 10:40	☐

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120917

CASE NARRATIVE

Work Order Comments

- The perchlorate analysis was subcontracted to ALS High-Res specialty lab. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173723

Sample ID: 18DPTMW05_121321 (HS21120917-02)

- The surrogate recoveries could not be determined due to dilution below the calibration range.

Sample ID: LCSD-173723

- The RPD between the LCS and LCSD was outside of the control limit.

GCMS Volatiles by Method SW8260

Batch ID: R398617

Sample ID: MW21_121321 (HS21120917-03)

- Trichloroethene was analyzed out of hold times due to limited resources available to handle samples received over the capacity. Lower dilution was analyzed within hold times.

Batch ID: R398551

Sample ID: 18DPTMW05_121321 (HS21120917-02)

- Trichloroethene was analyzed out of hold times due to limited resources available to handle samples received over the capacity. Lower dilution was analyzed within hold times.

Batch ID: R398545

Sample ID: 18DPTMW05_121321 (HS21120917-02MS)

- MS/MSD failed QC limits for several compounds.

Metals by Method SW6020A

Batch ID: 174048

Sample ID: HS21121014-04MS

- MS/MSD and DUPs are for an unrelated sample

Metals by Method SW7470A

Batch ID: 173861

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW03SW_121321
Collection Date: 13-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,2-Dichloroethane	**0.60**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 21:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 21:58
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 21:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 21:58
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 21:58
Benzene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 21:58
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 21:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW03SW_121321
Collection Date: 13-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
cis-1,2-Dichloroethene	**32**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 21:58
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 21:58
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 21:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:58
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
trans-1,2-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 21:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
Trichloroethene	**7.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 21:58
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:58
Surr: 1,2-Dichloroethane-d4	*99.7*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 21:58*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 21:58*
Surr: Dibromofluoromethane	*94.7*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 21:58*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 21:58*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**1.3**		**0.050**	**0.050**	**0.050**	**ug/L**	5	14-Jan-2022 15:00
Surr: 2-Fluorobiphenyl	*83.1*			**0**	*40-140*	*%REC*	*5*	*14-Jan-2022 15:00*
Surr: 4-Terphenyl-d14	*73.9*			**0**	*40-140*	*%REC*	*5*	*14-Jan-2022 15:00*
Surr: Nitrobenzene-d5	*129*			**0**	*40-140*	*%REC*	*5*	*14-Jan-2022 15:00*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW03SW_121321
Collection Date: 13-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.0351**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:43
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:43
Arsenic	**0.00479**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
Barium	**0.607**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:43
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:43
Calcium	**122**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:43
Chromium	**0.00571**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
Cobalt	**0.00155**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	30-Dec-2021 12:43
Iron	**11.5**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:43
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:43
Magnesium	**19.4**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:43
Manganese	**0.674**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
Nickel	**0.00314**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
Potassium	**118**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:43
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:43
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:43
Sodium	**217**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 15:56
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:43
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:43
Zinc	**0.00667**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:43
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	23-Dec-2021 11:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18DPTMW05_121321
Collection Date: 13-Dec-2021 08:30

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,2-Dichloroethane	**71**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:07
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,3,5-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	27-Dec-2021 20:07
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
2-Hexanone	10	U	5.0	10	10	ug/L	5	27-Dec-2021 20:07
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
4-Isopropyltoluene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	27-Dec-2021 20:07
Acetone	10	U	2.0	10	10	ug/L	5	27-Dec-2021 20:07
Benzene	**9.4**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:07
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Carbon disulfide	10	U	3.0	10	10	ug/L	5	27-Dec-2021 20:07
Carbon tetrachloride	**14**		**2.5**	**5.0**	**5.0**	**ug/L**	5	27-Dec-2021 20:07
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Chloroform	**30**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18DPTMW05_121321
Collection Date: 13-Dec-2021 08:30

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
cis-1,2-Dichloroethene	**69**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:07
cis-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	27-Dec-2021 20:07
Methylene chloride	5.0	U	2.0	5.0	10	ug/L	5	27-Dec-2021 20:07
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:07
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
Trichloroethene	**4,600**	H	**5.0**	**12**	**25**	**ug/L**	25	28-Dec-2021 15:56
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:07
Vinyl chloride	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:07
Surr: 1,2-Dichloroethane-d4	*87.6*			**0**	*81-118*	*%REC*	*5*	*27-Dec-2021 20:07*
Surr: 1,2-Dichloroethane-d4	*96.0*			**0**	*81-118*	*%REC*	*25*	*28-Dec-2021 15:56*
Surr: 4-Bromofluorobenzene	*94.6*			**0**	*85-114*	*%REC*	*5*	*27-Dec-2021 20:07*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*25*	*28-Dec-2021 15:56*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*5*	*27-Dec-2021 20:07*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*25*	*28-Dec-2021 15:56*
Surr: Toluene-d8	*97.9*			**0**	*89-112*	*%REC*	*5*	*27-Dec-2021 20:07*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*28-Dec-2021 15:56*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**46**		**5.0**	**5.0**	**5.0**	**ug/L**	500	14-Jan-2022 15:18
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*500*	*14-Jan-2022 15:18*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*500*	*14-Jan-2022 15:18*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*500*	*14-Jan-2022 15:18*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	LHAAP/Site 18 /24	WorkOrder:HS21120917
Sample ID:	18DPTMW05_121321	Lab ID:HS21120917-02
Collection Date:	13-Dec-2021 08:30	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW21_121321
Collection Date: 13-Dec-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,1,2-Trichloroethane	**8.6**		**1.5**	**5.0**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
1,1-Dichloroethane	**3.2**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,2-Dichloroethane	**16**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,3,5-Trimethylbenzene	**3.0**	J	**1.5**	**5.0**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	27-Dec-2021 20:29
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
2-Hexanone	10	U	5.0	10	10	ug/L	5	27-Dec-2021 20:29
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
4-Isopropyltoluene	**3.9**	J	**1.5**	**5.0**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	27-Dec-2021 20:29
Acetone	10	U	2.0	10	10	ug/L	5	27-Dec-2021 20:29
Benzene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Carbon disulfide	10	U	3.0	10	10	ug/L	5	27-Dec-2021 20:29
Carbon tetrachloride	5.0	U	2.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Chloroform	**9.2**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW21_121321
Collection Date: 13-Dec-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
cis-1,2-Dichloroethene	**880**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
cis-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	27-Dec-2021 20:29
Methylene chloride	5.0	U	2.0	5.0	10	ug/L	5	27-Dec-2021 20:29
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	27-Dec-2021 20:29
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
trans-1,2-Dichloroethene	**6.7**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	27-Dec-2021 20:29
Trichloroethene	**4,500**	H	**10**	**25**	**50**	**ug/L**	50	29-Dec-2021 16:38
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	27-Dec-2021 20:29
Vinyl chloride	**20**		**1.0**	**2.5**	**5.0**	**ug/L**	5	27-Dec-2021 20:29
Surr: 1,2-Dichloroethane-d4	*92.5*			**0**	*81-118*	*%REC*	*5*	*27-Dec-2021 20:29*
Surr: 1,2-Dichloroethane-d4	*97.3*			**0**	*81-118*	*%REC*	*50*	*29-Dec-2021 16:38*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*5*	*27-Dec-2021 20:29*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*50*	*29-Dec-2021 16:38*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*5*	*27-Dec-2021 20:29*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*50*	*29-Dec-2021 16:38*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*27-Dec-2021 20:29*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*50*	*29-Dec-2021 16:38*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**3.6**		**0.50**	**0.50**	**0.50**	**ug/L**	50	14-Jan-2022 15:36
Surr: 2-Fluorobiphenyl	*60.1*			**0**	*40-140*	*%REC*	*50*	*14-Jan-2022 15:36*
Surr: 4-Terphenyl-d14	*56.0*			**0**	*40-140*	*%REC*	*50*	*14-Jan-2022 15:36*
Surr: Nitrobenzene-d5	*94.3*			**0**	*40-140*	*%REC*	*50*	*14-Jan-2022 15:36*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: MW21_121321
Collection Date: 13-Dec-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.0233**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:45
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:45
Arsenic	**0.000799**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Barium	**4.09**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	30-Dec-2021 15:58
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:45
Cadmium	**0.000508**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 12:45
Calcium	**132**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:45
Chromium	**0.623**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Cobalt	**0.0370**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Copper	**0.0219**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Iron	**5.13**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:45
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:45
Magnesium	**99.9**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:45
Manganese	**1.14**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Nickel	**0.478**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Potassium	**1.92**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:45
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:45
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:45
Sodium	**399**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 15:58
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:45
Vanadium	**0.00387**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
Zinc	**0.0147**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:45
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.000189**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:23
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10DW_121321
Collection Date: 13-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 22:20
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 22:20
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 22:20
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 22:20
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 22:20
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10DW_121321
Collection Date: 13-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 22:20
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	27-Dec-2021 22:20
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:20
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Trichloroethene	**2.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 22:20
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:20
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 22:20*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 22:20*
Surr: Dibromofluoromethane	*97.6*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 22:20*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 22:20*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10DW_121321
Collection Date: 13-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.175**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:47
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:47
Arsenic	**0.00276**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Barium	**0.208**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:47
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:47
Calcium	**17.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:47
Chromium	**0.00517**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Cobalt	**0.000251**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Copper	**0.00129**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Iron	**7.90**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:47
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:47
Magnesium	**8.58**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:47
Manganese	**0.185**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Nickel	**0.00201**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Potassium	**72.8**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:47
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:47
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:47
Sodium	**178**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:47
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:47
Vanadium	**0.00112**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
Zinc	**0.00590**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:47
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000530**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:25
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10DW_121321_a
Collection Date: 13-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 22:43
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 22:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 22:43
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 22:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 22:43
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10DW_121321_a
Collection Date: 13-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 22:43
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	27-Dec-2021 22:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 22:43
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Trichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 22:43
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 22:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 22:43
Surr: 1,2-Dichloroethane-d4	*99.9*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 22:43*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 22:43*
Surr: Dibromofluoromethane	*94.6*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 22:43*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 22:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10DW_121321_a
Collection Date: 13-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.168**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:49
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:49
Arsenic	**0.00255**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Barium	**0.202**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:49
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:49
Calcium	**17.4**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:49
Chromium	**0.00525**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Cobalt	**0.000249**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Copper	**0.00117**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Iron	**8.05**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:49
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:49
Magnesium	**8.49**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:49
Manganese	**0.186**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Nickel	**0.00161**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Potassium	**72.5**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:49
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:49
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:49
Sodium	**175**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:49
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:49
Vanadium	**0.000822**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
Zinc	**0.00461**	J	**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:49
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	23-Dec-2021 11:26
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10SW_121321
Collection Date: 13-Dec-2021 10:55

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 23:05
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 23:05
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 23:05
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 23:05
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 23:05
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW10SW_121321
Collection Date: 13-Dec-2021 10:55

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 23:05
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 23:05
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:05
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Trichloroethene	**1.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 23:05
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:05
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 23:05*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 23:05*
Surr: Dibromofluoromethane	*97.6*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 23:05*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 23:05*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.28**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 16:53
Surr: 2-Fluorobiphenyl	*109*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 16:53*
Surr: 4-Terphenyl-d14	*113*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 16:53*
Surr: Nitrobenzene-d5	*104*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 16:53*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww08_121321
Collection Date: 13-Dec-2021 11:40

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,1-Dichloroethane	**0.65**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 23:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 23:27
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 23:27
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 23:27
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 23:27
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 23:27
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18ww08_121321
Collection Date: 13-Dec-2021 11:40

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
cis-1,2-Dichloroethene	**2.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 23:27
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 23:27
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	27-Dec-2021 23:27
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:27
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:27
Trichloroethene	**10**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 23:27
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:27
Vinyl chloride	**1.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 23:27
Surr: 1,2-Dichloroethane-d4	*99.4*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 23:27*
Surr: 4-Bromofluorobenzene	*98.8*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 23:27*
Surr: Dibromofluoromethane	*95.2*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 23:27*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 23:27*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.10**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 17:11
Surr: 2-Fluorobiphenyl	*72.4*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:11*
Surr: 4-Terphenyl-d14	*98.6*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:11*
Surr: Nitrobenzene-d5	*135*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:11*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW19_121321
Collection Date: 13-Dec-2021 12:25

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 23:49
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 23:49
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 23:49
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 23:49
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 23:49
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW19_121321
Collection Date: 13-Dec-2021 12:25

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 23:49
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 23:49
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 23:49
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 23:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 23:49
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 23:49*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 23:49*
Surr: Dibromofluoromethane	*95.3*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 23:49*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 23:49*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.21**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 17:29
Surr: 2-Fluorobiphenyl	*69.4*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:29*
Surr: 4-Terphenyl-d14	*94.2*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:29*
Surr: Nitrobenzene-d5	*127*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:29*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 13-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 21:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	27-Dec-2021 21:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	27-Dec-2021 21:14
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 21:14
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	27-Dec-2021 21:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 13-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120917
Lab ID:HS21120917-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	27-Dec-2021 21:14
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	27-Dec-2021 21:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	27-Dec-2021 21:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Trichloroethene	**1.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	27-Dec-2021 21:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	27-Dec-2021 21:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	27-Dec-2021 21:14
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*1*	*27-Dec-2021 21:14*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*27-Dec-2021 21:14*
Surr: Dibromofluoromethane	*94.7*			**0**	*80-119*	*%REC*	*1*	*27-Dec-2021 21:14*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*27-Dec-2021 21:14*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

Batch ID: 173723 **Start Date:** 20 Dec 2021 06:30 **End Date:** 20 Dec 2021 11:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120917-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120917-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120917-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120917-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120917-07	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120917-08	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173861 **Start Date:** 23 Dec 2021 07:00 **End Date:** 23 Dec 2021 10:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120917-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120917-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120917-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120917-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 174048 **Start Date:** 29 Dec 2021 11:30 **End Date:** 29 Dec 2021 15:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120917-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120917-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120917-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120917-05		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173723 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21120917-01	18CPTMW03SW_121321	13 Dec 2021 07:40		20 Dec 2021 07:04	14 Jan 2022 15:00	5
HS21120917-02	18DPTMW05_121321	13 Dec 2021 08:30		20 Dec 2021 07:04	14 Jan 2022 15:18	500
HS21120917-03	MW21_121321	13 Dec 2021 09:25		20 Dec 2021 07:04	14 Jan 2022 15:36	50
HS21120917-06	18CPTMW10SW_121321	13 Dec 2021 10:55		20 Dec 2021 07:04	13 Jan 2022 16:53	1
HS21120917-07	18ww08_121321	13 Dec 2021 11:40		20 Dec 2021 07:04	13 Jan 2022 17:11	1
HS21120917-08	18CPTMW19_121321	13 Dec 2021 12:25		20 Dec 2021 07:04	13 Jan 2022 17:29	1
Batch ID: 173861 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS21120917-01	18CPTMW03SW_121321	13 Dec 2021 07:40		23 Dec 2021 10:00	23 Dec 2021 11:16	1
HS21120917-03	MW21_121321	13 Dec 2021 09:25		23 Dec 2021 10:00	23 Dec 2021 11:23	1
HS21120917-04	18CPTMW10DW_121321	13 Dec 2021 10:10		23 Dec 2021 10:00	23 Dec 2021 11:25	1
HS21120917-05	18CPTMW10DW_121321_a	13 Dec 2021 10:10		23 Dec 2021 10:00	23 Dec 2021 11:26	1
Batch ID: 174048 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21120917-01	18CPTMW03SW_121321	13 Dec 2021 07:40		29 Dec 2021 15:30	30 Dec 2021 15:56	20
HS21120917-01	18CPTMW03SW_121321	13 Dec 2021 07:40		29 Dec 2021 15:30	30 Dec 2021 12:43	1
HS21120917-03	MW21_121321	13 Dec 2021 09:25		29 Dec 2021 15:30	30 Dec 2021 15:58	20
HS21120917-03	MW21_121321	13 Dec 2021 09:25		29 Dec 2021 15:30	30 Dec 2021 12:45	1
HS21120917-04	18CPTMW10DW_121321	13 Dec 2021 10:10		29 Dec 2021 15:30	30 Dec 2021 12:47	1
HS21120917-05	18CPTMW10DW_121321_a	13 Dec 2021 10:10		29 Dec 2021 15:30	30 Dec 2021 12:49	1
Batch ID: R398529 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21120917-01	18CPTMW03SW_121321	13 Dec 2021 07:40			29 Dec 2021 10:53	1
HS21120917-02	18DPTMW05_121321	13 Dec 2021 08:30			29 Dec 2021 10:53	1
HS21120917-03	MW21_121321	13 Dec 2021 09:25			29 Dec 2021 10:53	1
HS21120917-04	18CPTMW10DW_121321	13 Dec 2021 10:10			29 Dec 2021 10:53	1
HS21120917-05	18CPTMW10DW_121321_a	13 Dec 2021 10:10			29 Dec 2021 10:53	1
HS21120917-06	18CPTMW10SW_121321	13 Dec 2021 10:55			29 Dec 2021 10:53	1
HS21120917-07	18ww08_121321	13 Dec 2021 11:40			29 Dec 2021 10:53	1
HS21120917-08	18CPTMW19_121321	13 Dec 2021 12:25			29 Dec 2021 10:53	1
Batch ID: R398545 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120917-09	Trip Blank	13 Dec 2021 00:00			27 Dec 2021 21:14	1

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R398545 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120917-01	18CPTMW03SW_121321	13 Dec 2021 07:40			27 Dec 2021 21:58	1
HS21120917-02	18DPTMW05_121321	13 Dec 2021 08:30			27 Dec 2021 20:07	5
HS21120917-03	MW21_121321	13 Dec 2021 09:25			27 Dec 2021 20:29	5
HS21120917-04	18CPTMW10DW_121321	13 Dec 2021 10:10			27 Dec 2021 22:20	1
HS21120917-05	18CPTMW10DW_121321_a	13 Dec 2021 10:10			27 Dec 2021 22:43	1
HS21120917-06	18CPTMW10SW_121321	13 Dec 2021 10:55			27 Dec 2021 23:05	1
HS21120917-07	18ww08_121321	13 Dec 2021 11:40			27 Dec 2021 23:27	1
HS21120917-08	18CPTMW19_121321	13 Dec 2021 12:25			27 Dec 2021 23:49	1
Batch ID: R398551 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120917-02	18DPTMW05_121321	13 Dec 2021 08:30			28 Dec 2021 15:56	25
Batch ID: R398617 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120917-03	MW21_121321	13 Dec 2021 09:25			29 Dec 2021 16:38	50

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 173861 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:42**
Client ID: Run ID: **HG03_398265** SeqNo: **6437934** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:44**
Client ID: Run ID: **HG03_398265** SeqNo: **6437935** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	0	106	82 - 119				

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 11:01**
Client ID: Run ID: **HG03_398265** SeqNo: **6437942** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119				

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 10:48**
Client ID: Run ID: **HG03_398265** SeqNo: **6437937** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00477	0.000200	0.005	0.00005400	94.3	82 - 119				

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 11:03**
Client ID: Run ID: **HG03_398265** SeqNo: **6437943** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119	0.004830	0	20	

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 10:49**
Client ID: Run ID: **HG03_398265** SeqNo: **6437938** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.000200	0.005	0.00005400	98.5	82 - 119	0.004770	4.31	20	

The following samples were analyzed in this batch: HS21120917-01 HS21120917-03 HS21120917-04 HS21120917-05

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:09**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447014** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004266	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.01745	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:11**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447015** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1102	0.0100	0.1	0	110	84 - 117				
Antimony	0.05207	0.00500	0.05	0	104	85 - 117				
Arsenic	0.05387	0.00500	0.05	0	108	84 - 116				
Barium	0.05264	0.00500	0.05	0	105	86 - 114				
Beryllium	0.04924	0.00200	0.05	0	98.5	83 - 121				
Cadmium	0.05407	0.00200	0.05	0	108	87 - 115				
Calcium	4.915	0.500	5	0	98.3	87 - 118				
Chromium	0.05158	0.00500	0.05	0	103	85 - 116				
Cobalt	0.05173	0.00500	0.05	0	103	86 - 115				
Copper	0.05341	0.00500	0.05	0	107	85 - 118				
Iron	5.168	0.200	5	0	103	87 - 118				
Lead	0.05144	0.00500	0.05	0	103	88 - 115				
Magnesium	5.264	0.200	5	0	105	83 - 118				
Manganese	0.05196	0.00500	0.05	0	104	87 - 115				
Nickel	0.05337	0.00500	0.05	0	107	85 - 117				
Potassium	5.158	0.200	5	0	103	87 - 115				
Selenium	0.05446	0.00500	0.05	0	109	80 - 120				
Silver	0.05149	0.00500	0.05	0	103	85 - 116				
Sodium	5.076	0.200	5	0	102	85 - 117				
Thallium	0.05401	0.00200	0.05	0	108	82 - 116				
Vanadium	0.05114	0.00500	0.05	0	102	86 - 115				
Zinc	0.0554	0.00500	0.05	0	111	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:19**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447019** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5876	0.0100	0.1	0.4336	154	84 - 117				SO
Antimony	0.04901	0.00500	0.05	0.000194	97.6	85 - 117				
Arsenic	0.05446	0.00500	0.05	0.000899	107	84 - 116				
Barium	0.09409	0.00500	0.05	0.0464	95.4	86 - 114				
Beryllium	0.04721	0.00200	0.05	0.000886	92.6	83 - 121				
Cadmium	0.05113	0.00200	0.05	0.000369	102	87 - 115				
Calcium	53.63	0.500	5	53.22	8.27	87 - 118				SO
Chromium	0.05071	0.00500	0.05	0.001646	98.1	85 - 116				
Cobalt	0.06739	0.00500	0.05	0.0211	92.6	86 - 115				
Copper	0.05124	0.00500	0.05	0.00278	96.9	85 - 118				
Iron	5.248	0.200	5	0.3641	97.7	87 - 118				
Lead	0.05152	0.00500	0.05	0.00012	103	88 - 115				
Magnesium	46.74	0.200	5	45.53	24.3	83 - 118				SO
Manganese	6.955	0.00500	0.05	7.514	-1120	87 - 115				SEO
Nickel	0.2128	0.00500	0.05	0.1779	69.7	85 - 117				S
Potassium	5.675	0.200	5	0.7382	98.7	87 - 115				
Selenium	0.05339	0.00500	0.05	0.000331	106	80 - 120				
Silver	0.04777	0.00500	0.05	0.000008	95.5	85 - 116				
Sodium	708.6	0.200	5	776.3	-1350	85 - 117				SEO
Thallium	0.05356	0.00200	0.05	0.000019	107	82 - 116				
Vanadium	0.05246	0.00500	0.05	0.00152	102	86 - 115				
Zinc	0.1072	0.00500	0.05	0.06222	89.9	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:23**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447021** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6094	0.0100	0.1	0.4336	176	84 - 117	0.5876	3.65	20	SO
Antimony	0.04888	0.00500	0.05	0.000194	97.4	85 - 117	0.04901	0.247	20	
Arsenic	0.05356	0.00500	0.05	0.000899	105	84 - 116	0.05446	1.66	20	
Barium	0.09265	0.00500	0.05	0.0464	92.5	86 - 114	0.09409	1.54	20	
Beryllium	0.04769	0.00200	0.05	0.000886	93.6	83 - 121	0.04721	1.01	20	
Cadmium	0.05108	0.00200	0.05	0.000369	101	87 - 115	0.05113	0.102	20	
Calcium	52.81	0.500	5	53.22	-8.08	87 - 118	53.63	1.54	20	SO
Chromium	0.05068	0.00500	0.05	0.001646	98.1	85 - 116	0.05071	0.0572	20	
Cobalt	0.06798	0.00500	0.05	0.0211	93.8	86 - 115	0.06739	0.873	20	
Copper	0.05072	0.00500	0.05	0.00278	95.9	85 - 118	0.05124	1.02	20	
Iron	5.262	0.200	5	0.3641	98.0	87 - 118	5.248	0.259	20	
Lead	0.05078	0.00500	0.05	0.00012	101	88 - 115	0.05152	1.46	20	
Magnesium	46.19	0.200	5	45.53	13.3	83 - 118	46.74	1.18	20	SO
Manganese	6.92	0.00500	0.05	7.514	-1190	87 - 115	6.955	0.508	20	SEO
Nickel	0.2117	0.00500	0.05	0.1779	67.6	85 - 117	0.2128	0.499	20	S
Potassium	5.625	0.200	5	0.7382	97.7	87 - 115	5.675	0.875	20	
Selenium	0.05191	0.00500	0.05	0.000331	103	80 - 120	0.05339	2.8	20	
Silver	0.04761	0.00500	0.05	0.000008	95.2	85 - 116	0.04777	0.327	20	
Sodium	720.5	0.200	5	776.3	-1120	85 - 117	708.6	1.66	20	SEO
Thallium	0.05298	0.00200	0.05	0.000019	106	82 - 116	0.05356	1.08	20	
Vanadium	0.05157	0.00500	0.05	0.00152	100	86 - 115	0.05246	1.71	20	
Zinc	0.1073	0.00500	0.05	0.06222	90.2	83 - 119	0.1072	0.163	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:25**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447022** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6193	0.0100	0.1	0.4336	186	80 - 120				SO
Antimony	0.1097	0.00500	0.1	0.000194	110	80 - 120				
Arsenic	0.119	0.00500	0.1	0.000899	118	80 - 120				
Barium	0.1541	0.00500	0.1	0.0464	108	80 - 120				
Beryllium	0.102	0.00200	0.1	0.000886	101	80 - 120				
Cadmium	0.1134	0.00200	0.1	0.000369	113	80 - 120				
Calcium	59.07	0.500	10	53.22	58.6	80 - 120				SO
Chromium	0.112	0.00500	0.1	0.001646	110	80 - 120				
Cobalt	0.1346	0.00500	0.1	0.0211	114	80 - 120				
Copper	0.11	0.00500	0.1	0.00278	107	80 - 120				
Iron	11.4	0.200	10	0.3641	110	80 - 120				
Lead	0.1159	0.00500	0.1	0.00012	116	80 - 120				
Magnesium	53.58	0.200	10	45.53	80.5	80 - 120				O
Nickel	0.2727	0.00500	0.1	0.1779	94.7	80 - 120				
Potassium	11.91	0.200	10	0.7382	112	80 - 120				
Selenium	0.116	0.00500	0.1	0.000331	116	80 - 120				
Silver	0.09187	0.00500	0.1	0.000008	91.9	80 - 120				
Thallium	0.1186	0.00200	0.1	0.000019	119	80 - 120				
Vanadium	0.1136	0.00500	0.1	0.00152	112	80 - 120				
Zinc	0.1714	0.00500	0.1	0.06222	109	80 - 120				

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 17:29**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447469** PrepDate: **29-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	13.09	0.250	5	7.163	118	80 - 120				
Sodium	1264	10.0	500	732.3	106	80 - 120				

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 15:54**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447296** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.4746	0.0500					0.4336	9.47	10	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:17**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447018** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0	0	10	U
Arsenic	0.00500	0.0250					0.000899	0	10	U
Barium	0.04538	0.0250					0.0464	2.19	10	
Beryllium	0.00250	0.0100					0.000886	0	10	U
Cadmium	0.00250	0.0100					0.000369	0	10	U
Calcium	51.65	2.50					53.22	2.95	10	
Chromium	0.00500	0.0250					0.001646	0	10	U
Cobalt	0.0216	0.0250					0.0211	0	10	J
Copper	0.0125	0.0250					0.00278	0	10	U
Iron	0.3466	1.00					0.3641	0	10	J
Lead	0.00500	0.0250					0	0	10	U
Magnesium	45.13	1.00					45.53	0.873	10	
Nickel	0.1856	0.0250					0.1779	4.3	10	
Potassium	0.6991	1.00					0.7382	0	10	J
Selenium	0.0125	0.0250					0	0	10	U
Silver	0.00250	0.0250					0	0	10	U
Thallium	0.00250	0.0100					0	0	10	U
Vanadium	0.00701	0.0250					0.00152	0	10	J
Zinc	0.06506	0.0250					0.06222	4.57	10	

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 17:13**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447464** PrepDate: **29-Dec-2021** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	7.305	1.25					7.163	1.99	10	
Sodium	746.3	50.0					732.3	1.92	10	

The following samples were analyzed in this batch: HS21120917-01 HS21120917-03 HS21120917-04 HS21120917-05

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: 173723 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:16**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464306** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.08043*	*0*	*0.08*	*0*	*101*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.04743*	*0*	*0.08*	*0*	*59.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07872*	*0*	*0.08*	*0*	*98.4*	*40 - 140*				

LCS Sample ID: **LCS-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:34**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464307** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08871	0.010	0.08	0	111	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07835*	*0*	*0.08*	*0*	*97.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.06655*	*0*	*0.08*	*0*	*83.2*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06155*	*0*	*0.08*	*0*	*76.9*	*40 - 140*				

LCSD Sample ID: **LCSD-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:52**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464308** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08406	0.010	0.08	0	105	40 - 140	0.08871	5.38	20	
Surr: 2-Fluorobiphenyl	*0.07614*	*0*	*0.08*	*0*	*95.2*	*40 - 140*	*0.07835*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.0555*	*0*	*0.08*	*0*	*69.4*	*40 - 140*	*0.06655*	*18.1*	*20*	
Surr: Nitrobenzene-d5	*0.08313*	*0*	*0.08*	*0*	*104*	*40 - 140*	*0.06155*	*29.8*	*20*	R

The following samples were analyzed in this batch: HS21120917-01 HS21120917-02 HS21120917-03 HS21120917-06 HS21120917-07 HS21120917-08

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211227** Units: **ug/L** Analysis Date: **27-Dec-2021 19:44**
Client ID: Run ID: **VOA9_398545** SeqNo: **6444485** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211227** Units: **ug/L** Analysis Date: **27-Dec-2021 19:44**
Client ID: Run ID: **VOA9_398545** SeqNo: **6444485** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.82*	*1.0*	*50*	*0*	*91.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.42*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*46.34*	*1.0*	*50*	*0*	*92.7*	*80 - 119*				
Surr: Toluene-d8	*53.36*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211227** Units: **ug/L** Analysis Date: **27-Dec-2021 19:00**
Client ID: Run ID: **VOA9_398545** SeqNo: **6444484** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.76	1.0	20	0	104	78 - 124				
1,1,1-Trichloroethane	21.05	1.0	20	0	105	74 - 131				
1,1,2,2-Tetrachloroethane	20.77	1.0	20	0	104	71 - 121				
1,1,2-Trichloroethane	20.33	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	19.59	1.0	20	0	98.0	77 - 125				
1,1-Dichloroethene	20.22	1.0	20	0	101	71 - 131				
1,1-Dichloropropene	20.3	1.0	20	0	102	78 - 125				
1,2,3-Trichlorobenzene	20.87	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	20.1	1.0	20	0	100	73 - 122				
1,2,4-Trichlorobenzene	21.7	1.0	20	0	108	69 - 130				
1,2,4-Trimethylbenzene	20.59	1.0	20	0	103	76 - 124				
1,2-Dibromo-3-chloropropane	18.85	1.0	20	0	94.2	62 - 128				
1,2-Dibromoethane	21.57	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	19.88	1.0	20	0	99.4	80 - 119				
1,2-Dichloroethane	19.09	1.0	20	0	95.4	73 - 128				
1,2-Dichloropropane	20.48	1.0	20	0	102	78 - 122				
1,3,5-Trimethylbenzene	20.44	1.0	20	0	102	75 - 124				
1,3-Dichlorobenzene	21.36	1.0	20	0	107	80 - 119				
1,3-Dichloropropane	20.78	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	19.93	1.0	20	0	99.6	79 - 118				
2,2-Dichloropropane	20.25	1.0	20	0	101	60 - 139				
2-Butanone	40.06	2.0	40	0	100	56 - 143				
2-Chlorotoluene	20.55	1.0	20	0	103	79 - 122				
2-Hexanone	41.99	2.0	40	0	105	57 - 139				
4-Chlorotoluene	21.38	1.0	20	0	107	78 - 122				
4-Isopropyltoluene	20.06	1.0	20	0	100	77 - 127				
4-Methyl-2-pentanone	41.8	2.0	40	0	105	67 - 130				
Acetone	39.25	2.0	40	0	98.1	39 - 160				
Benzene	20.85	1.0	20	0	104	79 - 120				
Bromobenzene	21.2	1.0	20	0	106	80 - 120				
Bromochloromethane	20.67	1.0	20	0	103	78 - 123				
Bromodichloromethane	20.57	1.0	20	0	103	79 - 125				
Bromoform	18.89	1.0	20	0	94.5	66 - 130				
Bromomethane	23.26	1.0	20	0	116	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211227** Units: **ug/L** Analysis Date: **27-Dec-2021 19:00**
Client ID: Run ID: **VOA9_398545** SeqNo: **6444484** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	42.73	2.0	40	0	107	64 - 133				
Carbon tetrachloride	19.17	1.0	20	0	95.9	72 - 136				
Chlorobenzene	20.43	1.0	20	0	102	82 - 118				
Chloroethane	19.49	1.0	20	0	97.4	60 - 138				
Chloroform	20.21	1.0	20	0	101	79 - 124				
Chloromethane	20.3	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	20.54	1.0	20	0	103	78 - 123				
cis-1,3-Dichloropropene	19.35	1.0	20	0	96.8	75 - 124				
Dibromochloromethane	18.87	1.0	20	0	94.3	74 - 126				
Dibromomethane	20.15	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	19.37	1.0	20	0	96.8	32 - 152				
Ethylbenzene	20.8	1.0	20	0	104	79 - 121				
Hexachlorobutadiene	18.55	1.0	20	0	92.7	66 - 134				
Isopropylbenzene	20.99	1.0	20	0	105	72 - 131				
m,p-Xylene	42.63	2.0	40	0	107	80 - 121				
Methylene chloride	19.79	2.0	20	0	99.0	74 - 124				
Naphthalene	19.55	1.0	20	0	97.8	61 - 128				
n-Butylbenzene	21.47	1.0	20	0	107	75 - 128				
n-Propylbenzene	21.97	1.0	20	0	110	76 - 126				
o-Xylene	21.89	1.0	20	0	109	78 - 122				
sec-Butylbenzene	21.52	1.0	20	0	108	77 - 126				
Styrene	22.38	1.0	20	0	112	78 - 123				
tert-Butylbenzene	21.01	1.0	20	0	105	78 - 124				
Tetrachloroethene	19.81	1.0	20	0	99.1	74 - 129				
Toluene	21.46	1.0	20	0	107	80 - 121				
trans-1,2-Dichloroethene	19.42	1.0	20	0	97.1	75 - 124				
trans-1,3-Dichloropropene	18.22	1.0	20	0	91.1	73 - 127				
Trichloroethene	19.47	1.0	20	0	97.3	79 - 123				
Trichlorofluoromethane	19.85	1.0	20	0	99.3	65 - 141				
Vinyl chloride	19.48	1.0	20	0	97.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.28*	*1.0*	*50*	*0*	*107*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.36*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*54.3*	*1.0*	*50*	*0*	*109*	*80 - 119*				
Surr: Toluene-d8	*51.77*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120917-02MS** Units: **ug/L** Analysis Date: **28-Dec-2021 00:12**
Client ID: **18DPTMW05_121321** Run ID: **VOA9_398545** SeqNo: **6444508** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	354.5	25	500	0	70.9	78 - 124				S
1,1,1-Trichloroethane	376.5	25	500	0	75.3	74 - 131				
1,1,2,2-Tetrachloroethane	335.2	25	500	0	67.0	71 - 121				S
1,1,2-Trichloroethane	344.2	25	500	0	68.8	80 - 119				S
1,1-Dichloroethane	351.2	25	500	0	70.2	77 - 125				S
1,1-Dichloroethene	365.5	25	500	0	73.1	71 - 131				
1,1-Dichloropropene	347.4	25	500	0	69.5	78 - 125				S
1,2,3-Trichlorobenzene	308.1	25	500	0	61.6	69 - 129				S
1,2,3-Trichloropropane	315.6	25	500	0	63.1	73 - 122				S
1,2,4-Trichlorobenzene	316.4	25	500	0	63.3	69 - 130				S
1,2,4-Trimethylbenzene	331.7	25	500	0	66.3	76 - 124				S
1,2-Dibromo-3-chloropropane	291.2	25	500	0	58.2	62 - 128				S
1,2-Dibromoethane	349.4	25	500	0	69.9	77 - 121				S
1,2-Dichlorobenzene	335.9	25	500	0	67.2	80 - 119				S
1,2-Dichloroethane	396.3	25	500	33.21	72.6	73 - 128				S
1,2-Dichloropropane	349.7	25	500	0	69.9	78 - 122				S
1,3,5-Trimethylbenzene	341.9	25	500	0	68.4	75 - 124				S
1,3-Dichlorobenzene	334.8	25	500	0	67.0	80 - 119				S
1,3-Dichloropropane	349.3	25	500	0	69.9	80 - 119				S
1,4-Dichlorobenzene	330.4	25	500	0	66.1	79 - 118				S
2,2-Dichloropropane	290.8	25	500	0	58.2	60 - 139				S
2-Butanone	660.4	50	1000	0	66.0	56 - 143				
2-Chlorotoluene	345.3	25	500	0	69.1	79 - 122				S
2-Hexanone	652.7	50	1000	0	65.3	57 - 139				
4-Chlorotoluene	356.6	25	500	0	71.3	78 - 122				S
4-Isopropyltoluene	325.4	25	500	0	65.1	77 - 127				S
4-Methyl-2-pentanone	673.7	50	1000	0	67.4	67 - 130				
Acetone	622.5	50	1000	0	62.3	39 - 160				
Benzene	365.6	25	500	0	73.1	79 - 120				S
Bromobenzene	346.9	25	500	0	69.4	80 - 120				S
Bromochloromethane	373.4	25	500	0	74.7	78 - 123				S
Bromodichloromethane	348.4	25	500	0	69.7	79 - 125				S
Bromoform	312.7	25	500	0	62.5	66 - 130				S
Bromomethane	400.6	25	500	0	80.1	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120917-02MS** Units: **ug/L** Analysis Date: **28-Dec-2021 00:12**
Client ID: **18DPTMW05_121321** Run ID: **VOA9_398545** SeqNo: **6444508** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	654.7	50	1000	0	65.5	64 - 133				
Carbon tetrachloride	354.5	25	500	0	70.9	72 - 136				S
Chlorobenzene	339.3	25	500	0	67.9	82 - 118				S
Chloroethane	354.3	25	500	0	70.9	60 - 138				
Chloroform	384.3	25	500	16	73.7	79 - 124				S
Chloromethane	370.4	25	500	0	74.1	50 - 139				
cis-1,2-Dichloroethene	418.3	25	500	38.53	76.0	78 - 123				S
cis-1,3-Dichloropropene	314.2	25	500	0	62.8	75 - 124				S
Dibromochloromethane	333.2	25	500	0	66.6	74 - 126				S
Dibromomethane	345.6	25	500	0	69.1	79 - 123				S
Dichlorodifluoromethane	304.8	25	500	0	61.0	32 - 152				
Ethylbenzene	347.9	25	500	0	69.6	79 - 121				S
Hexachlorobutadiene	292.9	25	500	0	58.6	66 - 134				S
Isopropylbenzene	349.8	25	500	0	70.0	72 - 131				S
m,p-Xylene	707.5	50	1000	0	70.8	80 - 121				S
Methylene chloride	326.8	50	500	0	65.4	74 - 124				S
Naphthalene	305.5	25	500	0	61.1	61 - 128				
n-Butylbenzene	343.5	25	500	0	68.7	75 - 128				S
n-Propylbenzene	360.6	25	500	0	72.1	76 - 126				S
o-Xylene	366.1	25	500	0	73.2	78 - 122				S
sec-Butylbenzene	348.1	25	500	0	69.6	77 - 126				S
Styrene	365.8	25	500	0	73.2	78 - 123				S
tert-Butylbenzene	346.6	25	500	0	69.3	78 - 124				S
Tetrachloroethene	327.5	25	500	0	65.5	74 - 129				S
Toluene	362.8	25	500	0	72.6	80 - 121				S
trans-1,2-Dichloroethene	338.7	25	500	0	67.7	75 - 124				S
trans-1,3-Dichloropropene	303	25	500	0	60.6	73 - 127				S
Trichloroethene	3106	25	500	1884	244	79 - 123				S
Trichlorofluoromethane	343.1	25	500	0	68.6	65 - 141				
Vinyl chloride	357	25	500	0	71.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*911.4*	*25*	*1250*	*0*	*72.9*	*81 - 118*				S
Surr: 4-Bromofluorobenzene	*910.3*	*25*	*1250*	*0*	*72.8*	*85 - 114*				S
Surr: Dibromofluoromethane	*919*	*25*	*1250*	*0*	*73.5*	*80 - 119*				S
Surr: Toluene-d8	*911.3*	*25*	*1250*	*0*	*72.9*	*89 - 112*				S

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120917-02MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 00:34**
Client ID: **18DPTMW05_121321** Run ID: **VOA9_398545** SeqNo: **6444509** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	346.9	25	500	0	69.4	78 - 124	354.5	2.19	20	S
1,1,1-Trichloroethane	376.3	25	500	0	75.3	74 - 131	376.5	0.0594	20	
1,1,2,2-Tetrachloroethane	336.3	25	500	0	67.3	71 - 121	335.2	0.337	20	S
1,1,2-Trichloroethane	337.5	25	500	0	67.5	80 - 119	344.2	1.98	20	S
1,1-Dichloroethane	338.6	25	500	0	67.7	77 - 125	351.2	3.65	20	S
1,1-Dichloroethene	343.1	25	500	0	68.6	71 - 131	365.5	6.34	20	S
1,1-Dichloropropene	339.4	25	500	0	67.9	78 - 125	347.4	2.33	20	S
1,2,3-Trichlorobenzene	316.6	25	500	0	63.3	69 - 129	308.1	2.75	20	S
1,2,3-Trichloropropane	320.4	25	500	0	64.1	73 - 122	315.6	1.51	20	S
1,2,4-Trichlorobenzene	324.6	25	500	0	64.9	69 - 130	316.4	2.56	20	S
1,2,4-Trimethylbenzene	338	25	500	0	67.6	76 - 124	331.7	1.91	20	S
1,2-Dibromo-3-chloropropane	298.2	25	500	0	59.6	62 - 128	291.2	2.38	20	S
1,2-Dibromoethane	351.1	25	500	0	70.2	77 - 121	349.4	0.489	20	S
1,2-Dichlorobenzene	326.2	25	500	0	65.2	80 - 119	335.9	2.92	20	S
1,2-Dichloroethane	398.8	25	500	33.21	73.1	73 - 128	396.3	0.638	20	
1,2-Dichloropropane	356.6	25	500	0	71.3	78 - 122	349.7	1.96	20	S
1,3,5-Trimethylbenzene	338.1	25	500	0	67.6	75 - 124	341.9	1.12	20	S
1,3-Dichlorobenzene	335.2	25	500	0	67.0	80 - 119	334.8	0.145	20	S
1,3-Dichloropropane	354	25	500	0	70.8	80 - 119	349.3	1.35	20	S
1,4-Dichlorobenzene	321.2	25	500	0	64.2	79 - 118	330.4	2.84	20	S
2,2-Dichloropropane	295.3	25	500	0	59.1	60 - 139	290.8	1.52	20	S
2-Butanone	659.4	50	1000	0	65.9	56 - 143	660.4	0.145	20	
2-Chlorotoluene	342.6	25	500	0	68.5	79 - 122	345.3	0.806	20	S
2-Hexanone	676.8	50	1000	0	67.7	57 - 139	652.7	3.62	20	
4-Chlorotoluene	352.1	25	500	0	70.4	78 - 122	356.6	1.26	20	S
4-Isopropyltoluene	326.6	25	500	0	65.3	77 - 127	325.4	0.37	20	S
4-Methyl-2-pentanone	680.9	50	1000	0	68.1	67 - 130	673.7	1.07	20	
Acetone	613.4	50	1000	0	61.3	39 - 160	622.5	1.48	20	
Benzene	356.2	25	500	0	71.2	79 - 120	365.6	2.58	20	S
Bromobenzene	343.2	25	500	0	68.6	80 - 120	346.9	1.07	20	S
Bromochloromethane	376.9	25	500	0	75.4	78 - 123	373.4	0.928	20	S
Bromodichloromethane	337.1	25	500	0	67.4	79 - 125	348.4	3.29	20	S
Bromoform	307	25	500	0	61.4	66 - 130	312.7	1.82	20	S
Bromomethane	363.6	25	500	0	72.7	53 - 141	400.6	9.67	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398545 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120917-02MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 00:34**
Client ID: **18DPTMW05_121321** Run ID: **VOA9_398545** SeqNo: **6444509** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	638	50	1000	0	63.8	64 - 133	654.7	2.58	20	S
Carbon tetrachloride	341.2	25	500	0	68.2	72 - 136	354.5	3.82	20	S
Chlorobenzene	334.1	25	500	0	66.8	82 - 118	339.3	1.55	20	S
Chloroethane	370.2	25	500	0	74.0	60 - 138	354.3	4.4	20	
Chloroform	385.3	25	500	16	73.9	79 - 124	384.3	0.276	20	S
Chloromethane	354.7	25	500	0	70.9	50 - 139	370.4	4.33	20	
cis-1,2-Dichloroethene	413.8	25	500	38.53	75.0	78 - 123	418.3	1.09	20	S
cis-1,3-Dichloropropene	311.6	25	500	0	62.3	75 - 124	314.2	0.824	20	S
Dibromochloromethane	327.7	25	500	0	65.5	74 - 126	333.2	1.65	20	S
Dibromomethane	348	25	500	0	69.6	79 - 123	345.6	0.682	20	S
Dichlorodifluoromethane	298.3	25	500	0	59.7	32 - 152	304.8	2.13	20	
Ethylbenzene	339.2	25	500	0	67.8	79 - 121	347.9	2.53	20	S
Hexachlorobutadiene	291.8	25	500	0	58.4	66 - 134	292.9	0.4	20	S
Isopropylbenzene	341.6	25	500	0	68.3	72 - 131	349.8	2.37	20	S
m,p-Xylene	700.3	50	1000	0	70.0	80 - 121	707.5	1.03	20	S
Methylene chloride	333.2	50	500	0	66.6	74 - 124	326.8	1.92	20	S
Naphthalene	309.2	25	500	0	61.8	61 - 128	305.5	1.21	20	
n-Butylbenzene	341.6	25	500	0	68.3	75 - 128	343.5	0.562	20	S
n-Propylbenzene	351.4	25	500	0	70.3	76 - 126	360.6	2.58	20	S
o-Xylene	357.1	25	500	0	71.4	78 - 122	366.1	2.47	20	S
sec-Butylbenzene	343.2	25	500	0	68.6	77 - 126	348.1	1.44	20	S
Styrene	365.7	25	500	0	73.1	78 - 123	365.8	0.025	20	S
tert-Butylbenzene	339.2	25	500	0	67.8	78 - 124	346.6	2.15	20	S
Tetrachloroethene	308.9	25	500	0	61.8	74 - 129	327.5	5.86	20	S
Toluene	357.8	25	500	0	71.6	80 - 121	362.8	1.39	20	S
trans-1,2-Dichloroethene	323.8	25	500	0	64.8	75 - 124	338.7	4.48	20	S
trans-1,3-Dichloropropene	303.3	25	500	0	60.7	73 - 127	303	0.107	20	S
Trichloroethene	3026	25	500	1884	228	79 - 123	3106	2.62	20	S
Trichlorofluoromethane	336.5	25	500	0	67.3	65 - 141	343.1	1.94	20	
Vinyl chloride	352.3	25	500	0	70.5	58 - 137	357	1.34	20	
Surr: 1,2-Dichloroethane-d4	*924.1*	*25*	*1250*	*0*	*73.9*	*81 - 118*	*911.4*	*1.38*	*20*	S
Surr: 4-Bromofluorobenzene	*924.7*	*25*	*1250*	*0*	*74.0*	*85 - 114*	*910.3*	*1.57*	*20*	S
Surr: Dibromofluoromethane	*947.1*	*25*	*1250*	*0*	*75.8*	*80 - 119*	*919*	*3*	*20*	S
Surr: Toluene-d8	*916*	*25*	*1250*	*0*	*73.3*	*89 - 112*	*911.3*	*0.506*	*20*	S

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID:	R398545 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21120917-01	HS21120917-02	HS21120917-03	HS21120917-04
HS21120917-05	HS21120917-06	HS21120917-07	HS21120917-08
HS21120917-09			

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*48.53*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.05*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	18.29	1.0	20	0	91.5	79 - 123				
Surr: 1,2-Dichloroethane-d4	*53.14*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.35*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*52.31*	*1.0*	*50*	*0*	*105*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	21.23	1.0	20	0	106	79 - 123				
Surr: 1,2-Dichloroethane-d4	*47.94*	*1.0*	*50*	*0*	*95.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.67*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*52.73*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	19.94	1.0	20	0	99.7	79 - 123	21.23	6.29	20	
Surr: 1,2-Dichloroethane-d4	*48.48*	*1.0*	*50*	*0*	*97.0*	*81 - 118*	*47.94*	*1.13*	*20*	
Surr: 4-Bromofluorobenzene	*52.14*	*1.0*	*50*	*0*	*104*	*85 - 114*	*52.67*	*1.02*	*20*	
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*	*47.81*	*0.00255*	*20*	
Surr: Toluene-d8	*53.24*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.73*	*0.956*	*20*	

The following samples were analyzed in this batch: HS21120917-02

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211229** Units: **ug/L** Analysis Date: **29-Dec-2021 12:09**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446342** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*49.58*	*1.0*	*50*	*0*	*99.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.45*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*48.19*	*1.0*	*50*	*0*	*96.4*	*80 - 119*				
Surr: Toluene-d8	*53.37*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-211229** Units: **ug/L** Analysis Date: **29-Dec-2021 11:25**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446341** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	18.39	1.0	20	0	92.0	79 - 123				
Surr: 1,2-Dichloroethane-d4	*57.82*	*1.0*	*50*	*0*	*116*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.91*	*1.0*	*50*	*0*	*110*	*85 - 114*				
Surr: Dibromofluoromethane	*56.42*	*1.0*	*50*	*0*	*113*	*80 - 119*				
Surr: Toluene-d8	*52.49*	*1.0*	*50*	*0*	*105*	*89 - 112*				

MS Sample ID: **HS21121014-04MS** Units: **ug/L** Analysis Date: **29-Dec-2021 15:53**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446352** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	19.28	1.0	20	0	96.4	79 - 123				
Surr: 1,2-Dichloroethane-d4	*49.41*	*1.0*	*50*	*0*	*98.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.65*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.15*	*1.0*	*50*	*0*	*94.3*	*80 - 119*				
Surr: Toluene-d8	*53.33*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120917

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121014-04MSD** Units: **ug/L** Analysis Date: **29-Dec-2021 16:15**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446353** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	19	1.0	20	0	95.0	79 - 123	19.28	1.45	20	
Surr: 1,2-Dichloroethane-d4	*47.58*	*1.0*	*50*	*0*	*95.2*	*81 - 118*	*49.41*	*3.77*	*20*	
Surr: 4-Bromofluorobenzene	*52.82*	*1.0*	*50*	*0*	*106*	*85 - 114*	*52.65*	*0.332*	*20*	
Surr: Dibromofluoromethane	*46.69*	*1.0*	*50*	*0*	*93.4*	*80 - 119*	*47.15*	*0.984*	*20*	
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*	*53.33*	*0.251*	*20*	

The following samples were analyzed in this batch: HS21120917-03

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: **HS21120917**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120917

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21120917-01	18CPTMW03SW_121321	Login	12/15/2021 7:19:45 PM	NDR	MET020
HS21120917-01	18CPTMW03SW_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-01	18CPTMW03SW_121321	Login	12/15/2021 7:19:45 PM	NDR	EXT169
HS21120917-01	18CPTMW03SW_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-02	18DPTMW05_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-02	18DPTMW05_121321	Login	12/15/2021 7:19:45 PM	NDR	EXT169
HS21120917-02	18DPTMW05_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-03	MW21_121321	Login	12/15/2021 7:19:45 PM	NDR	MET020
HS21120917-03	MW21_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-03	MW21_121321	Login	12/15/2021 7:19:45 PM	NDR	EXT169
HS21120917-03	MW21_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-04	18CPTMW10DW_121321	Login	12/15/2021 7:19:45 PM	NDR	MET020
HS21120917-04	18CPTMW10DW_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-04	18CPTMW10DW_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-05	18CPTMW10DW_121321_a	Login	12/15/2021 7:19:45 PM	NDR	MET020
HS21120917-05	18CPTMW10DW_121321_a	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-05	18CPTMW10DW_121321_a	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-06	18CPTMW10SW_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-06	18CPTMW10SW_121321	Login	12/15/2021 7:19:45 PM	NDR	EXT169
HS21120917-06	18CPTMW10SW_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-07	18ww08_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-07	18ww08_121321	Login	12/15/2021 7:19:45 PM	NDR	EXT169
HS21120917-07	18ww08_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-08	18CPTMW19_121321	Login	12/15/2021 7:19:45 PM	NDR	Sub
HS21120917-08	18CPTMW19_121321	Login	12/15/2021 7:19:45 PM	NDR	EXT169
HS21120917-08	18CPTMW19_121321	Login	12/15/2021 7:19:45 PM	NDR	VOA313
HS21120917-09	Trip Blank	Login	12/15/2021 7:19:45 PM	NDR	VOA313

ALS Houston, US Date: 14-Jan-22

Sample Receipt Checklist

Work Order ID: HS21120917 **Date/Time Received:** **15-Dec-2021 10:40**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Nilesh D. Ranchod (eSignature) 10-Dec-2021 13:01 (Date/Time) **Reviewed by:** /S/ Corey Grandits (eSignature) 16-Dec-2021 16:22 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	0.9°C UC/C	IR31
Cooler(s)/Kit(s):	48010	
Date/Time sample(s) sent to storage:	12/13/2021 20:00	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18CPTMW03SW_121321	13 DEC 2021	0740	-	N		WG	6	X	X	X	X										
18DPTMW05_121321	13 DEC 2021	0830	-	N		WG	5	X	X		X										
MW21_121321	13 DEC 2021	0925	-	N		WG	6	X	X	X	X										
18CPTMW10DW_121321	13 DEC 2021	1010		N		WG	5	X	X	X											
18CPTMW10DW_121321_a	13 DEC 2021	1010		FD		WG	5	X	X	X											
18CPTMW10SW_121321	13 DEC 2021	1055	-	N		WG	5	X	X		X										
18WW08_121321	13 DEC 2021	1040	-	N		WG	5	X	X		X										
18CPTMW19_121321	13 DEC 2021	1225	-	N		WG	5	X	X		X										
TRIPBLANK	13 DEC 2021		-	TB		W	2	X													
			-																		
			-																		

Sample Analysis Requested (5) — Quality Assurance Samples (6)

COMMENTS: STANDARD TAT

Bhate Environmental Associates, Inc.
LHAAP/Site 18 /24
HS21120917

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/14/21	1430	1. [signature]	12/15/2021	10:40.
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

Method of Shipment: _____

Fed Ex _____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

48010. 0.90 HSI 11:00

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 12/18/21 Time: 1130
Name: Scott Brooks
Company: EHATS

Seal Broken By:
Date: 12/19/21

HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG
RMA:

FedEx Express

TRK# 5300 5225 1684

PRIORITY OVERNIGHT

December 29, 2021

Service Request No:E2101278

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120917

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 16, 2021
For your reference, these analyses have been assigned our service request number **E2101278.**

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.:**	E2101278
Project:	HS21120917	**Date Received:**	12/16/21
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 12/16/21.

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:

EQ2100700: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

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:**E2101278
Project: HS21120917

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101278-001	18CPTMW03SW_121321	12/13/2021	0740
E2101278-002	18DPTMW05_121321	12/13/2021	0830
E2101278-003	MW21_121321	12/13/2021	0925
E2101278-004	18CPTMW10DW_121321	12/13/2021	1010
E2101278-005	18CPTMW10DW_121321_a	12/13/2021	1010
E2101278-006	18CPTMW10SW_121321	12/13/2021	1055
E2101278-007	18ww08_121321	12/13/2021	1140
E2101278-008	18CPTMW19_121321	12/13/2021	1225

Service Request Summary

Folder #: **E2101278**
Client Name: ALS Environmental - US
Project Name: HS21120917
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/16/21
Internal Due Date: 12/30/2021
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120917
EDD: No EDD Specified

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
E2101278-001	18CPTMW03SW_121321	Ground Water	12/13/21 0740	**IV**
E2101278-002	18DPTMW05_121321	Ground Water	12/13/21 0830	**IV**
E2101278-003	MW21_121321	Ground Water	12/13/21 0925	**IV**
E2101278-004	18CPTMW10DW_121321	Ground Water	12/13/21 1010	**IV**
E2101278-005	18CPTMW10DW_121321_a	Ground Water	12/13/21 1010	**IV**
E2101278-006	18CPTMW10SW_121321	Ground Water	12/13/21 1055	**IV**
E2101278-007	18ww08_121321	Ground Water	12/13/21 1140	**IV**
E2101278-008	18CPTMW19_121321	Ground Water	12/13/21 1225	**IV**

Folder Comments:

Send DWELR confirmation to Middletown PM for PADEP samples.

Service Request Summary

Folder #:	**E2101278**
Client Name:	ALS Environmental - US
Project Name:	HS21120917
Project Number:	

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA

Phone Number:	
Cell Number:	
Fax Number:	
E-mail:	ragenp.giga@alsglobal.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	12/16/21
Internal Due Date:	12/30/2021
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	Y
P.O. Number:	HS21120917
EDD:	No EDD Specified

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	Level IV due 1/6

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E Estimated value. The reported concentration is above the calibration range of the instrument.
H Sample extracted and/or analyzed out of suggested holding time.
J Estimated value. The reported concentration is below the MRL.
K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S Signal saturated detector. Result reported from dilution.
U Compound was analyzed for, but was not detected (ND).
X See Case Narrative.
Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i The MDL/MRL have 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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: **Texas** **COC ID:** **17701**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21120917
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120917-01**	**18CPTMW03SW-121321**	**Groundwater**	**13 Dec 2021 07:40**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
2.	**HS21120917-02**	**18DPTMW05-121321**	**Groundwater**	**13 Dec 2021 08:30**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
3.	**HS21120917-03**	**MW21_121321**	**Groundwater**	**13 Dec 2021 09:25**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
4.	**HS21120917-04**	**18CPTMW10DW_121321**	**Groundwater**	**13 Dec 2021 10:10**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
5.	**HS21120917-05**	**18CPTMW10DW_121321_a**	**Groundwater**	**13 Dec 2021 10:10**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
6.	**HS21120917-06**	**18CPTMW10DSW_120821**	**Groundwater**	**13 Dec 2021 10:55**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
7.	**HS21120917-07**	**18ww08_121321**	**Groundwater**	**13 Dec 2021 11:40**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
8.	**HS21120917-08**	**18CPTMW19-121321**	**Groundwater**	**13 Dec 2021 12:25**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17701**

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. MAGNAR	Date/Time:	12/16/21 09:25
Received By:	COTREY G	Date/Time:	12/16/21 0925
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-21

Thermometer ID: IR31

Date/Time Received: 12-16-21 Initials: CG

Date/Time Logged in: 12-16-21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (HLG) ○ 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		12-16-21	0929	CG	4.4	☒
						☐
						☐
						☐

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

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#: 393157 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/23/21 08:48

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101277-001	126_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101277-002	109_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101277-003	18CPTMW07_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101277-004	18CPTMW24_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101277-005	CO8_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101277-006	18DPTMW04_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101277-007	125_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101278-001	18CPTMW03SW_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101278-002	18DPTMW05_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2101278-003	MW21_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2101278-004	18CPTMW10DW_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2101278-005	18CPTMW10DW_121321_a	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2101278-006	18CPTMW10SW_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2101278-007	18ww08_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2101278-008	18CPTMW19_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2101294-001	LH18/24-SP650_122121_AIX	.01	6850/ClO4 DOD			Water	10mL	
17	EQ2100700-01	MB		6850/ClO4 DOD			Liquid	10mL	
18	EQ2100700-02	LCS		6850/ClO4 DOD			Liquid	10mL	
19	EQ2100700-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101277-001	100.00µL	E2101277-002	100.00µL	E2101277-003	100.00µL	E2101277-004	100.00µL	E2101277-005	100.00µL	E2101277-006	100.00µL
E2101277-007	100.00µL	E2101278-001	100.00µL	E2101278-002	100.00µL	E2101278-003	100.00µL	E2101278-004	100.00µL	E2101278-005	100.00µL
E2101278-006	100.00µL	E2101278-007	100.00µL	E2101278-008	100.00µL	E2101294-001	100.00µL	EQ2100700-01	100.00µL	EQ2100700-02	100.00µL
EQ2100700-03	100.00µL										

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100700-02	1.00µL	EQ2100700-03	1.00µL

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Information Benchsheet

Prep Run#: 393157
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 12/23/21 08:48

Preparation Steps

Step: Preparation
Started: 12/23/21 08:48
Finished: 12/23/21 09:50
By: GRIVERA
Comments

Comments:

Reviewed By: GR Date: 12/23/21

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:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 0740
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW03SW_121321	**Units:**	µg/L
Lab Code:	E2101278-001	**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	**0.0753**		0.100	0.0500	0.0250	1	12/23/21	12/28/21 11:26	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 0830
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18DPTMW05_121321	**Units:**	µg/L
Lab Code:	E2101278-002	**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	**402000**		5000	2500	1250	50000	12/23/21	12/28/21 13:57	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 0925
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	MW21_121321	**Units:**	µg/L
Lab Code:	E2101278-003	**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	**9660**		50.0	25.0	12.5	500	12/23/21	12/28/21 13:09	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 1010
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW10DW_121321	**Units:**	µg/L
Lab Code:	E2101278-004	**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	**0.245**		0.100	0.0500	0.0250	1	12/23/21	12/28/21 11:34	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 1010
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW10DW_121321_a	**Units:**	µg/L
Lab Code:	E2101278-005	**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	**0.262**		0.100	0.0500	0.0250	1	12/23/21	12/28/21 11:42	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 1055
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW10SW_121321	**Units:**	µg/L
Lab Code:	E2101278-006	**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	**0.0861**		0.100	0.0500	0.0250	1	12/23/21	12/28/21 11:50	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 1140
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18ww08_121321	**Units:**	µg/L
Lab Code:	E2101278-007	**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	**23600**		200	100	50.0	2000	12/23/21	12/28/21 13:49	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	12/13/21 1225
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW19_121321	**Units:**	µg/L
Lab Code:	E2101278-008	**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	**2.37**		0.100	0.0500	0.0250	1	12/23/21	12/28/21 11:57	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100700-01	**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		0.100	0.0500	0.0250	1	12/23/21	12/23/21 10:01	393157	750095	

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	**Service Request:**	E2101278
Project:	HS21120917	**Date Analyzed:**	12/23/21
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	393157

	Lab Control Sample EQ2100700-02			Duplicate Lab Control Sample EQ2100700-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0987	0.100	99	0.0991	0.100	99	84 - 119	<1	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:**	E2101278
Project:	HS21120917	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100700-02	**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	**0.0987**		0.100	0.0500	0.0250	1	12/23/21	12/23/21 10:09	393157	750095	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101278
Project:	HS21120917	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100700-03	**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	**0.0991**		0.100	0.0500	0.0250	1	12/23/21	12/23/21 10:17	393157	750095	

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

January 14, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120921**

Laboratory Results for: **LHAAP/Site 18 /24**

Dear Marcia Olive,

ALS Environmental received 8 sample(s) on Dec 15, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120921

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120921-01	126_121421	Groundwater		14-Dec-2021 07:45	15-Dec-2021 10:40	☐
HS21120921-02	109_121421	Groundwater		14-Dec-2021 08:40	15-Dec-2021 10:40	☐
HS21120921-03	18CPTMW07_121421	Groundwater		14-Dec-2021 09:25	15-Dec-2021 10:40	☐
HS21120921-04	18CPTMW24_121421	Groundwater		14-Dec-2021 10:10	15-Dec-2021 10:40	☐
HS21120921-05	CO8_121421	Groundwater		14-Dec-2021 11:00	15-Dec-2021 10:40	☐
HS21120921-06	18DPTMW04_121421	Groundwater		14-Dec-2021 11:50	15-Dec-2021 10:40	☐
HS21120921-07	125_121421	Groundwater		14-Dec-2021 12:05	15-Dec-2021 10:40	☐
HS21120921-08	Trip Blank	Water		14-Dec-2021 00:00	15-Dec-2021 10:40	☐

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120921

CASE NARRATIVE

Work Order Comments

- The perchlorate analysis was subcontracted to ALS High-Res specialty lab. Final report attached.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173723

Sample ID: LCSD-173723

- The RPD between the LCS and LCSD was outside of the control limit.

GCMS Volatiles by Method SW8260

Batch ID: R398551

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 174048

Sample ID: HS21121014-04MS

- MS/MSD and DUPs are for an unrelated sample

Metals by Method SW7470A

Batch ID: 173861

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 126_121421
Collection Date: 14-Dec-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 14:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 14:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 14:26
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 14:26
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 14:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 126_121421
Collection Date: 14-Dec-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 14:26
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 14:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:26
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 14:26*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 14:26*
Surr: Dibromofluoromethane	*96.9*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 14:26*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 14:26*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 17:47
Surr: 2-Fluorobiphenyl	*54.8*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:47*
Surr: 4-Terphenyl-d14	*86.8*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:47*
Surr: Nitrobenzene-d5	*129*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 17:47*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 126_121421
Collection Date: 14-Dec-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.228**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:51
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:51
Arsenic	**0.0233**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Barium	**10.5**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	30-Dec-2021 16:00
Beryllium	**0.000259**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 12:51
Cadmium	**0.000726**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 12:51
Calcium	**310**		**0.680**	**1.00**	**10.0**	**mg/L**	20	30-Dec-2021 16:00
Chromium	**0.00180**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Cobalt	**0.0311**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Copper	**0.00126**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Iron	**20.7**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:51
Lead	**0.000872**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Magnesium	**245**		**0.200**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 16:00
Manganese	**0.398**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Nickel	**0.0204**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Potassium	**4.25**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:51
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:51
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:51
Sodium	**836**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 16:00
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:51
Vanadium	**0.00361**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
Zinc	**0.0266**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:51
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000840**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:28
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 109_121421
Collection Date: 14-Dec-2021 08:40

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,1-Dichloroethane	**0.40**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 14:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 14:49
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 14:49
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 14:49
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 14:49
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 14:49
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 109_121421
Collection Date: 14-Dec-2021 08:40

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
cis-1,2-Dichloroethene	**65**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 14:49
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 14:49
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 14:49
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:49
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
trans-1,2-Dichloroethene	**0.43**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 14:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Trichloroethene	**120**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 14:49
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:49
Surr: 1,2-Dichloroethane-d4	*99.0*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 14:49*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 14:49*
Surr: Dibromofluoromethane	*95.2*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 14:49*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 14:49*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.054**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 18:05
Surr: 2-Fluorobiphenyl	*110*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:05*
Surr: 4-Terphenyl-d14	*50.6*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:05*
Surr: Nitrobenzene-d5	*102*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:05*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW07_121421
Collection Date: 14-Dec-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 16:18
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 16:18
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 16:18
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 16:18
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 16:18
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW07_121421
Collection Date: 14-Dec-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 16:18
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 16:18
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:18
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:18
Surr: 1,2-Dichloroethane-d4	*97.9*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 16:18*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 16:18*
Surr: Dibromofluoromethane	*94.0*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 16:18*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 16:18*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.059**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 18:23
Surr: 2-Fluorobiphenyl	*52.6*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:23*
Surr: 4-Terphenyl-d14	*66.4*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:23*
Surr: Nitrobenzene-d5	*110*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:23*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW24_121421
Collection Date: 14-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 16:40
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 16:40
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 16:40
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 16:40
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 16:40
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW24_121421
Collection Date: 14-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
cis-1,2-Dichloroethene	**14**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 16:40
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 16:40
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	28-Dec-2021 16:40
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 16:40
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 16:40
Trichloroethene	**7.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 16:40
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 16:40
Vinyl chloride	**15**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 16:40
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 16:40*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 16:40*
Surr: Dibromofluoromethane	*96.9*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 16:40*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 16:40*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.053**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 18:41
Surr: 2-Fluorobiphenyl	*51.8*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:41*
Surr: 4-Terphenyl-d14	*52.6*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:41*
Surr: Nitrobenzene-d5	*114*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:41*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18CPTMW24_121421
Collection Date: 14-Dec-2021 10:10

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.0334**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 13:00
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 13:00
Arsenic	**0.00718**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
Barium	**10.6**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	30-Dec-2021 16:02
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 13:00
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 13:00
Calcium	**393**		**0.680**	**1.00**	**10.0**	**mg/L**	20	30-Dec-2021 16:02
Chromium	**0.00229**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
Cobalt	**0.00259**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	30-Dec-2021 13:00
Iron	**6.84**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:00
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 13:00
Magnesium	**258**		**0.200**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 16:02
Manganese	**0.483**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
Nickel	**0.00758**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
Potassium	**2.50**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:00
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 13:00
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 13:00
Sodium	**983**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 16:02
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 13:00
Vanadium	**0.00188**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
Zinc	**0.00652**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:00
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000000100	U	0.0000300	0.000000100	0.000200	mg/L	1	23-Dec-2021 11:30
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: CO8_121421
Collection Date: 14-Dec-2021 11:00

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 17:03
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 17:03
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 17:03
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 17:03
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 17:03
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: CO8_121421
Collection Date: 14-Dec-2021 11:00

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 17:03
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 17:03
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:03
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Trichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 17:03
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:03
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:03
Surr: 1,2-Dichloroethane-d4	*96.8*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 17:03*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 17:03*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 17:03*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 17:03*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 18:59
Surr: 2-Fluorobiphenyl	*83.1*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:59*
Surr: 4-Terphenyl-d14	*107*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:59*
Surr: Nitrobenzene-d5	*89.3*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 18:59*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: CO8_121421
Collection Date: 14-Dec-2021 11:00

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.275**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 13:02
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 13:02
Arsenic	**0.00112**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Barium	**5.42**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	30-Dec-2021 16:04
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 13:02
Cadmium	**0.000477**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 13:02
Calcium	**302**		**0.680**	**1.00**	**10.0**	**mg/L**	20	30-Dec-2021 16:04
Chromium	**0.00143**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Cobalt	**0.00603**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Copper	**0.00101**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Iron	**2.28**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:02
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 13:02
Magnesium	**179**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:02
Manganese	**1.18**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Nickel	**0.00775**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Potassium	**2.70**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:02
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 13:02
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 13:02
Sodium	**866**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 16:04
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 13:02
Vanadium	**0.00212**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
Zinc	**0.0107**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:02
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.000121**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:32
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18DPTMW04_121421
Collection Date: 14-Dec-2021 11:50

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 17:25
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 17:25
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 17:25
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 17:25
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 17:25
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 18DPTMW04_121421
Collection Date: 14-Dec-2021 11:50

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 17:25
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 17:25
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:25
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Trichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 17:25
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:25
Surr: 1,2-Dichloroethane-d4	*99.2*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 17:25*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 17:25*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 17:25*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 17:25*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 19:17
Surr: 2-Fluorobiphenyl	*96.6*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 19:17*
Surr: 4-Terphenyl-d14	*68.3*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 19:17*
Surr: Nitrobenzene-d5	*111*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 19:17*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 125_121421
Collection Date: 14-Dec-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 17:47
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 17:47
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 17:47
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 17:47
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 17:47
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 125_121421
Collection Date: 14-Dec-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 17:47
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	28-Dec-2021 17:47
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 17:47
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Trichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 17:47
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 17:47
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 17:47
Surr: 1,2-Dichloroethane-d4	*97.9*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 17:47*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 17:47*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 17:47*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 17:47*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: 125_121421
Collection Date: 14-Dec-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**3.50**		**0.0360**	**0.100**	**0.200**	**mg/L**	20	30-Dec-2021 16:06
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 13:04
Arsenic	**0.0129**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Barium	**0.139**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Beryllium	**0.000384**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 13:04
Cadmium	**0.000269**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 13:04
Calcium	**1.90**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 13:04
Chromium	**0.0110**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Cobalt	**0.00305**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Copper	**0.00402**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Iron	**8.10**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:04
Lead	**0.00482**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Magnesium	**1.94**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:04
Manganese	**0.0581**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Nickel	**0.00696**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Potassium	**1.47**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:04
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 13:04
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 13:04
Sodium	**35.7**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 13:04
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 13:04
Vanadium	**0.0126**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
Zinc	**0.0209**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 13:04
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000580**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:33
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	29-Dec-2021 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 14-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 14:04
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 14:04
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 14:04
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 14:04
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 14:04
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Sample ID: Trip Blank
Collection Date: 14-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21120921
Lab ID:HS21120921-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 14:04
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	28-Dec-2021 14:04
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 14:04
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 14:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 14:04
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 14:04*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 14:04*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 14:04*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 14:04*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

Batch ID: 173723 **Start Date:** 20 Dec 2021 06:30 **End Date:** 20 Dec 2021 11:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120921-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120921-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120921-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120921-04	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120921-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21120921-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173861 **Start Date:** 23 Dec 2021 07:00 **End Date:** 23 Dec 2021 10:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120921-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120921-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120921-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120921-07		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 174048 **Start Date:** 29 Dec 2021 11:30 **End Date:** 29 Dec 2021 15:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120921-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120921-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120921-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21120921-07		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173723 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21120921-01	126_121421	14 Dec 2021 07:45		20 Dec 2021 07:04	13 Jan 2022 17:47	1
HS21120921-02	109_121421	14 Dec 2021 08:40		20 Dec 2021 07:04	13 Jan 2022 18:05	1
HS21120921-03	18CPTMW07_121421	14 Dec 2021 09:25		20 Dec 2021 07:04	13 Jan 2022 18:23	1
HS21120921-04	18CPTMW24_121421	14 Dec 2021 10:10		20 Dec 2021 07:04	13 Jan 2022 18:41	1
HS21120921-05	CO8_121421	14 Dec 2021 11:00		20 Dec 2021 07:04	13 Jan 2022 18:59	1
HS21120921-06	18DPTMW04_121421	14 Dec 2021 11:50		20 Dec 2021 07:04	13 Jan 2022 19:17	1
Batch ID: 173861 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS21120921-01	126_121421	14 Dec 2021 07:45		23 Dec 2021 10:00	23 Dec 2021 11:28	1
HS21120921-04	18CPTMW24_121421	14 Dec 2021 10:10		23 Dec 2021 10:00	23 Dec 2021 11:30	1
HS21120921-05	CO8_121421	14 Dec 2021 11:00		23 Dec 2021 10:00	23 Dec 2021 11:32	1
HS21120921-07	125_121421	14 Dec 2021 12:05		23 Dec 2021 10:00	23 Dec 2021 11:33	1
Batch ID: 174048 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21120921-01	126_121421	14 Dec 2021 07:45		29 Dec 2021 15:30	30 Dec 2021 16:00	20
HS21120921-01	126_121421	14 Dec 2021 07:45		29 Dec 2021 15:30	30 Dec 2021 12:51	1
HS21120921-04	18CPTMW24_121421	14 Dec 2021 10:10		29 Dec 2021 15:30	30 Dec 2021 16:02	20
HS21120921-04	18CPTMW24_121421	14 Dec 2021 10:10		29 Dec 2021 15:30	30 Dec 2021 13:00	1
HS21120921-05	CO8_121421	14 Dec 2021 11:00		29 Dec 2021 15:30	30 Dec 2021 16:04	20
HS21120921-05	CO8_121421	14 Dec 2021 11:00		29 Dec 2021 15:30	30 Dec 2021 13:02	1
HS21120921-07	125_121421	14 Dec 2021 12:05		29 Dec 2021 15:30	30 Dec 2021 16:06	20
HS21120921-07	125_121421	14 Dec 2021 12:05		29 Dec 2021 15:30	30 Dec 2021 13:04	1
Batch ID: R398529 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21120921-01	126_121421	14 Dec 2021 07:45			29 Dec 2021 10:53	1
HS21120921-02	109_121421	14 Dec 2021 08:40			29 Dec 2021 10:53	1
HS21120921-03	18CPTMW07_121421	14 Dec 2021 09:25			29 Dec 2021 10:53	1
HS21120921-04	18CPTMW24_121421	14 Dec 2021 10:10			29 Dec 2021 10:53	1
HS21120921-05	CO8_121421	14 Dec 2021 11:00			29 Dec 2021 10:53	1
HS21120921-06	18DPTMW04_121421	14 Dec 2021 11:50			29 Dec 2021 10:53	1
HS21120921-07	125_121421	14 Dec 2021 12:05			29 Dec 2021 10:53	1
Batch ID: R398551 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120921-08	Trip Blank	14 Dec 2021 00:00			28 Dec 2021 14:04	1

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R398551 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21120921-01	126_121421	14 Dec 2021 07:45			28 Dec 2021 14:26	1
HS21120921-02	109_121421	14 Dec 2021 08:40			28 Dec 2021 14:49	1
HS21120921-03	18CPTMW07_121421	14 Dec 2021 09:25			28 Dec 2021 16:18	1
HS21120921-04	18CPTMW24_121421	14 Dec 2021 10:10			28 Dec 2021 16:40	1
HS21120921-05	CO8_121421	14 Dec 2021 11:00			28 Dec 2021 17:03	1
HS21120921-06	18DPTMW04_121421	14 Dec 2021 11:50			28 Dec 2021 17:25	1
HS21120921-07	125_121421	14 Dec 2021 12:05			28 Dec 2021 17:47	1

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 173861 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:42**
Client ID: Run ID: **HG03_398265** SeqNo: **6437934** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:44**
Client ID: Run ID: **HG03_398265** SeqNo: **6437935** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	0	106	82 - 119				

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 11:01**
Client ID: Run ID: **HG03_398265** SeqNo: **6437942** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119				

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 10:48**
Client ID: Run ID: **HG03_398265** SeqNo: **6437937** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00477	0.000200	0.005	0.00005400	94.3	82 - 119				

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 11:03**
Client ID: Run ID: **HG03_398265** SeqNo: **6437943** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119	0.004830	0	20	

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 10:49**
Client ID: Run ID: **HG03_398265** SeqNo: **6437938** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.000200	0.005	0.00005400	98.5	82 - 119	0.004770	4.31	20	

The following samples were analyzed in this batch: HS21120921-01 HS21120921-04 HS21120921-05 HS21120921-07

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:09**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447014** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004266	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.01745	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:11**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447015** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1102	0.0100	0.1	0	110	84 - 117				
Antimony	0.05207	0.00500	0.05	0	104	85 - 117				
Arsenic	0.05387	0.00500	0.05	0	108	84 - 116				
Barium	0.05264	0.00500	0.05	0	105	86 - 114				
Beryllium	0.04924	0.00200	0.05	0	98.5	83 - 121				
Cadmium	0.05407	0.00200	0.05	0	108	87 - 115				
Calcium	4.915	0.500	5	0	98.3	87 - 118				
Chromium	0.05158	0.00500	0.05	0	103	85 - 116				
Cobalt	0.05173	0.00500	0.05	0	103	86 - 115				
Copper	0.05341	0.00500	0.05	0	107	85 - 118				
Iron	5.168	0.200	5	0	103	87 - 118				
Lead	0.05144	0.00500	0.05	0	103	88 - 115				
Magnesium	5.264	0.200	5	0	105	83 - 118				
Manganese	0.05196	0.00500	0.05	0	104	87 - 115				
Nickel	0.05337	0.00500	0.05	0	107	85 - 117				
Potassium	5.158	0.200	5	0	103	87 - 115				
Selenium	0.05446	0.00500	0.05	0	109	80 - 120				
Silver	0.05149	0.00500	0.05	0	103	85 - 116				
Sodium	5.076	0.200	5	0	102	85 - 117				
Thallium	0.05401	0.00200	0.05	0	108	82 - 116				
Vanadium	0.05114	0.00500	0.05	0	102	86 - 115				
Zinc	0.0554	0.00500	0.05	0	111	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:19**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447019** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5876	0.0100	0.1	0.4336	154	84 - 117				SO
Antimony	0.04901	0.00500	0.05	0.000194	97.6	85 - 117				
Arsenic	0.05446	0.00500	0.05	0.000899	107	84 - 116				
Barium	0.09409	0.00500	0.05	0.0464	95.4	86 - 114				
Beryllium	0.04721	0.00200	0.05	0.000886	92.6	83 - 121				
Cadmium	0.05113	0.00200	0.05	0.000369	102	87 - 115				
Calcium	53.63	0.500	5	53.22	8.27	87 - 118				SO
Chromium	0.05071	0.00500	0.05	0.001646	98.1	85 - 116				
Cobalt	0.06739	0.00500	0.05	0.0211	92.6	86 - 115				
Copper	0.05124	0.00500	0.05	0.00278	96.9	85 - 118				
Iron	5.248	0.200	5	0.3641	97.7	87 - 118				
Lead	0.05152	0.00500	0.05	0.00012	103	88 - 115				
Magnesium	46.74	0.200	5	45.53	24.3	83 - 118				SO
Manganese	6.955	0.00500	0.05	7.514	-1120	87 - 115				SEO
Nickel	0.2128	0.00500	0.05	0.1779	69.7	85 - 117				S
Potassium	5.675	0.200	5	0.7382	98.7	87 - 115				
Selenium	0.05339	0.00500	0.05	0.000331	106	80 - 120				
Silver	0.04777	0.00500	0.05	0.000008	95.5	85 - 116				
Sodium	708.6	0.200	5	776.3	-1350	85 - 117				SEO
Thallium	0.05356	0.00200	0.05	0.000019	107	82 - 116				
Vanadium	0.05246	0.00500	0.05	0.00152	102	86 - 115				
Zinc	0.1072	0.00500	0.05	0.06222	89.9	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:23**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447021** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6094	0.0100	0.1	0.4336	176	84 - 117	0.5876	3.65	20	SO
Antimony	0.04888	0.00500	0.05	0.000194	97.4	85 - 117	0.04901	0.247	20	
Arsenic	0.05356	0.00500	0.05	0.000899	105	84 - 116	0.05446	1.66	20	
Barium	0.09265	0.00500	0.05	0.0464	92.5	86 - 114	0.09409	1.54	20	
Beryllium	0.04769	0.00200	0.05	0.000886	93.6	83 - 121	0.04721	1.01	20	
Cadmium	0.05108	0.00200	0.05	0.000369	101	87 - 115	0.05113	0.102	20	
Calcium	52.81	0.500	5	53.22	-8.08	87 - 118	53.63	1.54	20	SO
Chromium	0.05068	0.00500	0.05	0.001646	98.1	85 - 116	0.05071	0.0572	20	
Cobalt	0.06798	0.00500	0.05	0.0211	93.8	86 - 115	0.06739	0.873	20	
Copper	0.05072	0.00500	0.05	0.00278	95.9	85 - 118	0.05124	1.02	20	
Iron	5.262	0.200	5	0.3641	98.0	87 - 118	5.248	0.259	20	
Lead	0.05078	0.00500	0.05	0.00012	101	88 - 115	0.05152	1.46	20	
Magnesium	46.19	0.200	5	45.53	13.3	83 - 118	46.74	1.18	20	SO
Manganese	6.92	0.00500	0.05	7.514	-1190	87 - 115	6.955	0.508	20	SEO
Nickel	0.2117	0.00500	0.05	0.1779	67.6	85 - 117	0.2128	0.499	20	S
Potassium	5.625	0.200	5	0.7382	97.7	87 - 115	5.675	0.875	20	
Selenium	0.05191	0.00500	0.05	0.000331	103	80 - 120	0.05339	2.8	20	
Silver	0.04761	0.00500	0.05	0.000008	95.2	85 - 116	0.04777	0.327	20	
Sodium	720.5	0.200	5	776.3	-1120	85 - 117	708.6	1.66	20	SEO
Thallium	0.05298	0.00200	0.05	0.000019	106	82 - 116	0.05356	1.08	20	
Vanadium	0.05157	0.00500	0.05	0.00152	100	86 - 115	0.05246	1.71	20	
Zinc	0.1073	0.00500	0.05	0.06222	90.2	83 - 119	0.1072	0.163	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:25**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447022** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6193	0.0100	0.1	0.4336	186	80 - 120				SO
Antimony	0.1097	0.00500	0.1	0.000194	110	80 - 120				
Arsenic	0.119	0.00500	0.1	0.000899	118	80 - 120				
Barium	0.1541	0.00500	0.1	0.0464	108	80 - 120				
Beryllium	0.102	0.00200	0.1	0.000886	101	80 - 120				
Cadmium	0.1134	0.00200	0.1	0.000369	113	80 - 120				
Calcium	59.07	0.500	10	53.22	58.6	80 - 120				SO
Chromium	0.112	0.00500	0.1	0.001646	110	80 - 120				
Cobalt	0.1346	0.00500	0.1	0.0211	114	80 - 120				
Copper	0.11	0.00500	0.1	0.00278	107	80 - 120				
Iron	11.4	0.200	10	0.3641	110	80 - 120				
Lead	0.1159	0.00500	0.1	0.00012	116	80 - 120				
Magnesium	53.58	0.200	10	45.53	80.5	80 - 120				O
Nickel	0.2727	0.00500	0.1	0.1779	94.7	80 - 120				
Potassium	11.91	0.200	10	0.7382	112	80 - 120				
Selenium	0.116	0.00500	0.1	0.000331	116	80 - 120				
Silver	0.09187	0.00500	0.1	0.000008	91.9	80 - 120				
Thallium	0.1186	0.00200	0.1	0.000019	119	80 - 120				
Vanadium	0.1136	0.00500	0.1	0.00152	112	80 - 120				
Zinc	0.1714	0.00500	0.1	0.06222	109	80 - 120				

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 17:29**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447469** PrepDate: **29-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	13.09	0.250	5	7.163	118	80 - 120				
Sodium	1264	10.0	500	732.3	106	80 - 120				

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 15:54**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447296** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.4746	0.0500					0.4336	9.47	10	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:17**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447018** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0	0	10	U
Arsenic	0.00500	0.0250					0.000899	0	10	U
Barium	0.04538	0.0250					0.0464	2.19	10	
Beryllium	0.00250	0.0100					0.000886	0	10	U
Cadmium	0.00250	0.0100					0.000369	0	10	U
Calcium	51.65	2.50					53.22	2.95	10	
Chromium	0.00500	0.0250					0.001646	0	10	U
Cobalt	0.0216	0.0250					0.0211	0	10	J
Copper	0.0125	0.0250					0.00278	0	10	U
Iron	0.3466	1.00					0.3641	0	10	J
Lead	0.00500	0.0250					0	0	10	U
Magnesium	45.13	1.00					45.53	0.873	10	
Nickel	0.1856	0.0250					0.1779	4.3	10	
Potassium	0.6991	1.00					0.7382	0	10	J
Selenium	0.0125	0.0250					0	0	10	U
Silver	0.00250	0.0250					0	0	10	U
Thallium	0.00250	0.0100					0	0	10	U
Vanadium	0.00701	0.0250					0.00152	0	10	J
Zinc	0.06506	0.0250					0.06222	4.57	10	

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 17:13**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447464** PrepDate: **29-Dec-2021** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	7.305	1.25					7.163	1.99	10	
Sodium	746.3	50.0					732.3	1.92	10	

The following samples were analyzed in this batch: HS21120921-01 HS21120921-04 HS21120921-05 HS21120921-07

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: 173723 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:16**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464306** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.08043*	*0*	*0.08*	*0*	*101*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.04743*	*0*	*0.08*	*0*	*59.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07872*	*0*	*0.08*	*0*	*98.4*	*40 - 140*				

LCS Sample ID: **LCS-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:34**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464307** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08871	0.010	0.08	0	111	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07835*	*0*	*0.08*	*0*	*97.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.06655*	*0*	*0.08*	*0*	*83.2*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06155*	*0*	*0.08*	*0*	*76.9*	*40 - 140*				

LCSD Sample ID: **LCSD-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:52**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464308** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08406	0.010	0.08	0	105	40 - 140	0.08871	5.38	20	
Surr: 2-Fluorobiphenyl	*0.07614*	*0*	*0.08*	*0*	*95.2*	*40 - 140*	*0.07835*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.0555*	*0*	*0.08*	*0*	*69.4*	*40 - 140*	*0.06655*	*18.1*	*20*	
Surr: Nitrobenzene-d5	*0.08313*	*0*	*0.08*	*0*	*104*	*40 - 140*	*0.06155*	*29.8*	*20*	R

The following samples were analyzed in this batch: HS21120921-01 HS21120921-02 HS21120921-03 HS21120921-04 HS21120921-05 HS21120921-06

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: **R398551 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*48.53*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.05*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.31	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	19.49	1.0	20	0	97.4	74 - 131				
1,1,2,2-Tetrachloroethane	19.43	1.0	20	0	97.2	71 - 121				
1,1,2-Trichloroethane	19.33	1.0	20	0	96.7	80 - 119				
1,1-Dichloroethane	17.67	1.0	20	0	88.4	77 - 125				
1,1-Dichloroethene	17.38	1.0	20	0	86.9	71 - 131				
1,1-Dichloropropene	19.55	1.0	20	0	97.8	78 - 125				
1,2,3-Trichlorobenzene	21.82	1.0	20	0	109	69 - 129				
1,2,3-Trichloropropane	18.81	1.0	20	0	94.0	73 - 122				
1,2,4-Trichlorobenzene	22.34	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	20.85	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	17.51	1.0	20	0	87.5	62 - 128				
1,2-Dibromoethane	20.45	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	20.03	1.0	20	0	100	80 - 119				
1,2-Dichloroethane	19.13	1.0	20	0	95.6	73 - 128				
1,2-Dichloropropane	19.64	1.0	20	0	98.2	78 - 122				
1,3,5-Trimethylbenzene	20.82	1.0	20	0	104	75 - 124				
1,3-Dichlorobenzene	20.53	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	19.53	1.0	20	0	97.7	80 - 119				
1,4-Dichlorobenzene	20.06	1.0	20	0	100	79 - 118				
2,2-Dichloropropane	20.05	1.0	20	0	100	60 - 139				
2-Butanone	37.15	2.0	40	0	92.9	56 - 143				
2-Chlorotoluene	20.51	1.0	20	0	103	79 - 122				
2-Hexanone	38.98	2.0	40	0	97.4	57 - 139				
4-Chlorotoluene	21.77	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	20.7	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	39.06	2.0	40	0	97.7	67 - 130				
Acetone	33.6	2.0	40	0	84.0	39 - 160				
Benzene	19.99	1.0	20	0	100.0	79 - 120				
Bromobenzene	20.29	1.0	20	0	101	80 - 120				
Bromochloromethane	19.71	1.0	20	0	98.5	78 - 123				
Bromodichloromethane	19.33	1.0	20	0	96.6	79 - 125				
Bromoform	16.69	1.0	20	0	83.4	66 - 130				
Bromomethane	19.64	1.0	20	0	98.2	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.83	2.0	40	0	94.6	64 - 133				
Carbon tetrachloride	18.61	1.0	20	0	93.0	72 - 136				
Chlorobenzene	19.77	1.0	20	0	98.9	82 - 118				
Chloroethane	17.19	1.0	20	0	85.9	60 - 138				
Chloroform	19.29	1.0	20	0	96.4	79 - 124				
Chloromethane	18.75	1.0	20	0	93.8	50 - 139				
cis-1,2-Dichloroethene	19.09	1.0	20	0	95.4	78 - 123				
cis-1,3-Dichloropropene	18.29	1.0	20	0	91.4	75 - 124				
Dibromochloromethane	18.18	1.0	20	0	90.9	74 - 126				
Dibromomethane	18.88	1.0	20	0	94.4	79 - 123				
Dichlorodifluoromethane	17.68	1.0	20	0	88.4	32 - 152				
Ethylbenzene	19.77	1.0	20	0	98.8	79 - 121				
Hexachlorobutadiene	21.72	1.0	20	0	109	66 - 134				
Isopropylbenzene	21.1	1.0	20	0	106	72 - 131				
m,p-Xylene	42.59	2.0	40	0	106	80 - 121				
Methylene chloride	18.09	2.0	20	0	90.5	74 - 124				
Naphthalene	18.55	1.0	20	0	92.7	61 - 128				
n-Butylbenzene	23.3	1.0	20	0	116	75 - 128				
n-Propylbenzene	21.86	1.0	20	0	109	76 - 126				
o-Xylene	20.93	1.0	20	0	105	78 - 122				
sec-Butylbenzene	22.43	1.0	20	0	112	77 - 126				
Styrene	21.91	1.0	20	0	110	78 - 123				
tert-Butylbenzene	21.26	1.0	20	0	106	78 - 124				
Tetrachloroethene	18.99	1.0	20	0	94.9	74 - 129				
Toluene	20.97	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	17.38	1.0	20	0	86.9	75 - 124				
trans-1,3-Dichloropropene	17.43	1.0	20	0	87.1	73 - 127				
Trichloroethene	18.29	1.0	20	0	91.5	79 - 123				
Trichlorofluoromethane	17.4	1.0	20	0	87.0	65 - 141				
Vinyl chloride	17.1	1.0	20	0	85.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.14*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.35*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*52.31*	*1.0*	*50*	*0*	*105*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: **R398551 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: **126_121421** Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.5	1.0	20	0	107	78 - 124				
1,1,1-Trichloroethane	21.73	1.0	20	0	109	74 - 131				
1,1,2,2-Tetrachloroethane	20.93	1.0	20	0	105	71 - 121				
1,1,2-Trichloroethane	21.03	1.0	20	0	105	80 - 119				
1,1-Dichloroethane	18.87	1.0	20	0	94.4	77 - 125				
1,1-Dichloroethene	19.76	1.0	20	0	98.8	71 - 131				
1,1-Dichloropropene	22.89	1.0	20	0	114	78 - 125				
1,2,3-Trichlorobenzene	20.1	1.0	20	0	101	69 - 129				
1,2,3-Trichloropropane	20.72	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	20.74	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	21.57	1.0	20	0	108	76 - 124				
1,2-Dibromo-3-chloropropane	18.48	1.0	20	0	92.4	62 - 128				
1,2-Dibromoethane	21.67	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	21.12	1.0	20	0	106	80 - 119				
1,2-Dichloroethane	21.29	1.0	20	0	106	73 - 128				
1,2-Dichloropropane	21.75	1.0	20	0	109	78 - 122				
1,3,5-Trimethylbenzene	22.46	1.0	20	0	112	75 - 124				
1,3-Dichlorobenzene	21.79	1.0	20	0	109	80 - 119				
1,3-Dichloropropane	21.62	1.0	20	0	108	80 - 119				
1,4-Dichlorobenzene	21.14	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	20.45	1.0	20	0	102	60 - 139				
2-Butanone	36.97	2.0	40	0	92.4	56 - 143				
2-Chlorotoluene	22.92	1.0	20	0	115	79 - 122				
2-Hexanone	43.94	2.0	40	0	110	57 - 139				
4-Chlorotoluene	23.5	1.0	20	0	118	78 - 122				
4-Isopropyltoluene	21.94	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	44.1	2.0	40	0	110	67 - 130				
Acetone	34.8	2.0	40	0	87.0	39 - 160				
Benzene	21.98	1.0	20	0	110	79 - 120				
Bromobenzene	21.87	1.0	20	0	109	80 - 120				
Bromochloromethane	19.48	1.0	20	0	97.4	78 - 123				
Bromodichloromethane	20.72	1.0	20	0	104	79 - 125				
Bromoform	18.44	1.0	20	0	92.2	66 - 130				
Bromomethane	20.18	1.0	20	0	101	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: **126_121421** Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.24	2.0	40	0	95.6	64 - 133				
Carbon tetrachloride	22.49	1.0	20	0	112	72 - 136				
Chlorobenzene	21.9	1.0	20	0	110	82 - 118				
Chloroethane	20.56	1.0	20	0	103	60 - 138				
Chloroform	20.05	1.0	20	0	100	79 - 124				
Chloromethane	20.41	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	19.62	1.0	20	0	98.1	78 - 123				
cis-1,3-Dichloropropene	19.02	1.0	20	0	95.1	75 - 124				
Dibromochloromethane	19.48	1.0	20	0	97.4	74 - 126				
Dibromomethane	20.91	1.0	20	0	105	79 - 123				
Dichlorodifluoromethane	19.06	1.0	20	0	95.3	32 - 152				
Ethylbenzene	23.03	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	21.35	1.0	20	0	107	66 - 134				
Isopropylbenzene	23.62	1.0	20	0	118	72 - 131				
m,p-Xylene	47.92	2.0	40	0	120	80 - 121				
Methylene chloride	18.98	2.0	20	0	94.9	74 - 124				
Naphthalene	18.81	1.0	20	0	94.1	61 - 128				
n-Butylbenzene	24.04	1.0	20	0	120	75 - 128				
n-Propylbenzene	24.33	1.0	20	0	122	76 - 126				
o-Xylene	23.97	1.0	20	0	120	78 - 122				
sec-Butylbenzene	24.26	1.0	20	0	121	77 - 126				
Styrene	23.3	1.0	20	0	116	78 - 123				
tert-Butylbenzene	23.06	1.0	20	0	115	78 - 124				
Tetrachloroethene	23	1.0	20	0	115	74 - 129				
Toluene	23.19	1.0	20	0	116	80 - 121				
trans-1,2-Dichloroethene	19.24	1.0	20	0	96.2	75 - 124				
trans-1,3-Dichloropropene	18.15	1.0	20	0	90.7	73 - 127				
Trichloroethene	21.23	1.0	20	0	106	79 - 123				
Trichlorofluoromethane	20.57	1.0	20	0	103	65 - 141				
Vinyl chloride	19.46	1.0	20	0	97.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.94*	*1.0*	*50*	*0*	*95.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.67*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*52.73*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: **126_121421** Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.38	1.0	20	0	107	78 - 124	21.5	0.565	20	
1,1,1-Trichloroethane	20.88	1.0	20	0	104	74 - 131	21.73	4.01	20	
1,1,2,2-Tetrachloroethane	20.13	1.0	20	0	101	71 - 121	20.93	3.9	20	
1,1,2-Trichloroethane	20.34	1.0	20	0	102	80 - 119	21.03	3.33	20	
1,1-Dichloroethane	18.28	1.0	20	0	91.4	77 - 125	18.87	3.16	20	
1,1-Dichloroethene	18.73	1.0	20	0	93.6	71 - 131	19.76	5.34	20	
1,1-Dichloropropene	22.31	1.0	20	0	112	78 - 125	22.89	2.59	20	
1,2,3-Trichlorobenzene	20.03	1.0	20	0	100	69 - 129	20.1	0.369	20	
1,2,3-Trichloropropane	20.45	1.0	20	0	102	73 - 122	20.72	1.31	20	
1,2,4-Trichlorobenzene	20.71	1.0	20	0	104	69 - 130	20.74	0.159	20	
1,2,4-Trimethylbenzene	21.46	1.0	20	0	107	76 - 124	21.57	0.534	20	
1,2-Dibromo-3-chloropropane	17.59	1.0	20	0	88.0	62 - 128	18.48	4.91	20	
1,2-Dibromoethane	21.47	1.0	20	0	107	77 - 121	21.67	0.899	20	
1,2-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119	21.12	2.48	20	
1,2-Dichloroethane	19.96	1.0	20	0	99.8	73 - 128	21.29	6.44	20	
1,2-Dichloropropane	20.78	1.0	20	0	104	78 - 122	21.75	4.53	20	
1,3,5-Trimethylbenzene	21.92	1.0	20	0	110	75 - 124	22.46	2.43	20	
1,3-Dichlorobenzene	21.62	1.0	20	0	108	80 - 119	21.79	0.767	20	
1,3-Dichloropropane	20.74	1.0	20	0	104	80 - 119	21.62	4.15	20	
1,4-Dichlorobenzene	21.07	1.0	20	0	105	79 - 118	21.14	0.344	20	
2,2-Dichloropropane	19.84	1.0	20	0	99.2	60 - 139	20.45	3	20	
2-Butanone	35.9	2.0	40	0	89.7	56 - 143	36.97	2.95	20	
2-Chlorotoluene	21.8	1.0	20	0	109	79 - 122	22.92	5	20	
2-Hexanone	43.92	2.0	40	0	110	57 - 139	43.94	0.0476	20	
4-Chlorotoluene	22.88	1.0	20	0	114	78 - 122	23.5	2.68	20	
4-Isopropyltoluene	21.27	1.0	20	0	106	77 - 127	21.94	3.14	20	
4-Methyl-2-pentanone	42.94	2.0	40	0	107	67 - 130	44.1	2.66	20	
Acetone	33.69	2.0	40	0	84.2	39 - 160	34.8	3.26	20	
Benzene	20.77	1.0	20	0	104	79 - 120	21.98	5.66	20	
Bromobenzene	21.34	1.0	20	0	107	80 - 120	21.87	2.43	20	
Bromochloromethane	19.15	1.0	20	0	95.8	78 - 123	19.48	1.7	20	
Bromodichloromethane	20.53	1.0	20	0	103	79 - 125	20.72	0.909	20	
Bromoform	17.71	1.0	20	0	88.6	66 - 130	18.44	4.04	20	
Bromomethane	19.28	1.0	20	0	96.4	53 - 141	20.18	4.56	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: **126_121421** Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.22	2.0	40	0	93.1	64 - 133	38.24	2.68	20	
Carbon tetrachloride	21.36	1.0	20	0	107	72 - 136	22.49	5.15	20	
Chlorobenzene	21.08	1.0	20	0	105	82 - 118	21.9	3.81	20	
Chloroethane	19.84	1.0	20	0	99.2	60 - 138	20.56	3.59	20	
Chloroform	18.51	1.0	20	0	92.6	79 - 124	20.05	7.98	20	
Chloromethane	19.19	1.0	20	0	96.0	50 - 139	20.41	6.13	20	
cis-1,2-Dichloroethene	19.11	1.0	20	0	95.6	78 - 123	19.62	2.63	20	
cis-1,3-Dichloropropene	18.18	1.0	20	0	90.9	75 - 124	19.02	4.49	20	
Dibromochloromethane	19.02	1.0	20	0	95.1	74 - 126	19.48	2.37	20	
Dibromomethane	19.88	1.0	20	0	99.4	79 - 123	20.91	5.03	20	
Dichlorodifluoromethane	18.09	1.0	20	0	90.5	32 - 152	19.06	5.23	20	
Ethylbenzene	22.39	1.0	20	0	112	79 - 121	23.03	2.82	20	
Hexachlorobutadiene	19.3	1.0	20	0	96.5	66 - 134	21.35	10.1	20	
Isopropylbenzene	23.36	1.0	20	0	117	72 - 131	23.62	1.09	20	
m,p-Xylene	45.96	2.0	40	0	115	80 - 121	47.92	4.18	20	
Methylene chloride	17.89	2.0	20	0	89.4	74 - 124	18.98	5.95	20	
Naphthalene	19.04	1.0	20	0	95.2	61 - 128	18.81	1.23	20	
n-Butylbenzene	22.9	1.0	20	0	114	75 - 128	24.04	4.88	20	
n-Propylbenzene	23.35	1.0	20	0	117	76 - 126	24.33	4.1	20	
o-Xylene	23.41	1.0	20	0	117	78 - 122	23.97	2.34	20	
sec-Butylbenzene	23.25	1.0	20	0	116	77 - 126	24.26	4.25	20	
Styrene	22.75	1.0	20	0	114	78 - 123	23.3	2.37	20	
tert-Butylbenzene	22.59	1.0	20	0	113	78 - 124	23.06	2.05	20	
Tetrachloroethene	21.96	1.0	20	0	110	74 - 129	23	4.62	20	
Toluene	22.62	1.0	20	0	113	80 - 121	23.19	2.5	20	
trans-1,2-Dichloroethene	17.8	1.0	20	0	89.0	75 - 124	19.24	7.75	20	
trans-1,3-Dichloropropene	18.12	1.0	20	0	90.6	73 - 127	18.15	0.159	20	
Trichloroethene	19.94	1.0	20	0	99.7	79 - 123	21.23	6.29	20	
Trichlorofluoromethane	19.8	1.0	20	0	99.0	65 - 141	20.57	3.8	20	
Vinyl chloride	18.44	1.0	20	0	92.2	58 - 137	19.46	5.4	20	
Surr: 1,2-Dichloroethane-d4	*48.48*	*1.0*	*50*	*0*	*97.0*	*81 - 118*	*47.94*	*1.13*	*20*	
Surr: 4-Bromofluorobenzene	*52.14*	*1.0*	*50*	*0*	*104*	*85 - 114*	*52.67*	*1.02*	*20*	
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*	*47.81*	*0.00255*	*20*	
Surr: Toluene-d8	*53.24*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.73*	*0.956*	*20*	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: HS21120921

QC BATCH REPORT

Batch ID:	R398551 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21120921-01	HS21120921-02	HS21120921-03	HS21120921-04
HS21120921-05	HS21120921-06	HS21120921-07	HS21120921-08

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
WorkOrder: **HS21120921**

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

ALS Houston, US Date: 14-Jan-22

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP/Site 18 /24
Work Order: HS21120921

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21120921-01	126_121421	Login	12/15/2021 7:37:37 PM	NDR	MET057
HS21120921-01	126_121421	Login	12/15/2021 7:37:37 PM	NDR	Sub
HS21120921-01	126_121421	Login	12/15/2021 7:37:37 PM	NDR	EXT169
HS21120921-01	126_121421	Login	12/15/2021 7:37:37 PM	NDR	VOA328
HS21120921-02	109_121421	Login	12/15/2021 7:37:37 PM	NDR	Sub
HS21120921-02	109_121421	Login	12/15/2021 7:37:37 PM	NDR	EXT169
HS21120921-02	109_121421	Login	12/15/2021 7:37:37 PM	NDR	VOA328
HS21120921-03	18CPTMW07_121421	Login	12/15/2021 7:37:37 PM	NDR	MET057
HS21120921-03	18CPTMW07_121421	Login	12/15/2021 7:37:37 PM	NDR	Sub
HS21120921-03	18CPTMW07_121421	Login	12/15/2021 7:37:37 PM	NDR	VOA328
HS21120921-04	18CPTMW24_121421	Login	12/15/2021 7:37:37 PM	NDR	MET057
HS21120921-04	18CPTMW24_121421	Login	12/15/2021 7:37:37 PM	NDR	Sub
HS21120921-04	18CPTMW24_121421	Login	12/15/2021 7:37:37 PM	NDR	EXT169
HS21120921-04	18CPTMW24_121421	Login	12/15/2021 7:37:37 PM	NDR	VOA328

ALS Houston, US Date: 14-Jan-22

Sample Receipt Checklist

Work Order ID: HS21120921 **Date/Time Received:** **15-Dec-2021 10:40**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Nilesh D. Ranchod (eSignature) 15-Dec-2021 19:46 (Date/Time) **Reviewed by:** /S/ Corey Grandits (eSignature) 16-Dec-2021 16:19 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.4°C UC/C	IR31
Cooler(s)/Kit(s):	47977	
Date/Time sample(s) sent to storage:	12/15/2021 20:00	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01116041

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
126_121421	14 DEC 2021	0745	-	N		WG	6	X	X	X	X										
109_121421	14 DEC 2021	0840	-	N		WG	5	X	X		X										
18CPTMW07_121421	14 DEC 2021	0925	-	N		WG	5	X	X		X										
18CPTMW24_121421	14 DEC 2021	1010		N		WG	6	X	X	X	X										
C08_121421	14 DEC 2021	1100		N		WG	6	X	X	X	X										
18DPTMW04	14 DEC 2021	1150	-	N		WG	5	X	X		X										
125_121421	14 DEC 2021	1205	-	N		WG	5	X	X	X											
TRIP BLANK	14 DEC 2021		-	TB		W	2	X													
			-																		
			-																		
			-																		

Sample Analysis Requested (5) — Quality Assurance Samples (6)

COMMENTS: STANDARD TAT

Bhate Environmental Associates, Inc.
LHAAP/Site 18 /24
HS21120921

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/14/21	1430	1. [signature]	12/15/2021	10:40.
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed ____ Ex ____ Airbill ____ Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

47977 9x. 1.4° #31 C(-0.0.

01116042

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date: 12/
Name: Se
Company:

CUSTODY SEAL
Time: 1420
Seal Broken By:
Date:

(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG
RMA:

FedEx Express

TRK# 5300 5225 1640

PRIORITY OVERNIGHT

December 29, 2021

Service Request No:E2101277

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120921

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 16, 2021
For your reference, these analyses have been assigned our service request number **E2101277.**

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.:**	E2101277
Project:	HS21120921	**Date Received:**	12/16/21
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

Seven samples were received for analysis at ALS Environmental in Houston on 12/16/21.

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:

EQ2100700: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

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:**E2101277
Project: HS21120921

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101277-001	126_121421	12/14/2021	0745
E2101277-002	109_121421	12/14/2021	0840
E2101277-003	18CPTMW07_121421	12/14/2021	0925
E2101277-004	18CPTMW24_121421	12/14/2021	1010
E2101277-005	CO8_121421	12/14/2021	1100
E2101277-006	18DPTMW04_121421	12/14/2021	1150
E2101277-007	125_121421	12/14/2021	1205

Service Request Summary

Folder #: **E2101277**
Client Name: ALS Environmental - US
Project Name: HS21120921
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/16/21
Internal Due Date: 12/30/2021
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120921
EDD: No EDD Specified

7 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101277-001	126_121421	Ground Water	12/14/21 0745	**IV**
E2101277-002	109_121421	Ground Water	12/14/21 0840	**IV**
E2101277-003	18CPTMW07_121421	Ground Water	12/14/21 0925	**IV**
E2101277-004	18CPTMW24_121421	Ground Water	12/14/21 1010	**IV**
E2101277-005	CO8_121421	Ground Water	12/14/21 1100	**IV**
E2101277-006	18DPTMW04_121421	Ground Water	12/14/21 1150	**IV**
E2101277-007	125_121421	Ground Water	12/14/21 1205	**IV**

Folder Comments:

Send DWELR confirmation to Middletown PM for PADEP samples.

Service Request Summary

Folder #:	**E2101277**	Project Chemist:	Corey Grandits
Client Name:	ALS Environmental - US	Originating Lab:	HOUSTON
Project Name:	HS21120921	Logged By:	CGRANDITS
Project Number:		Date Received:	12/16/21
		Internal Due Date:	12/30/2021
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA	QAP:	LAB QAP
		Qualifier Set:	HRMS Qualifier Set
		Formset:	Lab Standard
		Merged?:	Y
Phone Number:		Report to MDL?:	Y
Cell Number:		P.O. Number:	HS21120921
Fax Number:		EDD:	No EDD Specified
E-mail:	ragenp.giga@alsglobal.com		

7 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	7	Level IV due 1/6

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E Estimated value. The reported concentration is above the calibration range of the instrument.
H Sample extracted and/or analyzed out of suggested holding time.
J Estimated value. The reported concentration is below the MRL.
K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S Signal saturated detector. Result reported from dilution.
U Compound was analyzed for, but was not detected (ND).
X See Case Narrative.
Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i The MDL/MRL have 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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State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
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Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **17702**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Ragen Giga
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RagenP.Giga@ALSGlobal.com
Alternate Contact: 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: HS21120921
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120921-01**	**126_121421**	**Groundwater**	**14 Dec 2021 07:45**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
2.	**HS21120921-02**	**109_121421**	**Groundwater**	**14 Dec 2021 08:40**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
3.	**HS21120921-03**	**18CPTMW07_121421**	**Groundwater**	**14 Dec 2021 09:25**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
4.	**HS21120921-04**	**18CPTMW274_121421**	**Groundwater**	**14 Dec 2021 10:10**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
5.	**HS21120921-05**	**CO8_121421**	**Groundwater**	**14 Dec 2021 11:00**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
6.	**HS21120921-06**	**18DPTMW04**	**Groundwater**	**14 Dec 2021 11:50**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021
7.	**HS21120921-07**	**125_121421**	**Groundwater**	**14 Dec 2021 12:05**
	Provide Level II and Level IV reports in separate pdf			30 Dec 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17702**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. [illegible]	Date/Time:	12/16/21 09:25
Received By:	[illegible]	Date/Time:	12/16/21 0925
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-21

Thermometer ID: IR31

Date/Time Received: 12-16-21 Initials: CG

Date/Time Logged in: 12-16-21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (HLG) ○ 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		12-16-21	0929	CG	4.4	☒
						☐
						☐
						☐

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
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 393157 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/23/21 08:48

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101277-001	126_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101277-002	109_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101277-003	18CPTMW07_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101277-004	18CPTMW24_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101277-005	CO8_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101277-006	18DPTMW04_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101277-007	125_121421	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101278-001	18CPTMW03SW_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101278-002	18DPTMW05_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2101278-003	MW21_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2101278-004	18CPTMW10DW_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2101278-005	18CPTMW10DW_121321_a	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2101278-006	18CPTMW10SW_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2101278-007	18ww08_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2101278-008	18CPTMW19_121321	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2101294-001	LH18/24-SP650_122121_AIX	.01	6850/ClO4 DOD			Water	10mL	
17	EQ2100700-01	MB		6850/ClO4 DOD			Liquid	10mL	
18	EQ2100700-02	LCS		6850/ClO4 DOD			Liquid	10mL	
19	EQ2100700-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101277-001	100.00µL	E2101277-002	100.00µL	E2101277-003	100.00µL	E2101277-004	100.00µL	E2101277-005	100.00µL	E2101277-006	100.00µL
E2101277-007	100.00µL	E2101278-001	100.00µL	E2101278-002	100.00µL	E2101278-003	100.00µL	E2101278-004	100.00µL	E2101278-005	100.00µL
E2101278-006	100.00µL	E2101278-007	100.00µL	E2101278-008	100.00µL	E2101294-001	100.00µL	EQ2100700-01	100.00µL	EQ2100700-02	100.00µL
EQ2100700-03	100.00µL										

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100700-02	1.00µL	EQ2100700-03	1.00µL

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Information Benchsheet

Prep Run#: 393157 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/23/21 08:48

Preparation Steps

Step: Preparation
Started: 12/23/21 08:48
Finished: 12/23/21 09:50
By: GRIVERA
Comments

Comments:

Reviewed By: GR Date: 12/23/21

Chain of Custody

Relinquished By: Date:
Received By: Date:

Extracts Examined
Yes No

Analytical Results

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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 0745
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	126_121421	**Units:**	µg/L
Lab Code:	E2101277-001	**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	**0.658**		0.500	0.250	0.125	5	12/23/21	12/28/21 12:13	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 0840
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	109_121421	**Units:**	µg/L
Lab Code:	E2101277-002	**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	**21500**		100	50.0	25.0	1000	12/23/21	12/28/21 12:45	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 0925
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW07_121421	**Units:**	µg/L
Lab Code:	E2101277-003	**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	**0.0850**		0.100	0.0500	0.0250	1	12/23/21	12/28/21 10:54	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 1010
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18CPTMW24_121421	**Units:**	µg/L
Lab Code:	E2101277-004	**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	**27.6**		0.500	0.250	0.125	5	12/23/21	12/28/21 12:21	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 1100
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	CO8_121421	**Units:**	µg/L
Lab Code:	E2101277-005	**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	**0.273**		0.500	0.250	0.125	5	12/23/21	12/28/21 12:29	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 1150
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	18DPTMW04_121421	**Units:**	µg/L
Lab Code:	E2101277-006	**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	**10.9**		0.500	0.250	0.125	5	12/23/21	12/28/21 12:37	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	12/14/21 1205
Sample Matrix:	Ground Water	**Date Received:**	12/16/21
Sample Name:	125_121421	**Units:**	µg/L
Lab Code:	E2101277-007	**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	**2670**		20.0	10.0	5.00	200	12/23/21	12/28/21 13:34	393157	750316	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100700-01	**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		0.100	0.0500	0.0250	1	12/23/21	12/23/21 10:01	393157	750095	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Analyzed:**	12/23/21
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	393157

	Lab Control Sample EQ2100700-02			Duplicate Lab Control Sample EQ2100700-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0987	0.100	99	0.0991	0.100	99	84 - 119	<1	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:**	E2101277
Project:	HS21120921	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100700-02	**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	**0.0987**		0.100	0.0500	0.0250	1	12/23/21	12/23/21 10:09	393157	750095	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101277
Project:	HS21120921	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100700-03	**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	**0.0991**		0.100	0.0500	0.0250	1	12/23/21	12/23/21 10:17	393157	750095	

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Houston, TX 77099
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January 17, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21121014**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia Olive,

ALS Environmental received 8 sample(s) on Dec 16, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21121014

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21121014-01	MW9_121521	Groundwater		15-Dec-2021 07:40	16-Dec-2021 10:50	☐
HS21121014-02	MW16_121521	Groundwater		15-Dec-2021 08:25	16-Dec-2021 10:50	☐
HS21121014-03	18CPTMW23_121521	Groundwater		15-Dec-2021 09:10	16-Dec-2021 10:50	☐
HS21121014-04	18WW24_121521	Groundwater		15-Dec-2021 09:55	16-Dec-2021 10:50	☐
HS21121014-05	18WW22_121521	Groundwater		15-Dec-2021 10:45	16-Dec-2021 10:50	☐
HS21121014-06	18WW17_121521	Groundwater		15-Dec-2021 11:00	16-Dec-2021 10:50	☐
HS21121014-07	18CPTMW16_121521	Groundwater		15-Dec-2021 12:00	16-Dec-2021 10:50	☐
HS21121014-08	Trip Blank	Water	CG-111221-17	15-Dec-2021 00:00	16-Dec-2021 10:50	☐

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21121014

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was performed by ALS Specialties Laboratory in Houston, Texas. The final report is appended.

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173723

Sample ID: LCSD-173723

- The RPD between the LCS and LCSD was outside of the control limit.

GCMS Volatiles by Method SW8260

Batch ID: R398617

Sample ID: 18CPTMW23_121521 (HS21121014-03)

- Lowest practical dilution for sample HS21121014-03 due to matrix.

Sample ID: MW16_121521 (HS21121014-02)

- Lowest practical dilution for sample HS21121014-02 due to matrix.

Sample ID: MW9_121521 (HS21121014-01)

- Lowest practical dilution for sample HS21121014-01 due to matrix.

Sample ID: 18WW24_121521 (HS21121014-04MS)

- MS and/or MSD recovered outside control limits

Metals by Method SW6020A

Batch ID: 174048

Sample ID: 18WW24_121521 (HS21121014-04MS)

- 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. (Aluminum,Calcium,Magnesium,Manganese,Sodium)

Sample ID: 18WW24_121521 (HS21121014-04MSD)

- Nickel Failed for MS/MSD but passed for PDS.

Sample ID: 18WW24_121521 (HS21121014-04PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. (Aluminum,Calcium)

Metals by Method SW7470A

Batch ID: 173861

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW9_121521
Collection Date: 15-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
1,1,1-Trichloroethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
1,1,2,2-Tetrachloroethane	25	U	12	25	25	ug/L	25	29-Dec-2021 18:07
1,1,2-Trichloroethane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
1,1-Dichloroethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
1,1-Dichloroethene	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
1,1-Dichloropropene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
1,2,3-Trichlorobenzene	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
1,2,3-Trichloropropane	25	U	12	25	25	ug/L	25	29-Dec-2021 18:07
1,2,4-Trichlorobenzene	25	U	12	25	25	ug/L	25	29-Dec-2021 18:07
1,2,4-Trimethylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
1,2-Dibromo-3-chloropropane	25	U	5.0	25	25	ug/L	25	29-Dec-2021 18:07
1,2-Dibromoethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
1,2-Dichlorobenzene	25	U	12	25	25	ug/L	25	29-Dec-2021 18:07
1,2-Dichloroethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
1,2-Dichloropropane	25	U	12	25	25	ug/L	25	29-Dec-2021 18:07
1,3,5-Trimethylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
1,3-Dichlorobenzene	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
1,3-Dichloropropane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
1,4-Dichlorobenzene	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
2,2-Dichloropropane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
2-Butanone	25	U	12	25	50	ug/L	25	29-Dec-2021 18:07
2-Chlorotoluene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
2-Hexanone	50	U	25	50	50	ug/L	25	29-Dec-2021 18:07
4-Chlorotoluene	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
4-Isopropyltoluene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
4-Methyl-2-pentanone	50	U	18	50	50	ug/L	25	29-Dec-2021 18:07
Acetone	50	U	10	50	50	ug/L	25	29-Dec-2021 18:07
Benzene	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Bromobenzene	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
Bromochloromethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Bromodichloromethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Bromoform	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
Bromomethane	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
Carbon disulfide	50	U	15	50	50	ug/L	25	29-Dec-2021 18:07
Carbon tetrachloride	25	U	12	25	25	ug/L	25	29-Dec-2021 18:07
Chlorobenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Chloroethane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Chloroform	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW9_121521
Collection Date: 15-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
cis-1,2-Dichloroethene	**28**		**5.0**	**12**	**25**	**ug/L**	25	29-Dec-2021 18:07
cis-1,3-Dichloropropene	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Dibromochloromethane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Dibromomethane	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Dichlorodifluoromethane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Ethylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Hexachlorobutadiene	25	U	25	25	25	ug/L	25	29-Dec-2021 18:07
Isopropylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
m,p-Xylene	25	U	12	25	50	ug/L	25	29-Dec-2021 18:07
Methylene chloride	50	U	10	50	50	ug/L	25	29-Dec-2021 18:07
n-Butylbenzene	25	U	10	25	25	ug/L	25	29-Dec-2021 18:07
n-Propylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Naphthalene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
o-Xylene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
sec-Butylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Styrene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
tert-Butylbenzene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Tetrachloroethene	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Toluene	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
trans-1,2-Dichloroethene	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
trans-1,3-Dichloropropene	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Trichloroethene	**1,200**		**5.0**	**12**	**25**	**ug/L**	25	29-Dec-2021 18:07
Trichlorofluoromethane	25	U	7.5	25	25	ug/L	25	29-Dec-2021 18:07
Vinyl chloride	12	U	5.0	12	25	ug/L	25	29-Dec-2021 18:07
Surr: 1,2-Dichloroethane-d4	*97.2*			**0**	*81-118*	*%REC*	*25*	*29-Dec-2021 18:07*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*25*	*29-Dec-2021 18:07*
Surr: Dibromofluoromethane	*95.3*			**0**	*80-119*	*%REC*	*25*	*29-Dec-2021 18:07*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*25*	*29-Dec-2021 18:07*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**2.4**		**0.10**	**0.10**	**0.10**	**ug/L**	10	14-Jan-2022 16:12
Surr: 2-Fluorobiphenyl	*115*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 16:12*
Surr: 4-Terphenyl-d14	*54.3*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 16:12*
Surr: Nitrobenzene-d5	*119*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 16:12*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW9_121521
Collection Date: 15-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.0293**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:13
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:13
Arsenic	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:13
Barium	**0.105**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:13
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:13
Calcium	**9.38**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:13
Chromium	**0.147**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Cobalt	**0.00666**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Copper	**0.00225**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Iron	**1.22**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:13
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:13
Magnesium	**3.66**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:13
Manganese	**0.147**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Nickel	**0.0476**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Potassium	**0.304**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:13
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:13
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:13
Sodium	**18.3**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:13
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:13
Vanadium	**0.00125**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
Zinc	**0.0366**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:13
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.000116**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:35
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW16_121521
Collection Date: 15-Dec-2021 08:25

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
1,1-Dichloroethene	**4.8**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	29-Dec-2021 18:29
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,2-Dichloroethane	**30**		**1.0**	**2.5**	**5.0**	**ug/L**	5	29-Dec-2021 18:29
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,3,5-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	29-Dec-2021 18:29
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
2-Hexanone	10	U	5.0	10	10	ug/L	5	29-Dec-2021 18:29
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
4-Isopropyltoluene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	29-Dec-2021 18:29
Acetone	10	U	2.0	10	10	ug/L	5	29-Dec-2021 18:29
Benzene	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Carbon disulfide	10	U	3.0	10	10	ug/L	5	29-Dec-2021 18:29
Carbon tetrachloride	5.0	U	2.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Chloroform	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW16_121521
Collection Date: 15-Dec-2021 08:25

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
cis-1,2-Dichloroethene	**18**		**1.0**	**2.5**	**5.0**	**ug/L**	5	29-Dec-2021 18:29
cis-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	29-Dec-2021 18:29
Methylene chloride	5.0	U	2.0	5.0	10	ug/L	5	29-Dec-2021 18:29
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	29-Dec-2021 18:29
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Trichloroethene	**380**		**1.0**	**2.5**	**5.0**	**ug/L**	5	29-Dec-2021 18:29
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	29-Dec-2021 18:29
Vinyl chloride	2.5	U	1.0	2.5	5.0	ug/L	5	29-Dec-2021 18:29
Surr: 1,2-Dichloroethane-d4	*98.7*			**0**	*81-118*	*%REC*	*5*	*29-Dec-2021 18:29*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*5*	*29-Dec-2021 18:29*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*5*	*29-Dec-2021 18:29*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*29-Dec-2021 18:29*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**4.8**		**0.10**	**0.10**	**0.10**	**ug/L**	10	14-Jan-2022 16:30
Surr: 2-Fluorobiphenyl	*83.5*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 16:30*
Surr: 4-Terphenyl-d14	*55.3*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 16:30*
Surr: Nitrobenzene-d5	*134*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 16:30*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW23_121521
Collection Date: 15-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	29-Dec-2021 18:52
1,1,2-Trichloroethane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
1,1-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
1,1-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2-Dibromo-3-chloropropane	10	U	2.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	29-Dec-2021 18:52
1,2-Dichloroethane	**110**		**2.0**	**5.0**	**10**	**ug/L**	10	29-Dec-2021 18:52
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	29-Dec-2021 18:52
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
2-Butanone	10	U	5.0	10	20	ug/L	10	29-Dec-2021 18:52
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
2-Hexanone	20	U	10	20	20	ug/L	10	29-Dec-2021 18:52
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	29-Dec-2021 18:52
Acetone	20	U	4.0	20	20	ug/L	10	29-Dec-2021 18:52
Benzene	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Bromobenzene	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Bromoform	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
Bromomethane	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
Carbon disulfide	20	U	6.0	20	20	ug/L	10	29-Dec-2021 18:52
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	29-Dec-2021 18:52
Chlorobenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Chloroethane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Chloroform	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW23_121521
Collection Date: 15-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
cis-1,2-Dichloroethene	**230**		**2.0**	**5.0**	**10**	**ug/L**	10	29-Dec-2021 18:52
cis-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Ethylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	29-Dec-2021 18:52
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
m,p-Xylene	10	U	5.0	10	20	ug/L	10	29-Dec-2021 18:52
Methylene chloride	10	U	4.0	10	20	ug/L	10	29-Dec-2021 18:52
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	29-Dec-2021 18:52
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Naphthalene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
o-Xylene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Styrene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Tetrachloroethene	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Toluene	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Trichloroethene	**1,600**		**2.0**	**5.0**	**10**	**ug/L**	10	29-Dec-2021 18:52
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	29-Dec-2021 18:52
Vinyl chloride	5.0	U	2.0	5.0	10	ug/L	10	29-Dec-2021 18:52
Surr: 1,2-Dichloroethane-d4	*97.8*			**0**	*81-118*	*%REC*	*10*	*29-Dec-2021 18:52*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*10*	*29-Dec-2021 18:52*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*10*	*29-Dec-2021 18:52*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*10*	*29-Dec-2021 18:52*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**5.5**		**0.50**	**0.50**	**0.50**	**ug/L**	50	14-Jan-2022 16:48
Surr: 2-Fluorobiphenyl	*77.5*			**0**	*40-140*	*%REC*	*50*	*14-Jan-2022 16:48*
Surr: 4-Terphenyl-d14	*67.6*			**0**	*40-140*	*%REC*	*50*	*14-Jan-2022 16:48*
Surr: Nitrobenzene-d5	*111*			**0**	*40-140*	*%REC*	*50*	*14-Jan-2022 16:48*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW24_121521
Collection Date: 15-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 14:01
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	29-Dec-2021 14:01
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	29-Dec-2021 14:01
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	29-Dec-2021 14:01
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	29-Dec-2021 14:01
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW24_121521
Collection Date: 15-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 14:01
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	29-Dec-2021 14:01
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 14:01
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 14:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 14:01
Surr: 1,2-Dichloroethane-d4	*96.4*			**0**	*81-118*	*%REC*	*1*	*29-Dec-2021 14:01*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*29-Dec-2021 14:01*
Surr: Dibromofluoromethane	*94.6*			**0**	*80-119*	*%REC*	*1*	*29-Dec-2021 14:01*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*29-Dec-2021 14:01*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW24_121521
Collection Date: 15-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.434**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:15
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:15
Arsenic	**0.000899**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Barium	**0.0464**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Beryllium	**0.000886**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 12:15
Cadmium	**0.000369**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 12:15
Calcium	**53.2**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:15
Chromium	**0.00165**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Cobalt	**0.0211**		**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Copper	**0.00278**	J	**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Iron	**0.364**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:15
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:15
Magnesium	**45.5**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:15
Manganese	**7.16**		**0.0350**	**0.125**	**0.250**	**mg/L**	50	30-Dec-2021 17:11
Nickel	**0.178**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Potassium	**0.738**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:15
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:15
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:15
Sodium	**732**		**0.700**	**2.50**	**10.0**	**mg/L**	50	30-Dec-2021 17:11
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:15
Vanadium	**0.00152**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
Zinc	**0.0622**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:15
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000570**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 10:51
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW22_121521
Collection Date: 15-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 17:22
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	29-Dec-2021 17:22
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	29-Dec-2021 17:22
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	29-Dec-2021 17:22
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	29-Dec-2021 17:22
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW22_121521
Collection Date: 15-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
cis-1,2-Dichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	29-Dec-2021 17:22
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 17:22
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	29-Dec-2021 17:22
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:22
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Trichloroethene	**56**		**0.20**	**0.50**	**1.0**	**ug/L**	1	29-Dec-2021 17:22
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:22
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*29-Dec-2021 17:22*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*29-Dec-2021 17:22*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*1*	*29-Dec-2021 17:22*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*29-Dec-2021 17:22*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 20:29
Surr: 2-Fluorobiphenyl	*96.9*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 20:29*
Surr: 4-Terphenyl-d14	*109*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 20:29*
Surr: Nitrobenzene-d5	*95.3*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 20:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW22_121521
Collection Date: 15-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.247**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:35
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:35
Arsenic	**0.00206**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:35
Barium	**0.0919**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:35
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:35
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:35
Calcium	**15.4**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:35
Chromium	**0.0251**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:35
Cobalt	**0.000265**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:35
Copper	0.00250	U	0.00100	0.00250	0.00500	mg/L	1	30-Dec-2021 12:35
Iron	**0.0609**	J	**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:35
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:35
Magnesium	**2.06**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:35
Manganese	**0.00243**	J	**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:35
Nickel	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:35
Potassium	**3.47**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:35
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:35
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:35
Sodium	**45.8**		**0.0140**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:35
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:35
Vanadium	**0.0189**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:35
Zinc	0.00250	U	0.00200	0.00250	0.00500	mg/L	1	30-Dec-2021 12:35
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000540**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:37
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW17_121521
Collection Date: 15-Dec-2021 11:00

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 17:45
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	29-Dec-2021 17:45
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	29-Dec-2021 17:45
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	29-Dec-2021 17:45
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	29-Dec-2021 17:45
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW17_121521
Collection Date: 15-Dec-2021 11:00

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 17:45
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	29-Dec-2021 17:45
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:45
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:45
Surr: 1,2-Dichloroethane-d4	*98.7*			**0**	*81-118*	*%REC*	*1*	*29-Dec-2021 17:45*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*1*	*29-Dec-2021 17:45*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*1*	*29-Dec-2021 17:45*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*29-Dec-2021 17:45*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18WW17_121521
Collection Date: 15-Dec-2021 11:00

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.0105**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:37
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:37
Arsenic	**0.000746**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Barium	**3.45**		**0.0380**	**0.0500**	**0.100**	**mg/L**	20	30-Dec-2021 15:34
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:37
Cadmium	**0.000404**	J	**0.000200**	**0.000500**	**0.00200**	**mg/L**	1	30-Dec-2021 12:37
Calcium	**316**		**0.680**	**1.00**	**10.0**	**mg/L**	20	30-Dec-2021 15:34
Chromium	**0.0272**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Cobalt	**0.00102**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Copper	**0.0141**		**0.00100**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Iron	**0.253**		**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:37
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:37
Magnesium	**209**		**0.200**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 15:34
Manganese	**0.0300**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Nickel	**0.0531**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Potassium	**1.68**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:37
Selenium	**0.00214**	J	**0.00110**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:37
Sodium	**1,090**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 15:34
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:37
Vanadium	**0.00226**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
Zinc	**0.0280**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:37
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	**0.0000770**	J	**0.0000300**	**0.000000100**	**0.000200**	**mg/L**	1	23-Dec-2021 11:38
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 18CPTMW16_121521
Collection Date: 15-Dec-2021 12:00

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 20:47
Surr: 2-Fluorobiphenyl	*55.1*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 20:47*
Surr: 4-Terphenyl-d14	*118*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 20:47*
Surr: Nitrobenzene-d5	*132*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 20:47*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 15-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 17:00
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	29-Dec-2021 17:00
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	29-Dec-2021 17:00
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	29-Dec-2021 17:00
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	29-Dec-2021 17:00
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 15-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21121014
Lab ID:HS21121014-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	29-Dec-2021 17:00
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	29-Dec-2021 17:00
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	29-Dec-2021 17:00
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	29-Dec-2021 17:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	29-Dec-2021 17:00
Surr: 1,2-Dichloroethane-d4	*97.1*			**0**	*81-118*	*%REC*	*1*	*29-Dec-2021 17:00*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*1*	*29-Dec-2021 17:00*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*29-Dec-2021 17:00*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*29-Dec-2021 17:00*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

Batch ID: 173723 **Start Date:** 20 Dec 2021 06:30 **End Date:** 20 Dec 2021 11:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21121014-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121014-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121014-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121014-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121014-07	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173861 **Start Date:** 23 Dec 2021 07:00 **End Date:** 23 Dec 2021 10:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21121014-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21121014-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21121014-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21121014-06		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 174048 **Start Date:** 29 Dec 2021 11:30 **End Date:** 29 Dec 2021 15:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21121014-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21121014-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21121014-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21121014-06		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173723 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21121014-01	MW9_121521	15 Dec 2021 07:40		20 Dec 2021 07:04	14 Jan 2022 16:12	10
HS21121014-02	MW16_121521	15 Dec 2021 08:25		20 Dec 2021 07:04	14 Jan 2022 16:30	10
HS21121014-03	18CPTMW23_121521	15 Dec 2021 09:10		20 Dec 2021 07:04	14 Jan 2022 16:48	50
HS21121014-05	18WW22_121521	15 Dec 2021 10:45		20 Dec 2021 07:04	13 Jan 2022 20:29	1
HS21121014-07	18CPTMW16_121521	15 Dec 2021 12:00		20 Dec 2021 07:04	13 Jan 2022 20:47	1
Batch ID: 173861 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Groundwater	
HS21121014-01	MW9_121521	15 Dec 2021 07:40		23 Dec 2021 10:00	23 Dec 2021 11:35	1
HS21121014-04	18WW24_121521	15 Dec 2021 09:55		23 Dec 2021 10:00	23 Dec 2021 10:51	1
HS21121014-05	18WW22_121521	15 Dec 2021 10:45		23 Dec 2021 10:00	23 Dec 2021 11:37	1
HS21121014-06	18WW17_121521	15 Dec 2021 11:00		23 Dec 2021 10:00	23 Dec 2021 11:38	1
Batch ID: 174048 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21121014-01	MW9_121521	15 Dec 2021 07:40		29 Dec 2021 15:30	30 Dec 2021 12:13	1
HS21121014-04	18WW24_121521	15 Dec 2021 09:55		29 Dec 2021 15:30	30 Dec 2021 17:11	50
HS21121014-04	18WW24_121521	15 Dec 2021 09:55		29 Dec 2021 15:30	30 Dec 2021 12:15	1
HS21121014-05	18WW22_121521	15 Dec 2021 10:45		29 Dec 2021 15:30	30 Dec 2021 12:35	1
HS21121014-06	18WW17_121521	15 Dec 2021 11:00		29 Dec 2021 15:30	30 Dec 2021 15:34	20
HS21121014-06	18WW17_121521	15 Dec 2021 11:00		29 Dec 2021 15:30	30 Dec 2021 12:37	1
Batch ID: R398617 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21121014-08	Trip Blank	15 Dec 2021 00:00			29 Dec 2021 17:00	1
Batch ID: R398617 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21121014-01	MW9_121521	15 Dec 2021 07:40			29 Dec 2021 18:07	25
HS21121014-02	MW16_121521	15 Dec 2021 08:25			29 Dec 2021 18:29	5
HS21121014-03	18CPTMW23_121521	15 Dec 2021 09:10			29 Dec 2021 18:52	10
HS21121014-04	18WW24_121521	15 Dec 2021 09:55			29 Dec 2021 14:01	1
HS21121014-05	18WW22_121521	15 Dec 2021 10:45			29 Dec 2021 17:22	1
HS21121014-06	18WW17_121521	15 Dec 2021 11:00			29 Dec 2021 17:45	1
Batch ID: R398974 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21121014-01	MW9_121521	15 Dec 2021 07:40			06 Jan 2022 13:39	1
HS21121014-02	MW16_121521	15 Dec 2021 08:25			06 Jan 2022 13:39	1
HS21121014-03	18CPTMW23_121521	15 Dec 2021 09:10			06 Jan 2022 13:39	1
HS21121014-04	18WW24_121521	15 Dec 2021 09:55			06 Jan 2022 13:39	1
HS21121014-05	18WW22_121521	15 Dec 2021 10:45			06 Jan 2022 13:39	1
HS21121014-06	18WW17_121521	15 Dec 2021 11:00			06 Jan 2022 13:39	1
HS21121014-07	18CPTMW16_121521	15 Dec 2021 12:00			06 Jan 2022 13:39	1

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 173861 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:42**
Client ID: Run ID: **HG03_398265** SeqNo: **6437934** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:44**
Client ID: Run ID: **HG03_398265** SeqNo: **6437935** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	0	106	82 - 119				

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 11:01**
Client ID: **18WW24_121521** Run ID: **HG03_398265** SeqNo: **6437942** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119				

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 10:48**
Client ID: Run ID: **HG03_398265** SeqNo: **6437937** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00477	0.000200	0.005	0.00005400	94.3	82 - 119				

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 11:03**
Client ID: **18WW24_121521** Run ID: **HG03_398265** SeqNo: **6437943** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119	0.004830	0	20	

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 10:49**
Client ID: Run ID: **HG03_398265** SeqNo: **6437938** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.000200	0.005	0.00005400	98.5	82 - 119	0.004770	4.31	20	

The following samples were analyzed in this batch: HS21121014-01 HS21121014-04 HS21121014-05 HS21121014-06

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:09**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447014** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004266	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Copper	0.00250	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.01745	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:11**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447015** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1102	0.0100	0.1	0	110	84 - 117				
Antimony	0.05207	0.00500	0.05	0	104	85 - 117				
Arsenic	0.05387	0.00500	0.05	0	108	84 - 116				
Barium	0.05264	0.00500	0.05	0	105	86 - 114				
Beryllium	0.04924	0.00200	0.05	0	98.5	83 - 121				
Cadmium	0.05407	0.00200	0.05	0	108	87 - 115				
Calcium	4.915	0.500	5	0	98.3	87 - 118				
Chromium	0.05158	0.00500	0.05	0	103	85 - 116				
Cobalt	0.05173	0.00500	0.05	0	103	86 - 115				
Copper	0.05341	0.00500	0.05	0	107	85 - 118				
Iron	5.168	0.200	5	0	103	87 - 118				
Lead	0.05144	0.00500	0.05	0	103	88 - 115				
Magnesium	5.264	0.200	5	0	105	83 - 118				
Manganese	0.05196	0.00500	0.05	0	104	87 - 115				
Nickel	0.05337	0.00500	0.05	0	107	85 - 117				
Potassium	5.158	0.200	5	0	103	87 - 115				
Selenium	0.05446	0.00500	0.05	0	109	80 - 120				
Silver	0.05149	0.00500	0.05	0	103	85 - 116				
Sodium	5.076	0.200	5	0	102	85 - 117				
Thallium	0.05401	0.00200	0.05	0	108	82 - 116				
Vanadium	0.05114	0.00500	0.05	0	102	86 - 115				
Zinc	0.0554	0.00500	0.05	0	111	83 - 119				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument:** ICPMS06 **Method:** METALS BY ICPMS BY SW6020A

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:19**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447019** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5876	0.0100	0.1	0.4336	154	84 - 117				SO
Antimony	0.04901	0.00500	0.05	0.000194	97.6	85 - 117				
Arsenic	0.05446	0.00500	0.05	0.000899	107	84 - 116				
Barium	0.09409	0.00500	0.05	0.0464	95.4	86 - 114				
Beryllium	0.04721	0.00200	0.05	0.000886	92.6	83 - 121				
Cadmium	0.05113	0.00200	0.05	0.000369	102	87 - 115				
Calcium	53.63	0.500	5	53.22	8.27	87 - 118				SO
Chromium	0.05071	0.00500	0.05	0.001646	98.1	85 - 116				
Cobalt	0.06739	0.00500	0.05	0.0211	92.6	86 - 115				
Copper	0.05124	0.00500	0.05	0.00278	96.9	85 - 118				
Iron	5.248	0.200	5	0.3641	97.7	87 - 118				
Lead	0.05152	0.00500	0.05	0.00012	103	88 - 115				
Magnesium	46.74	0.200	5	45.53	24.3	83 - 118				SO
Manganese	6.955	0.00500	0.05	7.514	-1120	87 - 115				SEO
Nickel	0.2128	0.00500	0.05	0.1779	69.7	85 - 117				S
Potassium	5.675	0.200	5	0.7382	98.7	87 - 115				
Selenium	0.05339	0.00500	0.05	0.000331	106	80 - 120				
Silver	0.04777	0.00500	0.05	0.000008	95.5	85 - 116				
Sodium	708.6	0.200	5	776.3	-1350	85 - 117				SEO
Thallium	0.05356	0.00200	0.05	0.000019	107	82 - 116				
Vanadium	0.05246	0.00500	0.05	0.00152	102	86 - 115				
Zinc	0.1072	0.00500	0.05	0.06222	89.9	83 - 119				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument:** ICPMS06 **Method:** METALS BY ICPMS BY SW6020A

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:23**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447021** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6094	0.0100	0.1	0.4336	176	84 - 117	0.5876	3.65	20	SO
Antimony	0.04888	0.00500	0.05	0.000194	97.4	85 - 117	0.04901	0.247	20	
Arsenic	0.05356	0.00500	0.05	0.000899	105	84 - 116	0.05446	1.66	20	
Barium	0.09265	0.00500	0.05	0.0464	92.5	86 - 114	0.09409	1.54	20	
Beryllium	0.04769	0.00200	0.05	0.000886	93.6	83 - 121	0.04721	1.01	20	
Cadmium	0.05108	0.00200	0.05	0.000369	101	87 - 115	0.05113	0.102	20	
Calcium	52.81	0.500	5	53.22	-8.08	87 - 118	53.63	1.54	20	SO
Chromium	0.05068	0.00500	0.05	0.001646	98.1	85 - 116	0.05071	0.0572	20	
Cobalt	0.06798	0.00500	0.05	0.0211	93.8	86 - 115	0.06739	0.873	20	
Copper	0.05072	0.00500	0.05	0.00278	95.9	85 - 118	0.05124	1.02	20	
Iron	5.262	0.200	5	0.3641	98.0	87 - 118	5.248	0.259	20	
Lead	0.05078	0.00500	0.05	0.00012	101	88 - 115	0.05152	1.46	20	
Magnesium	46.19	0.200	5	45.53	13.3	83 - 118	46.74	1.18	20	SO
Manganese	6.92	0.00500	0.05	7.514	-1190	87 - 115	6.955	0.508	20	SEO
Nickel	0.2117	0.00500	0.05	0.1779	67.6	85 - 117	0.2128	0.499	20	S
Potassium	5.625	0.200	5	0.7382	97.7	87 - 115	5.675	0.875	20	
Selenium	0.05191	0.00500	0.05	0.000331	103	80 - 120	0.05339	2.8	20	
Silver	0.04761	0.00500	0.05	0.000008	95.2	85 - 116	0.04777	0.327	20	
Sodium	720.5	0.200	5	776.3	-1120	85 - 117	708.6	1.66	20	SEO
Thallium	0.05298	0.00200	0.05	0.000019	106	82 - 116	0.05356	1.08	20	
Vanadium	0.05157	0.00500	0.05	0.00152	100	86 - 115	0.05246	1.71	20	
Zinc	0.1073	0.00500	0.05	0.06222	90.2	83 - 119	0.1072	0.163	20	

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:25**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447022** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6193	0.0100	0.1	0.4336	186	80 - 120				SO
Antimony	0.1097	0.00500	0.1	0.000194	110	80 - 120				
Arsenic	0.119	0.00500	0.1	0.000899	118	80 - 120				
Barium	0.1541	0.00500	0.1	0.0464	108	80 - 120				
Beryllium	0.102	0.00200	0.1	0.000886	101	80 - 120				
Cadmium	0.1134	0.00200	0.1	0.000369	113	80 - 120				
Calcium	59.07	0.500	10	53.22	58.6	80 - 120				SO
Chromium	0.112	0.00500	0.1	0.001646	110	80 - 120				
Cobalt	0.1346	0.00500	0.1	0.0211	114	80 - 120				
Copper	0.11	0.00500	0.1	0.00278	107	80 - 120				
Iron	11.4	0.200	10	0.3641	110	80 - 120				
Lead	0.1159	0.00500	0.1	0.00012	116	80 - 120				
Magnesium	53.58	0.200	10	45.53	80.5	80 - 120				O
Nickel	0.2727	0.00500	0.1	0.1779	94.7	80 - 120				
Potassium	11.91	0.200	10	0.7382	112	80 - 120				
Selenium	0.116	0.00500	0.1	0.000331	116	80 - 120				
Silver	0.09187	0.00500	0.1	0.000008	91.9	80 - 120				
Thallium	0.1186	0.00200	0.1	0.000019	119	80 - 120				
Vanadium	0.1136	0.00500	0.1	0.00152	112	80 - 120				
Zinc	0.1714	0.00500	0.1	0.06222	109	80 - 120				

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 17:29**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447469** PrepDate: **29-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	13.09	0.250	5	7.163	118	80 - 120				
Sodium	1264	10.0	500	732.3	106	80 - 120				

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 15:54**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447296** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.4746	0.0500					0.4336	9.47	10	

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:17**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447018** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0	0	10	U
Arsenic	0.00500	0.0250					0.000899	0	10	U
Barium	0.04538	0.0250					0.0464	2.19	10	
Beryllium	0.00250	0.0100					0.000886	0	10	U
Cadmium	0.00250	0.0100					0.000369	0	10	U
Calcium	51.65	2.50					53.22	2.95	10	
Chromium	0.00500	0.0250					0.001646	0	10	U
Cobalt	0.0216	0.0250					0.0211	0	10	J
Copper	0.0125	0.0250					0.00278	0	10	U
Iron	0.3466	1.00					0.3641	0	10	J
Lead	0.00500	0.0250					0	0	10	U
Magnesium	45.13	1.00					45.53	0.873	10	
Nickel	0.1856	0.0250					0.1779	4.3	10	
Potassium	0.6991	1.00					0.7382	0	10	J
Selenium	0.0125	0.0250					0	0	10	U
Silver	0.00250	0.0250					0	0	10	U
Thallium	0.00250	0.0100					0	0	10	U
Vanadium	0.00701	0.0250					0.00152	0	10	J
Zinc	0.06506	0.0250					0.06222	4.57	10	

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 17:13**
Client ID: **18WW24_121521** Run ID: **ICPMS06_398647** SeqNo: **6447464** PrepDate: **29-Dec-2021** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	7.305	1.25					7.163	1.99	10	
Sodium	746.3	50.0					732.3	1.92	10	

The following samples were analyzed in this batch: HS21121014-01 HS21121014-04 HS21121014-05 HS21121014-06

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: 173723 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:16**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464306** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.08043*	*0*	*0.08*	*0*	*101*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.04743*	*0*	*0.08*	*0*	*59.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07872*	*0*	*0.08*	*0*	*98.4*	*40 - 140*				

LCS Sample ID: **LCS-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:34**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464307** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08871	0.010	0.08	0	111	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07835*	*0*	*0.08*	*0*	*97.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.06655*	*0*	*0.08*	*0*	*83.2*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06155*	*0*	*0.08*	*0*	*76.9*	*40 - 140*				

LCSD Sample ID: **LCSD-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:52**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464308** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08406	0.010	0.08	0	105	40 - 140	0.08871	5.38	20	
Surr: 2-Fluorobiphenyl	*0.07614*	*0*	*0.08*	*0*	*95.2*	*40 - 140*	*0.07835*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.0555*	*0*	*0.08*	*0*	*69.4*	*40 - 140*	*0.06655*	*18.1*	*20*	
Surr: Nitrobenzene-d5	*0.08313*	*0*	*0.08*	*0*	*104*	*40 - 140*	*0.06155*	*29.8*	*20*	R

The following samples were analyzed in this batch: HS21121014-01 HS21121014-02 HS21121014-03 HS21121014-05 HS21121014-07

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211229** Units: **ug/L** Analysis Date: **29-Dec-2021 12:09**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446342** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211229** Units: **ug/L** Analysis Date: **29-Dec-2021 12:09**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446342** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*49.58*	*1.0*	*50*	*0*	*99.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.45*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*48.19*	*1.0*	*50*	*0*	*96.4*	*80 - 119*				
Surr: Toluene-d8	*53.37*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211229** Units: **ug/L** Analysis Date: **29-Dec-2021 11:25**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446341** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.3	1.0	20	0	96.5	78 - 124				
1,1,1-Trichloroethane	18.91	1.0	20	0	94.5	74 - 131				
1,1,2,2-Tetrachloroethane	18.86	1.0	20	0	94.3	71 - 121				
1,1,2-Trichloroethane	18.77	1.0	20	0	93.8	80 - 119				
1,1-Dichloroethane	18.96	1.0	20	0	94.8	77 - 125				
1,1-Dichloroethene	17.04	1.0	20	0	85.2	71 - 131				
1,1-Dichloropropene	17.59	1.0	20	0	88.0	78 - 125				
1,2,3-Trichlorobenzene	18.6	1.0	20	0	93.0	69 - 129				
1,2,3-Trichloropropane	18.06	1.0	20	0	90.3	73 - 122				
1,2,4-Trichlorobenzene	18.86	1.0	20	0	94.3	69 - 130				
1,2,4-Trimethylbenzene	18.28	1.0	20	0	91.4	76 - 124				
1,2-Dibromo-3-chloropropane	15.5	1.0	20	0	77.5	62 - 128				
1,2-Dibromoethane	19.86	1.0	20	0	99.3	77 - 121				
1,2-Dichlorobenzene	18.35	1.0	20	0	91.7	80 - 119				
1,2-Dichloroethane	18.45	1.0	20	0	92.3	73 - 128				
1,2-Dichloropropane	20.7	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	18.22	1.0	20	0	91.1	75 - 124				
1,3-Dichlorobenzene	19.45	1.0	20	0	97.3	80 - 119				
1,3-Dichloropropane	19.55	1.0	20	0	97.7	80 - 119				
1,4-Dichlorobenzene	18.75	1.0	20	0	93.8	79 - 118				
2,2-Dichloropropane	16.92	1.0	20	0	84.6	60 - 139				
2-Butanone	30.69	2.0	40	0	76.7	56 - 143				
2-Chlorotoluene	18.78	1.0	20	0	93.9	79 - 122				
2-Hexanone	37.17	2.0	40	0	92.9	57 - 139				
4-Chlorotoluene	19.81	1.0	20	0	99.0	78 - 122				
4-Isopropyltoluene	17.89	1.0	20	0	89.4	77 - 127				
4-Methyl-2-pentanone	38.74	2.0	40	0	96.8	67 - 130				
Acetone	33.2	2.0	40	0	83.0	39 - 160				
Benzene	19.19	1.0	20	0	95.9	79 - 120				
Bromobenzene	19.48	1.0	20	0	97.4	80 - 120				
Bromochloromethane	19.43	1.0	20	0	97.1	78 - 123				
Bromodichloromethane	19.31	1.0	20	0	96.6	79 - 125				
Bromoform	17.13	1.0	20	0	85.7	66 - 130				
Bromomethane	18.39	1.0	20	0	92.0	53 - 141				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211229** Units: **ug/L** Analysis Date: **29-Dec-2021 11:25**
Client ID: Run ID: **VOA9_398617** SeqNo: **6446341** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	39.21	2.0	40	0	98.0	64 - 133				
Carbon tetrachloride	15.79	1.0	20	0	78.9	72 - 136				
Chlorobenzene	19.51	1.0	20	0	97.5	82 - 118				
Chloroethane	16.48	1.0	20	0	82.4	60 - 138				
Chloroform	19.48	1.0	20	0	97.4	79 - 124				
Chloromethane	18.82	1.0	20	0	94.1	50 - 139				
cis-1,2-Dichloroethene	16.93	1.0	20	0	84.7	78 - 123				
cis-1,3-Dichloropropene	18.18	1.0	20	0	90.9	75 - 124				
Dibromochloromethane	17.84	1.0	20	0	89.2	74 - 126				
Dibromomethane	19.57	1.0	20	0	97.8	79 - 123				
Dichlorodifluoromethane	18.86	1.0	20	0	94.3	32 - 152				
Ethylbenzene	19.29	1.0	20	0	96.4	79 - 121				
Hexachlorobutadiene	18.73	1.0	20	0	93.7	66 - 134				
Isopropylbenzene	18.6	1.0	20	0	93.0	72 - 131				
m,p-Xylene	39.73	2.0	40	0	99.3	80 - 121				
Methylene chloride	19.03	2.0	20	0	95.1	74 - 124				
Naphthalene	16.5	1.0	20	0	82.5	61 - 128				
n-Butylbenzene	19.46	1.0	20	0	97.3	75 - 128				
n-Propylbenzene	19.36	1.0	20	0	96.8	76 - 126				
o-Xylene	20.26	1.0	20	0	101	78 - 122				
sec-Butylbenzene	18.96	1.0	20	0	94.8	77 - 126				
Styrene	20.88	1.0	20	0	104	78 - 123				
tert-Butylbenzene	17.94	1.0	20	0	89.7	78 - 124				
Tetrachloroethene	18.18	1.0	20	0	90.9	74 - 129				
Toluene	20.1	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	16.86	1.0	20	0	84.3	75 - 124				
trans-1,3-Dichloropropene	16.84	1.0	20	0	84.2	73 - 127				
Trichloroethene	18.39	1.0	20	0	92.0	79 - 123				
Trichlorofluoromethane	16.68	1.0	20	0	83.4	65 - 141				
Vinyl chloride	15.57	1.0	20	0	77.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*57.82*	*1.0*	*50*	*0*	*116*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.91*	*1.0*	*50*	*0*	*110*	*85 - 114*				
Surr: Dibromofluoromethane	*56.42*	*1.0*	*50*	*0*	*113*	*80 - 119*				
Surr: Toluene-d8	*52.49*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21121014-04MS** Units: **ug/L** Analysis Date: **29-Dec-2021 15:53**
Client ID: **18WW24_121521** Run ID: **VOA9_398617** SeqNo: **6446352** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.48	1.0	20	0	97.4	78 - 124				
1,1,1-Trichloroethane	18.9	1.0	20	0	94.5	74 - 131				
1,1,2,2-Tetrachloroethane	18.78	1.0	20	0	93.9	71 - 121				
1,1,2-Trichloroethane	19.37	1.0	20	0	96.9	80 - 119				
1,1-Dichloroethane	15.15	1.0	20	0	75.7	77 - 125				S
1,1-Dichloroethene	14.37	1.0	20	0	71.9	71 - 131				
1,1-Dichloropropene	20.23	1.0	20	0	101	78 - 125				
1,2,3-Trichlorobenzene	18.15	1.0	20	0	90.8	69 - 129				
1,2,3-Trichloropropane	18.45	1.0	20	0	92.3	73 - 122				
1,2,4-Trichlorobenzene	18.82	1.0	20	0	94.1	69 - 130				
1,2,4-Trimethylbenzene	19.13	1.0	20	0	95.6	76 - 124				
1,2-Dibromo-3-chloropropane	16.47	1.0	20	0	82.3	62 - 128				
1,2-Dibromoethane	20.05	1.0	20	0	100	77 - 121				
1,2-Dichlorobenzene	18.89	1.0	20	0	94.4	80 - 119				
1,2-Dichloroethane	19.03	1.0	20	0	95.1	73 - 128				
1,2-Dichloropropane	20.14	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	19.81	1.0	20	0	99.1	75 - 124				
1,3-Dichlorobenzene	20.02	1.0	20	0	100	80 - 119				
1,3-Dichloropropane	19.48	1.0	20	0	97.4	80 - 119				
1,4-Dichlorobenzene	19.29	1.0	20	0	96.5	79 - 118				
2,2-Dichloropropane	19.53	1.0	20	0	97.7	60 - 139				
2-Butanone	36.99	2.0	40	0	92.5	56 - 143				
2-Chlorotoluene	20.2	1.0	20	0	101	79 - 122				
2-Hexanone	40.6	2.0	40	0	102	57 - 139				
4-Chlorotoluene	20.94	1.0	20	0	105	78 - 122				
4-Isopropyltoluene	19.42	1.0	20	0	97.1	77 - 127				
4-Methyl-2-pentanone	39.46	2.0	40	0	98.7	67 - 130				
Acetone	24.05	2.0	40	0	60.1	39 - 160				
Benzene	20.01	1.0	20	0	100	79 - 120				
Bromobenzene	19.79	1.0	20	0	99.0	80 - 120				
Bromochloromethane	17.73	1.0	20	0	88.7	78 - 123				
Bromodichloromethane	18.99	1.0	20	0	95.0	79 - 125				
Bromoform	16.1	1.0	20	0	80.5	66 - 130				
Bromomethane	16.12	1.0	20	0	80.6	53 - 141				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21121014-04MS** Units: **ug/L** Analysis Date: **29-Dec-2021 15:53**
Client ID: **18WW24_121521** Run ID: **VOA9_398617** SeqNo: **6446352** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	27.57	2.0	40	0	68.9	64 - 133				
Carbon tetrachloride	19.38	1.0	20	0	96.9	72 - 136				
Chlorobenzene	19.76	1.0	20	0	98.8	82 - 118				
Chloroethane	15.37	1.0	20	0	76.9	60 - 138				
Chloroform	18.09	1.0	20	0	90.4	79 - 124				
Chloromethane	14.14	1.0	20	0	70.7	50 - 139				
cis-1,2-Dichloroethene	18.32	1.0	20	0	91.6	78 - 123				
cis-1,3-Dichloropropene	16.7	1.0	20	0	83.5	75 - 124				
Dibromochloromethane	17.55	1.0	20	0	87.7	74 - 126				
Dibromomethane	19.6	1.0	20	0	98.0	79 - 123				
Dichlorodifluoromethane	13.59	1.0	20	0	67.9	32 - 152				
Ethylbenzene	20.49	1.0	20	0	102	79 - 121				
Hexachlorobutadiene	18.34	1.0	20	0	91.7	66 - 134				
Isopropylbenzene	21.44	1.0	20	0	107	72 - 131				
m,p-Xylene	42.63	2.0	40	0	107	80 - 121				
Methylene chloride	13.95	2.0	20	0	69.8	74 - 124				S
Naphthalene	16.61	1.0	20	0	83.1	61 - 128				
n-Butylbenzene	21.18	1.0	20	0	106	75 - 128				
n-Propylbenzene	21.91	1.0	20	0	110	76 - 126				
o-Xylene	21.18	1.0	20	0	106	78 - 122				
sec-Butylbenzene	21.3	1.0	20	0	107	77 - 126				
Styrene	20.99	1.0	20	0	105	78 - 123				
tert-Butylbenzene	20.72	1.0	20	0	104	78 - 124				
Tetrachloroethene	20.4	1.0	20	0	102	74 - 129				
Toluene	21.02	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	13.81	1.0	20	0	69.0	75 - 124				S
trans-1,3-Dichloropropene	16.36	1.0	20	0	81.8	73 - 127				
Trichloroethene	19.28	1.0	20	0	96.4	79 - 123				
Trichlorofluoromethane	14.58	1.0	20	0	72.9	65 - 141				
Vinyl chloride	13.7	1.0	20	0	68.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.41*	*1.0*	*50*	*0*	*98.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.65*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.15*	*1.0*	*50*	*0*	*94.3*	*80 - 119*				
Surr: Toluene-d8	*53.33*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121014-04MSD** Units: **ug/L** Analysis Date: **29-Dec-2021 16:15**
Client ID: **18WW24_121521** Run ID: **VOA9_398617** SeqNo: **6446353** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.85	1.0	20	0	99.3	78 - 124	19.48	1.9	20	
1,1,1-Trichloroethane	18.28	1.0	20	0	91.4	74 - 131	18.9	3.34	20	
1,1,2,2-Tetrachloroethane	19.24	1.0	20	0	96.2	71 - 121	18.78	2.4	20	
1,1,2-Trichloroethane	19.05	1.0	20	0	95.3	80 - 119	19.37	1.68	20	
1,1-Dichloroethane	15.56	1.0	20	0	77.8	77 - 125	15.15	2.65	20	
1,1-Dichloroethene	14.53	1.0	20	0	72.6	71 - 131	14.37	1.07	20	
1,1-Dichloropropene	19.74	1.0	20	0	98.7	78 - 125	20.23	2.42	20	
1,2,3-Trichlorobenzene	19.19	1.0	20	0	95.9	69 - 129	18.15	5.53	20	
1,2,3-Trichloropropane	19.05	1.0	20	0	95.3	73 - 122	18.45	3.19	20	
1,2,4-Trichlorobenzene	18.94	1.0	20	0	94.7	69 - 130	18.82	0.639	20	
1,2,4-Trimethylbenzene	20.09	1.0	20	0	100	76 - 124	19.13	4.91	20	
1,2-Dibromo-3-chloropropane	17.27	1.0	20	0	86.4	62 - 128	16.47	4.77	20	
1,2-Dibromoethane	20.37	1.0	20	0	102	77 - 121	20.05	1.59	20	
1,2-Dichlorobenzene	19.23	1.0	20	0	96.1	80 - 119	18.89	1.8	20	
1,2-Dichloroethane	18.98	1.0	20	0	94.9	73 - 128	19.03	0.247	20	
1,2-Dichloropropane	19.13	1.0	20	0	95.7	78 - 122	20.14	5.13	20	
1,3,5-Trimethylbenzene	19.89	1.0	20	0	99.4	75 - 124	19.81	0.361	20	
1,3-Dichlorobenzene	19.8	1.0	20	0	99.0	80 - 119	20.02	1.12	20	
1,3-Dichloropropane	19.49	1.0	20	0	97.5	80 - 119	19.48	0.0805	20	
1,4-Dichlorobenzene	19.08	1.0	20	0	95.4	79 - 118	19.29	1.12	20	
2,2-Dichloropropane	17.73	1.0	20	0	88.7	60 - 139	19.53	9.68	20	
2-Butanone	33.99	2.0	40	0	85.0	56 - 143	36.99	8.45	20	
2-Chlorotoluene	20.16	1.0	20	0	101	79 - 122	20.2	0.199	20	
2-Hexanone	40.64	2.0	40	0	102	57 - 139	40.6	0.0833	20	
4-Chlorotoluene	21.18	1.0	20	0	106	78 - 122	20.94	1.12	20	
4-Isopropyltoluene	19.33	1.0	20	0	96.7	77 - 127	19.42	0.434	20	
4-Methyl-2-pentanone	40.88	2.0	40	0	102	67 - 130	39.46	3.54	20	
Acetone	25.06	2.0	40	0	62.6	39 - 160	24.05	4.08	20	
Benzene	19.57	1.0	20	0	97.9	79 - 120	20.01	2.23	20	
Bromobenzene	19.96	1.0	20	0	99.8	80 - 120	19.79	0.835	20	
Bromochloromethane	17.63	1.0	20	0	88.1	78 - 123	17.73	0.608	20	
Bromodichloromethane	18.38	1.0	20	0	91.9	79 - 125	18.99	3.26	20	
Bromoform	16.56	1.0	20	0	82.8	66 - 130	16.1	2.83	20	
Bromomethane	15.44	1.0	20	0	77.2	53 - 141	16.12	4.36	20	

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID: R398617 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121014-04MSD** Units: **ug/L** Analysis Date: **29-Dec-2021 16:15**
Client ID: **18WW24_121521** Run ID: **VOA9_398617** SeqNo: **6446353** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	27.89	2.0	40	0	69.7	64 - 133	27.57	1.16	20	
Carbon tetrachloride	19.11	1.0	20	0	95.5	72 - 136	19.38	1.44	20	
Chlorobenzene	19.37	1.0	20	0	96.9	82 - 118	19.76	1.96	20	
Chloroethane	16.05	1.0	20	0	80.3	60 - 138	15.37	4.34	20	
Chloroform	17.38	1.0	20	0	86.9	79 - 124	18.09	3.99	20	
Chloromethane	14.51	1.0	20	0	72.6	50 - 139	14.14	2.61	20	
cis-1,2-Dichloroethene	17.44	1.0	20	0	87.2	78 - 123	18.32	4.94	20	
cis-1,3-Dichloropropene	16.92	1.0	20	0	84.6	75 - 124	16.7	1.33	20	
Dibromochloromethane	17.6	1.0	20	0	88.0	74 - 126	17.55	0.33	20	
Dibromomethane	19.32	1.0	20	0	96.6	79 - 123	19.6	1.42	20	
Dichlorodifluoromethane	13.32	1.0	20	0	66.6	32 - 152	13.59	2	20	
Ethylbenzene	20.42	1.0	20	0	102	79 - 121	20.49	0.332	20	
Hexachlorobutadiene	17.49	1.0	20	0	87.4	66 - 134	18.34	4.76	20	
Isopropylbenzene	21.25	1.0	20	0	106	72 - 131	21.44	0.874	20	
m,p-Xylene	42.97	2.0	40	0	107	80 - 121	42.63	0.794	20	
Methylene chloride	13.46	2.0	20	0	67.3	74 - 124	13.95	3.6	20	S
Naphthalene	17.95	1.0	20	0	89.8	61 - 128	16.61	7.73	20	
n-Butylbenzene	21.07	1.0	20	0	105	75 - 128	21.18	0.484	20	
n-Propylbenzene	21.86	1.0	20	0	109	76 - 126	21.91	0.234	20	
o-Xylene	21.17	1.0	20	0	106	78 - 122	21.18	0.0596	20	
sec-Butylbenzene	20.88	1.0	20	0	104	77 - 126	21.3	2.03	20	
Styrene	21.26	1.0	20	0	106	78 - 123	20.99	1.29	20	
tert-Butylbenzene	20.67	1.0	20	0	103	78 - 124	20.72	0.224	20	
Tetrachloroethene	20.15	1.0	20	0	101	74 - 129	20.4	1.26	20	
Toluene	21.24	1.0	20	0	106	80 - 121	21.02	1.04	20	
trans-1,2-Dichloroethene	14.87	1.0	20	0	74.3	75 - 124	13.81	7.38	20	S
trans-1,3-Dichloropropene	16.24	1.0	20	0	81.2	73 - 127	16.36	0.77	20	
Trichloroethene	19	1.0	20	0	95.0	79 - 123	19.28	1.45	20	
Trichlorofluoromethane	15.38	1.0	20	0	76.9	65 - 141	14.58	5.38	20	
Vinyl chloride	13.11	1.0	20	0	65.6	58 - 137	13.7	4.41	20	
Surr: 1,2-Dichloroethane-d4	*47.58*	*1.0*	*50*	*0*	*95.2*	*81 - 118*	*49.41*	*3.77*	*20*	
Surr: 4-Bromofluorobenzene	*52.82*	*1.0*	*50*	*0*	*106*	*85 - 114*	*52.65*	*0.332*	*20*	
Surr: Dibromofluoromethane	*46.69*	*1.0*	*50*	*0*	*93.4*	*80 - 119*	*47.15*	*0.984*	*20*	
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*	*53.33*	*0.251*	*20*	

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121014

QC BATCH REPORT

Batch ID:	R398617 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21121014-01	HS21121014-02	HS21121014-03	HS21121014-04
HS21121014-05	HS21121014-06	HS21121014-08	

ALS Houston, US Date: 17-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS21121014**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 17-Jan-22

Sample Receipt Checklist

Work Order ID: HS21121014 **Date/Time Received:** **16-Dec-2021 10:50**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: /S/ Paresh M. Giga (eSignature) 16-Dec-2021 19:44 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 19-Dec-2021 19:58 (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 ☐	
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):	0.7C U/c	IR31
Cooler(s)/Kit(s):	48046	
Date/Time sample(s) sent to storage:	12/16/2021 20:15	

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:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
							Sample Analysis Requested (5)											Quality Assurance Samples (6)			
MW9_121521	15 DEC 2021	0740	-	N		WG	6	X	X	X	X										
MW16_121521	15 DEC 2021	0825	-	N		WG	5	X	X		X										
18CPTMW23_121521	15 DEC 2021	0910	-	N		WG	5	X	X		X										
18WW24_121521	15 DEC 2021	0955		N		WG	5	X	X	X											
18WW24_121521_MS	15 DEC 2021	0955		MS		WG	5	X	X	X											
18WW24_121521_MSD	15 DEC 2021	0955	-	SD		WG	5	X	X	X											
18WW22_121521	15 DEC 2021	1045	-	N		WG	6	X	X	X	X										
18WW17_121521	15 DEC 2021	1100	-	N		WG	5	X	X	X											
18CPTMW16_121521	15 DEC 2021	1200	-	N		WG	2		X		X										
TRIP BLANK	15 DEC 2021		-	TB		W	2	X													
			-																		

HS21121014
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: STANDARD TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/15/21	1430	1. J. MACARTY	12/16/21	10:50
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

Method of Shipment: _____

Fed _____ Ex _____ Airbill _____ Number:

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

Cooler 48046
Temp 0.7°C
1231 CFO

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

48046

CUSTODY SEAL

Date: 12/15/21 Time: 1430
Name: Scott Beesiner
Company: BHATE

Seal Broken By: SM
Date: 12/16/21

48046 DEC 16 2021

Part # 159459-434 MTW EXP 07/22

48046

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

TO **SHIPPING DEPT**
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG

RMA:

FedEx Express

TRK# 6221 5300 5225 1581

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

4230674 15Dec2021 GGGA 560G3/E934/1B23

January 06, 2022

Service Request No:E2101279

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21121014

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 17, 2021
For your reference, these analyses have been assigned our service request number **E2101279.**

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.:**	E2101279
Project:	HS21121014	**Date Received:**	12/17/21
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

Seven samples were received for analysis at ALS Environmental in Houston on 12/17/21.

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:

EQ2100704: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS/DLCS recoveries are within QC limits. The MS/MSD recoveries failed low (parent E2101279-004).

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:**E2101279
Project: HS21121014

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101279-001	MW9_121521	12/15/2021	0740
E2101279-002	MW16_121521	12/15/2021	0825
E2101279-003	18CPTMW23_121521	12/15/2021	0910
E2101279-004	18WW24_121521	12/15/2021	0955
E2101279-005	18WW22_121521	12/15/2021	1045
E2101279-006	18WW17_121521	12/15/2021	1100
E2101279-007	18CPTMW16_121521	12/15/2021	1200

Service Request Summary

Folder #: **E2101279**
Client Name: ALS Environmental - US
Project Name: HS21121014
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/17/21
Internal Due Date: 1/3/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21121014
EDD: No EDD Specified

9 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101279-001	MW9_121521	Ground Water	12/15/21 0740	**IV**
E2101279-002	MW16_121521	Ground Water	12/15/21 0825	**IV**
E2101279-003	18CPTMW23_121521	Ground Water	12/15/21 0910	**IV**
E2101279-004	18WW24_121521	Ground Water	12/15/21 0955	**IV**
E2101279-005	18WW22_121521	Ground Water	12/15/21 1045	**IV**
E2101279-006	18WW17_121521	Ground Water	12/15/21 1100	**IV**
E2101279-007	18CPTMW16_121521	Ground Water	12/15/21 1200	**IV**

Service Request Summary

Folder #: **E2101279**
Client Name: ALS Environmental - US
Project Name: HS21121014
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/17/21
Internal Due Date: 1/3/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21121014
EDD: No EDD Specified

9 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	6	Level IV due 1/10
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2021	6/30/2022
Maine Department of Health and Human Services	2020016	6/5/2022
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: **Texas**

COC ID: **17717**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21121014
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21121014-01**	**MW9_121521**	**Groundwater**	**15 Dec 2021 07:40**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021
2.	**HS21121014-02**	**MW16_121521**	**Groundwater**	**15 Dec 2021 08:25**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021
3.	**HS21121014-03**	**18CPTMW23_121521**	**Groundwater**	**15 Dec 2021 09:10**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021
4.	**HS21121014-04**	**18WW24_121521**	**Groundwater**	**15 Dec 2021 09:55**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021
5.	**HS21121014-05**	**18WW22_121521**	**Groundwater**	**15 Dec 2021 10:45**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021
6.	**HS21121014-06**	**18WW17_121521**	**Groundwater**	**15 Dec 2021 11:00**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021
7.	**HS21121014-07**	**18CPTMW16_121521**	**Groundwater**	**15 Dec 2021 12:00**
	Provide Level II and Level IV reports in separate pdf			31 Dec 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS21121014-04 = ms/msd

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **17717**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	[illegible]	Date/Time:	12 17 21 1226
Received By:	[illegible]	Date/Time:	12/17/21 1226
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALG-H

Thermometer ID: IR31

Date/Time Received: 12.17.21 Initials: CG

Date/Time Logged in: 12.17.21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (IGG) ○ 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		12.17.21	1226	CG	3.1	☑
						☐
						☐
						☐

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:

Effective 10/04/2013

ALS Environmental - Houston HRMS

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#: 393229 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/28/21 10:29

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101279-001	MW9_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101279-002	MW16_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101279-003	18CPTMW23_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101279-004	18WW24_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101279-005	18WW22_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101279-006	18WW17_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101279-007	18CPTMW16_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101283-001	BDD--SWSF-082621-A	.01	6850/ClO4 DOD			Water	10mL	
9	E2101283-002	BDD--SWSF-082621-B	.01	6850/ClO4 DOD			Water	10mL	
10	E2101283-003	BDD--SWSF-082621-C	.01	6850/ClO4 DOD			Water	10mL	
11	E2101293-001	MW8_122021	.01	6850/ClO4 DOD			Water	10mL	
12	E2101293-002	1824DPTMW01_122021	.01	6850/ClO4 DOD			Water	10mL	
13	E2101293-003	1824DPTMW03_122021	.01	6850/ClO4 DOD			Water	10mL	
14	E2101293-004	1824DPTMW03_122021_a	.01	6850/ClO4 DOD			Water	10mL	
15	E2101293-005	CO3_122021	.01	6850/ClO4 DOD			Water	10mL	
16	E2101293-006	1824DPTMW02_122021	.01	6850/ClO4 DOD			Water	10mL	
17	EQ2100704-01	MB		6850/ClO4 DOD			Liquid	10mL	
18	EQ2100704-02	LCS		6850/ClO4 DOD			Liquid	10mL	
19	EQ2100704-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
20	EQ2100704-04	18WW24_121521 MS	.01	6850/ClO4 DOD			Liquid	10mL	
21	EQ2100704-05	18WW24_121521 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101279-001	100.00µL	E2101279-002	100.00µL	E2101279-003	100.00µL	E2101279-004	100.00µL	E2101279-005	100.00µL	E2101279-006	100.00µL
E2101279-007	100.00µL	E2101283-001	100.00µL	E2101283-002	100.00µL	E2101283-003	100.00µL	E2101293-001	100.00µL	E2101293-002	100.00µL
E2101293-003	100.00µL	E2101293-004	100.00µL	E2101293-005	100.00µL	E2101293-006	100.00µL	EQ2100704-01	100.00µL	EQ2100704-02	100.00µL
EQ2100704-03	100.00µL	EQ2100704-04	100.00µL	EQ2100704-05	100.00µL						

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100704-02	1.00µL	EQ2100704-03	1.00µL	EQ2100704-04	1.00µL	EQ2100704-05	1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Information Benchsheet

Prep Run#: 393229 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/28/21 10:29

Preparation Steps

Step: Preparation
Started: 12/28/21 10:29
Finished: 12/28/21 11:30
By: GRIVERA
Comments

Comments:

Reviewed By: GR Date: 12/28/21

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:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 0740
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	MW9_121521	**Units:**	µg/L
Lab Code:	E2101279-001	**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	**81.8**		1.00	0.500	0.250	10	12/28/21	12/29/21 17:17	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 0825
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	MW16_121521	**Units:**	µg/L
Lab Code:	E2101279-002	**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	**0.0269**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 17:25	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 0910
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18CPTMW23_121521	**Units:**	µg/L
Lab Code:	E2101279-003	**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	**4.63**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 17:32	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 0955
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18WW24_121521	**Units:**	µg/L
Lab Code:	E2101279-004	**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	**0.0729**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 17:40	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 1045
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18WW22_121521	**Units:**	µg/L
Lab Code:	E2101279-005	**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	**0.457**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 17:48	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 1100
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18WW17_121521	**Units:**	µg/L
Lab Code:	E2101279-006	**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	**136000**		500	250	125	5000	12/28/21	12/29/21 17:56	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 1200
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18CPTMW16_121521	**Units:**	µg/L
Lab Code:	E2101279-007	**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	12/28/21	1/3/22 11:38	393229	750638	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100704-01	**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	12/28/21	12/29/21 14:47	393229	750447	

Accuracy & Precision

ALS Environmental - Houston HRMS
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Analyzed:**	12/29/21
Sample Matrix:	Ground Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	393229

	Lab Control Sample EQ2100704-02			Duplicate Lab Control Sample EQ2100704-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.116	0.100	116	0.116	0.100	116	84 - 119	<1	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:**	E2101279
Project:	HS21121014	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100704-02	**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	**0.116**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 15:50	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100704-03	**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	**0.116**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 16:14	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
		Date Analyzed:	12/29/21

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	18WW24_121521	**Units:**	µg/L
Lab Code:	E2101279-004	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		18WW24_121521MS					18WW24_121521DMS						
		Matrix Spike					**Duplicate Matrix Spike**						
		EQ2100704-04					EQ2100704-05						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**			**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0729	0.140	0.100	67	*		0.155	0.100	82	*	84 - 119	10	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 0955
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18WW24_121521	**Units:**	µg/L
Lab Code:	EQ2100704-04	**Basis:**	NA
Run Type:	Matrix Spike		

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	**0.140**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 16:29	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101279
Project:	HS21121014	**Date Collected:**	12/15/21 0955
Sample Matrix:	Ground Water	**Date Received:**	12/17/21
Sample Name:	18WW24_121521	**Units:**	µg/L
Lab Code:	EQ2100704-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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	**0.155**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 16:37	393229	750447	

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January 14, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21121254**

Laboratory Results for: **LHAAP 18 24**

Dear Marcia Olive,

ALS Environmental received 7 sample(s) on Dec 21, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21121254

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21121254-01	MW8_122021	Groundwater		20-Dec-2021 09:10	21-Dec-2021 11:30	☐
HS21121254-02	1824DPTMW01_122021	Groundwater		20-Dec-2021 09:55	21-Dec-2021 11:30	☐
HS21121254-03	1824DPTMW03_122021	Groundwater		20-Dec-2021 10:45	21-Dec-2021 11:30	☐
HS21121254-04	1824DPTMW03_122021_a	Groundwater		20-Dec-2021 10:45	21-Dec-2021 11:30	☐
HS21121254-05	CO3_122021	Groundwater		20-Dec-2021 11:35	21-Dec-2021 11:30	☐
HS21121254-06	1824DPTMW02_122021	Groundwater		20-Dec-2021 12:20	21-Dec-2021 11:30	☐
HS21121254-07	Trip Blank	Water	CG 101321 -153	20-Dec-2021 00:00	21-Dec-2021 11:30	☐

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Work Order: HS21121254

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173950

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260

Batch ID: R398699,R398772

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW8_122021
Collection Date: 20-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,2-Dichloroethane	**2.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 15:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 15:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 15:14
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 15:14
Benzene	**0.84**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:14
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 15:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: MW8_122021
Collection Date: 20-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
cis-1,2-Dichloroethene	**23**		**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:14
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 15:14
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 15:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
Trichloroethene	**200**		**1.0**	**2.5**	**5.0**	**ug/L**	5	03-Jan-2022 13:32
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:14
Surr: 1,2-Dichloroethane-d4	*95.5*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 15:14*
Surr: 1,2-Dichloroethane-d4	*83.6*			**0**	*81-118*	*%REC*	*5*	*03-Jan-2022 13:32*
Surr: 4-Bromofluorobenzene	*98.8*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 15:14*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*5*	*03-Jan-2022 13:32*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 15:14*
Surr: Dibromofluoromethane	*86.2*			**0**	*80-119*	*%REC*	*5*	*03-Jan-2022 13:32*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 15:14*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*5*	*03-Jan-2022 13:32*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Dec-2021		Analyst: JLJ
1,4-Dioxane	**1.7**		**0.10**	**0.10**	**0.10**	**ug/L**	10	14-Jan-2022 15:53
Surr: 2-Fluorobiphenyl	*82.3*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 15:53*
Surr: 4-Terphenyl-d14	*53.4*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 15:53*
Surr: Nitrobenzene-d5	*92.7*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 15:53*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 14-Jan-22

Client:	Bhate Environmental Associates, Inc.		**ANALYTICAL REPORT**
Project:	LHAAP 18 24	WorkOrder:	HS21121254
Sample ID:	MW8_122021	Lab ID:	HS21121254-01
Collection Date:	20-Dec-2021 09:10	Matrix:	Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW01_122021
Collection Date: 20-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 13:45
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 13:45
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 13:45
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 13:45
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 13:45
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW01_122021
Collection Date: 20-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 13:45
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 13:45
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:45
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:45
Surr: 1,2-Dichloroethane-d4	*95.2*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 13:45*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 13:45*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 13:45*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 13:45*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.052**		**0.010**	**0.010**	**0.010**	**ug/L**	1	13-Jan-2022 21:23
Surr: 2-Fluorobiphenyl	*56.2*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:23*
Surr: 4-Terphenyl-d14	*123*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:23*
Surr: Nitrobenzene-d5	*134*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:23*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW03_122021
Collection Date: 20-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 14:07
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 14:07
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 14:07
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 14:07
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 14:07
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW03_122021
Collection Date: 20-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 14:07
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 14:07
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:07
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:07
Surr: 1,2-Dichloroethane-d4	*94.7*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 14:07*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 14:07*
Surr: Dibromofluoromethane	*92.8*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 14:07*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 14:07*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 21:41
Surr: 2-Fluorobiphenyl	*88.9*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:41*
Surr: 4-Terphenyl-d14	*113*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:41*
Surr: Nitrobenzene-d5	*114*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:41*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW03_122021_a
Collection Date: 20-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
2-Butanone	**1.3**	J	**0.50**	**1.0**	**2.0**	**ug/L**	1	31-Dec-2021 14:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 14:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 14:29
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 14:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 14:29
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW03_122021_a
Collection Date: 20-Dec-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 14:29
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 14:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:29
Surr: 1,2-Dichloroethane-d4	*95.0*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 14:29*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 14:29*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 14:29*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 14:29*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Dec-2021		Analyst: JLJ
1,4-Dioxane	0.010	U	0.010	0.010	0.010	ug/L	1	13-Jan-2022 21:59
Surr: 2-Fluorobiphenyl	*87.5*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:59*
Surr: 4-Terphenyl-d14	*111*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:59*
Surr: Nitrobenzene-d5	*101*			**0**	*40-140*	*%REC*	*1*	*13-Jan-2022 21:59*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO3_122021
Collection Date: 20-Dec-2021 11:35

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 14:52
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 14:52
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 14:52
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 14:52
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 14:52
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: CO3_122021
Collection Date: 20-Dec-2021 11:35

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 14:52
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	31-Dec-2021 14:52
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 14:52
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 14:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 14:52
Surr: 1,2-Dichloroethane-d4	*96.3*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 14:52*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 14:52*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 14:52*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 14:52*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.12**		**0.010**	**0.010**	**0.010**	**ug/L**	1	14-Jan-2022 13:48
Surr: 2-Fluorobiphenyl	*94.2*			**0**	*40-140*	*%REC*	*1*	*14-Jan-2022 13:48*
Surr: 4-Terphenyl-d14	*75.7*			**0**	*40-140*	*%REC*	*1*	*14-Jan-2022 13:48*
Surr: Nitrobenzene-d5	*118*			**0**	*40-140*	*%REC*	*1*	*14-Jan-2022 13:48*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW02_122021
Collection Date: 20-Dec-2021 12:20

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,1-Dichloroethane	**0.62**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:36
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 15:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 15:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 15:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 15:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 15:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Chloroform	**1.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: 1824DPTMW02_122021
Collection Date: 20-Dec-2021 12:20

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
cis-1,2-Dichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:36
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 15:36
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 15:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 15:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
trans-1,2-Dichloroethene	**0.42**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 15:36
Trichloroethene	**190**		**1.0**	**2.5**	**5.0**	**ug/L**	5	03-Jan-2022 13:54
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 15:36
Vinyl chloride	**0.86**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	31-Dec-2021 15:36
Surr: 1,2-Dichloroethane-d4	*97.1*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 15:36*
Surr: 1,2-Dichloroethane-d4	*84.9*			**0**	*81-118*	*%REC*	*5*	*03-Jan-2022 13:54*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 15:36*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*5*	*03-Jan-2022 13:54*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 15:36*
Surr: Dibromofluoromethane	*85.1*			**0**	*80-119*	*%REC*	*5*	*03-Jan-2022 13:54*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 15:36*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*03-Jan-2022 13:54*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 27-Dec-2021		Analyst: JLJ
1,4-Dioxane	**0.50**		**0.010**	**0.010**	**0.010**	**ug/L**	1	14-Jan-2022 14:06
Surr: 2-Fluorobiphenyl	*89.1*			**0**	*40-140*	*%REC*	*1*	*14-Jan-2022 14:06*
Surr: 4-Terphenyl-d14	*68.7*			**0**	*40-140*	*%REC*	*1*	*14-Jan-2022 14:06*
Surr: Nitrobenzene-d5	*110*			**0**	*40-140*	*%REC*	*1*	*14-Jan-2022 14:06*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 14-Jan-22

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	LHAAP 18 24	WorkOrder:HS21121254
Sample ID:	1824DPTMW02_122021	Lab ID:HS21121254-06
Collection Date:	20-Dec-2021 12:20	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	06-Jan-2022 13:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 20-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 13:22
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	31-Dec-2021 13:22
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	31-Dec-2021 13:22
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	31-Dec-2021 13:22
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	31-Dec-2021 13:22
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
Sample ID: Trip Blank
Collection Date: 20-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21121254
Lab ID:HS21121254-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	31-Dec-2021 13:22
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	31-Dec-2021 13:22
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	31-Dec-2021 13:22
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	31-Dec-2021 13:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	31-Dec-2021 13:22
Surr: 1,2-Dichloroethane-d4	*94.3*			**0**	*81-118*	*%REC*	*1*	*31-Dec-2021 13:22*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*31-Dec-2021 13:22*
Surr: Dibromofluoromethane	*93.3*			**0**	*80-119*	*%REC*	*1*	*31-Dec-2021 13:22*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*31-Dec-2021 13:22*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

Batch ID: 173950 **Start Date:** 27 Dec 2021 08:30 **End Date:** 27 Dec 2021 11:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21121254-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121254-02	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121254-03	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121254-04	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121254-05	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat
HS21121254-06	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173950 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Groundwater	
HS21121254-01	MW8_122021	20 Dec 2021 09:10		27 Dec 2021 07:13	14 Jan 2022 15:53	10
HS21121254-02	1824DPTMW01_122021	20 Dec 2021 09:55		27 Dec 2021 07:13	13 Jan 2022 21:23	1
HS21121254-03	1824DPTMW03_122021	20 Dec 2021 10:45		27 Dec 2021 07:13	13 Jan 2022 21:41	1
HS21121254-04	1824DPTMW03_122021_a	20 Dec 2021 10:45		27 Dec 2021 07:13	13 Jan 2022 21:59	1
HS21121254-05	CO3_122021	20 Dec 2021 11:35		27 Dec 2021 07:13	14 Jan 2022 13:48	1
HS21121254-06	1824DPTMW02_122021	20 Dec 2021 12:20		27 Dec 2021 07:13	14 Jan 2022 14:06	1
Batch ID: R398699 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21121254-07	Trip Blank	20 Dec 2021 00:00			31 Dec 2021 13:22	1
Batch ID: R398699 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21121254-01	MW8_122021	20 Dec 2021 09:10			31 Dec 2021 15:14	1
HS21121254-02	1824DPTMW01_122021	20 Dec 2021 09:55			31 Dec 2021 13:45	1
HS21121254-03	1824DPTMW03_122021	20 Dec 2021 10:45			31 Dec 2021 14:07	1
HS21121254-04	1824DPTMW03_122021_a	20 Dec 2021 10:45			31 Dec 2021 14:29	1
HS21121254-05	CO3_122021	20 Dec 2021 11:35			31 Dec 2021 14:52	1
HS21121254-06	1824DPTMW02_122021	20 Dec 2021 12:20			31 Dec 2021 15:36	1
Batch ID: R398772 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21121254-01	MW8_122021	20 Dec 2021 09:10			03 Jan 2022 13:32	5
HS21121254-06	1824DPTMW02_122021	20 Dec 2021 12:20			03 Jan 2022 13:54	5
Batch ID: R398974 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21121254-01	MW8_122021	20 Dec 2021 09:10			06 Jan 2022 13:39	1
HS21121254-02	1824DPTMW01_122021	20 Dec 2021 09:55			06 Jan 2022 13:39	1
HS21121254-03	1824DPTMW03_122021	20 Dec 2021 10:45			06 Jan 2022 13:39	1
HS21121254-04	1824DPTMW03_122021_a	20 Dec 2021 10:45			06 Jan 2022 13:39	1
HS21121254-05	CO3_122021	20 Dec 2021 11:35			06 Jan 2022 13:39	1
HS21121254-06	1824DPTMW02_122021	20 Dec 2021 12:20			06 Jan 2022 13:39	1

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: 173950 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173950** Units: **ug/L** Analysis Date: **13-Jan-2022 14:10**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464309** PrepDate: **27-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.07361*	*0*	*0.08*	*0*	*92.0*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05494*	*0*	*0.08*	*0*	*68.7*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.1103*	*0*	*0.08*	*0*	*138*	*40 - 140*				

LCS Sample ID: **LCS-173950** Units: **ug/L** Analysis Date: **13-Jan-2022 14:28**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464310** PrepDate: **27-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08459	0.010	0.08	0	106	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07496*	*0*	*0.08*	*0*	*93.7*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.0615*	*0*	*0.08*	*0*	*76.9*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.08556*	*0*	*0.08*	*0*	*107*	*40 - 140*				

LCSD Sample ID: **LCSD-173950** Units: **ug/L** Analysis Date: **13-Jan-2022 14:46**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464311** PrepDate: **27-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07525	0.010	0.08	0	94.1	40 - 140	0.08459	11.7	20	
Surr: 2-Fluorobiphenyl	*0.08406*	*0*	*0.08*	*0*	*105*	*40 - 140*	*0.07496*	*11.5*	*20*	
Surr: 4-Terphenyl-d14	*0.06851*	*0*	*0.08*	*0*	*85.6*	*40 - 140*	*0.0615*	*10.8*	*20*	
Surr: Nitrobenzene-d5	*0.08706*	*0*	*0.08*	*0*	*109*	*40 - 140*	*0.08556*	*1.74*	*20*	

The following samples were analyzed in this batch: HS21121254-01 HS21121254-02 HS21121254-03 HS21121254-04 HS21121254-05 HS21121254-06

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: **R398699 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211231** Units: **ug/L** Analysis Date: **31-Dec-2021 13:00**
Client ID: Run ID: **VOA9_398699** SeqNo: **6448429** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398699 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211231** Units: **ug/L** Analysis Date: **31-Dec-2021 13:00**
Client ID: Run ID: **VOA9_398699** SeqNo: **6448429** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.11*	*1.0*	*50*	*0*	*94.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.61*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*46.65*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				
Surr: Toluene-d8	*55.06*	*1.0*	*50*	*0*	*110*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398699 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211231** Units: **ug/L** Analysis Date: **31-Dec-2021 12:15**
Client ID: Run ID: **VOA9_398699** SeqNo: **6448428** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.01	1.0	20	0	105	78 - 124				
1,1,1-Trichloroethane	20.86	1.0	20	0	104	74 - 131				
1,1,2,2-Tetrachloroethane	20.03	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	20.71	1.0	20	0	104	80 - 119				
1,1-Dichloroethane	19.62	1.0	20	0	98.1	77 - 125				
1,1-Dichloroethene	20.4	1.0	20	0	102	71 - 131				
1,1-Dichloropropene	21.3	1.0	20	0	107	78 - 125				
1,2,3-Trichlorobenzene	20.71	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	20.73	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	20.85	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	21.69	1.0	20	0	108	76 - 124				
1,2-Dibromo-3-chloropropane	18.08	1.0	20	0	90.4	62 - 128				
1,2-Dibromoethane	20.3	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	20.31	1.0	20	0	102	80 - 119				
1,2-Dichloroethane	20.19	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	20.94	1.0	20	0	105	78 - 122				
1,3,5-Trimethylbenzene	21.91	1.0	20	0	110	75 - 124				
1,3-Dichlorobenzene	20.12	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	20.66	1.0	20	0	103	80 - 119				
1,4-Dichlorobenzene	19.84	1.0	20	0	99.2	79 - 118				
2,2-Dichloropropane	20.92	1.0	20	0	105	60 - 139				
2-Butanone	42.77	2.0	40	0	107	56 - 143				
2-Chlorotoluene	20.72	1.0	20	0	104	79 - 122				
2-Hexanone	44.11	2.0	40	0	110	57 - 139				
4-Chlorotoluene	21.57	1.0	20	0	108	78 - 122				
4-Isopropyltoluene	22.31	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	44.09	2.0	40	0	110	67 - 130				
Acetone	44.14	2.0	40	0	110	39 - 160				
Benzene	20.72	1.0	20	0	104	79 - 120				
Bromobenzene	20.56	1.0	20	0	103	80 - 120				
Bromochloromethane	20.56	1.0	20	0	103	78 - 123				
Bromodichloromethane	20.15	1.0	20	0	101	79 - 125				
Bromoform	18.31	1.0	20	0	91.5	66 - 130				
Bromomethane	22.11	1.0	20	0	111	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398699 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211231** Units: **ug/L** Analysis Date: **31-Dec-2021 12:15**
Client ID: Run ID: **VOA9_398699** SeqNo: **6448428** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	42.41	2.0	40	0	106	64 - 133				
Carbon tetrachloride	20.75	1.0	20	0	104	72 - 136				
Chlorobenzene	20.6	1.0	20	0	103	82 - 118				
Chloroethane	21.23	1.0	20	0	106	60 - 138				
Chloroform	19.17	1.0	20	0	95.8	79 - 124				
Chloromethane	21.12	1.0	20	0	106	50 - 139				
cis-1,2-Dichloroethene	20.86	1.0	20	0	104	78 - 123				
cis-1,3-Dichloropropene	19.85	1.0	20	0	99.2	75 - 124				
Dibromochloromethane	19.05	1.0	20	0	95.2	74 - 126				
Dibromomethane	20.39	1.0	20	0	102	79 - 123				
Dichlorodifluoromethane	21.94	1.0	20	0	110	32 - 152				
Ethylbenzene	21.01	1.0	20	0	105	79 - 121				
Hexachlorobutadiene	22.82	1.0	20	0	114	66 - 134				
Isopropylbenzene	22.19	1.0	20	0	111	72 - 131				
m,p-Xylene	43.12	2.0	40	0	108	80 - 121				
Methylene chloride	20.61	2.0	20	0	103	74 - 124				
Naphthalene	19.39	1.0	20	0	97.0	61 - 128				
n-Butylbenzene	22.7	1.0	20	0	114	75 - 128				
n-Propylbenzene	21.67	1.0	20	0	108	76 - 126				
o-Xylene	21.96	1.0	20	0	110	78 - 122				
sec-Butylbenzene	22.53	1.0	20	0	113	77 - 126				
Styrene	21.91	1.0	20	0	110	78 - 123				
tert-Butylbenzene	21.99	1.0	20	0	110	78 - 124				
Tetrachloroethene	21.98	1.0	20	0	110	74 - 129				
Toluene	21.64	1.0	20	0	108	80 - 121				
trans-1,2-Dichloroethene	19.51	1.0	20	0	97.6	75 - 124				
trans-1,3-Dichloropropene	19.18	1.0	20	0	95.9	73 - 127				
Trichloroethene	21.33	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	20.44	1.0	20	0	102	65 - 141				
Vinyl chloride	20.55	1.0	20	0	103	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.19*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.86*	*1.0*	*50*	*0*	*110*	*85 - 114*				
Surr: Dibromofluoromethane	*52.92*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*53.6*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: **R398699 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21121254-02MS** Units: **ug/L** Analysis Date: **31-Dec-2021 15:58**
Client ID: **1824DPTMW01_122021** Run ID: **VOA9_398699** SeqNo: **6448437** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.91	1.0	20	0	115	78 - 124				
1,1,1-Trichloroethane	21.15	1.0	20	0	106	74 - 131				
1,1,2,2-Tetrachloroethane	21.11	1.0	20	0	106	71 - 121				
1,1,2-Trichloroethane	21.83	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	20.48	1.0	20	0	102	77 - 125				
1,1-Dichloroethene	21.17	1.0	20	0	106	71 - 131				
1,1-Dichloropropene	22.91	1.0	20	0	115	78 - 125				
1,2,3-Trichlorobenzene	20.9	1.0	20	0	105	69 - 129				
1,2,3-Trichloropropane	21.91	1.0	20	0	110	73 - 122				
1,2,4-Trichlorobenzene	20.82	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	22.66	1.0	20	0	113	76 - 124				
1,2-Dibromo-3-chloropropane	19.05	1.0	20	0	95.2	62 - 128				
1,2-Dibromoethane	23.09	1.0	20	0	115	77 - 121				
1,2-Dichlorobenzene	21.97	1.0	20	0	110	80 - 119				
1,2-Dichloroethane	22.06	1.0	20	0	110	73 - 128				
1,2-Dichloropropane	22.65	1.0	20	0	113	78 - 122				
1,3,5-Trimethylbenzene	22.9	1.0	20	0	115	75 - 124				
1,3-Dichlorobenzene	21.59	1.0	20	0	108	80 - 119				
1,3-Dichloropropane	22.94	1.0	20	0	115	80 - 119				
1,4-Dichlorobenzene	20.66	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	18.81	1.0	20	0	94.0	60 - 139				
2-Butanone	40.65	2.0	40	0	102	56 - 143				
2-Chlorotoluene	22.69	1.0	20	0	113	79 - 122				
2-Hexanone	47.18	2.0	40	0	118	57 - 139				
4-Chlorotoluene	22.81	1.0	20	0	114	78 - 122				
4-Isopropyltoluene	23.13	1.0	20	0	116	77 - 127				
4-Methyl-2-pentanone	47.69	2.0	40	0	119	67 - 130				
Acetone	39.26	2.0	40	0	98.2	39 - 160				
Benzene	22.74	1.0	20	0	114	79 - 120				
Bromobenzene	21.23	1.0	20	0	106	80 - 120				
Bromochloromethane	20.54	1.0	20	0	103	78 - 123				
Bromodichloromethane	21.55	1.0	20	0	108	79 - 125				
Bromoform	19.62	1.0	20	0	98.1	66 - 130				
Bromomethane	22.5	1.0	20	0	113	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398699 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21121254-02MS** Units: **ug/L** Analysis Date: **31-Dec-2021 15:58**
Client ID: **1824DPTMW01_122021** Run ID: **VOA9_398699** SeqNo: **6448437** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.87	2.0	40	0	97.2	64 - 133				
Carbon tetrachloride	24.04	1.0	20	0	120	72 - 136				
Chlorobenzene	22.62	1.0	20	0	113	82 - 118				
Chloroethane	22.27	1.0	20	0	111	60 - 138				
Chloroform	20.02	1.0	20	0	100	79 - 124				
Chloromethane	20.18	1.0	20	0	101	50 - 139				
cis-1,2-Dichloroethene	20.58	1.0	20	0	103	78 - 123				
cis-1,3-Dichloropropene	19.8	1.0	20	0	99.0	75 - 124				
Dibromochloromethane	20.83	1.0	20	0	104	74 - 126				
Dibromomethane	21.71	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	17.28	1.0	20	0	86.4	32 - 152				
Ethylbenzene	23.16	1.0	20	0	116	79 - 121				
Hexachlorobutadiene	21.17	1.0	20	0	106	66 - 134				
Isopropylbenzene	24.87	1.0	20	0	124	72 - 131				
m,p-Xylene	47.62	2.0	40	0	119	80 - 121				
Methylene chloride	20.18	2.0	20	0	101	74 - 124				
Naphthalene	19.7	1.0	20	0	98.5	61 - 128				
n-Butylbenzene	23.12	1.0	20	0	116	75 - 128				
n-Propylbenzene	23.58	1.0	20	0	118	76 - 126				
o-Xylene	23.92	1.0	20	0	120	78 - 122				
sec-Butylbenzene	23.46	1.0	20	0	117	77 - 126				
Styrene	24.05	1.0	20	0	120	78 - 123				
tert-Butylbenzene	23.52	1.0	20	0	118	78 - 124				
Tetrachloroethene	23.5	1.0	20	0	117	74 - 129				
Toluene	24.15	1.0	20	0	121	80 - 121				
trans-1,2-Dichloroethene	20.29	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	19.48	1.0	20	0	97.4	73 - 127				
Trichloroethene	24.07	1.0	20	0	120	79 - 123				
Trichlorofluoromethane	21.56	1.0	20	0	108	65 - 141				
Vinyl chloride	20.23	1.0	20	0	101	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.66*	*1.0*	*50*	*0*	*93.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.66*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*46.12*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				
Surr: Toluene-d8	*55.07*	*1.0*	*50*	*0*	*110*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398699 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121254-02MSD** Units: **ug/L** Analysis Date: **31-Dec-2021 16:21**
Client ID: **1824DPTMW01_122021** Run ID: **VOA9_398699** SeqNo: **6448438** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.81	1.0	20	0	114	78 - 124	22.91	0.421	20	
1,1,1-Trichloroethane	21.13	1.0	20	0	106	74 - 131	21.15	0.124	20	
1,1,2,2-Tetrachloroethane	21.84	1.0	20	0	109	71 - 121	21.11	3.43	20	
1,1,2-Trichloroethane	21.92	1.0	20	0	110	80 - 119	21.83	0.422	20	
1,1-Dichloroethane	19.07	1.0	20	0	95.3	77 - 125	20.48	7.14	20	
1,1-Dichloroethene	20.45	1.0	20	0	102	71 - 131	21.17	3.45	20	
1,1-Dichloropropene	22.64	1.0	20	0	113	78 - 125	22.91	1.17	20	
1,2,3-Trichlorobenzene	21.18	1.0	20	0	106	69 - 129	20.9	1.31	20	
1,2,3-Trichloropropane	21.74	1.0	20	0	109	73 - 122	21.91	0.794	20	
1,2,4-Trichlorobenzene	21.63	1.0	20	0	108	69 - 130	20.82	3.82	20	
1,2,4-Trimethylbenzene	23.13	1.0	20	0	116	76 - 124	22.66	2.06	20	
1,2-Dibromo-3-chloropropane	19.2	1.0	20	0	96.0	62 - 128	19.05	0.797	20	
1,2-Dibromoethane	22.31	1.0	20	0	112	77 - 121	23.09	3.42	20	
1,2-Dichlorobenzene	21.91	1.0	20	0	110	80 - 119	21.97	0.302	20	
1,2-Dichloroethane	21.33	1.0	20	0	107	73 - 128	22.06	3.38	20	
1,2-Dichloropropane	22.45	1.0	20	0	112	78 - 122	22.65	0.884	20	
1,3,5-Trimethylbenzene	22.78	1.0	20	0	114	75 - 124	22.9	0.526	20	
1,3-Dichlorobenzene	21.62	1.0	20	0	108	80 - 119	21.59	0.148	20	
1,3-Dichloropropane	22.13	1.0	20	0	111	80 - 119	22.94	3.58	20	
1,4-Dichlorobenzene	20.97	1.0	20	0	105	79 - 118	20.66	1.51	20	
2,2-Dichloropropane	18.06	1.0	20	0	90.3	60 - 139	18.81	4.03	20	
2-Butanone	38.88	2.0	40	0	97.2	56 - 143	40.65	4.46	20	
2-Chlorotoluene	22.97	1.0	20	0	115	79 - 122	22.69	1.23	20	
2-Hexanone	46.64	2.0	40	0	117	57 - 139	47.18	1.13	20	
4-Chlorotoluene	23.42	1.0	20	0	117	78 - 122	22.81	2.67	20	
4-Isopropyltoluene	23.47	1.0	20	0	117	77 - 127	23.13	1.45	20	
4-Methyl-2-pentanone	46.28	2.0	40	0	116	67 - 130	47.69	2.99	20	
Acetone	38.22	2.0	40	0	95.5	39 - 160	39.26	2.69	20	
Benzene	21.68	1.0	20	0	108	79 - 120	22.74	4.79	20	
Bromobenzene	22.06	1.0	20	0	110	80 - 120	21.23	3.85	20	
Bromochloromethane	20.51	1.0	20	0	103	78 - 123	20.54	0.137	20	
Bromodichloromethane	21.35	1.0	20	0	107	79 - 125	21.55	0.921	20	
Bromoform	19.18	1.0	20	0	95.9	66 - 130	19.62	2.26	20	
Bromomethane	20.81	1.0	20	0	104	53 - 141	22.5	7.82	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398699 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21121254-02MSD** Units: **ug/L** Analysis Date: **31-Dec-2021 16:21**
Client ID: **1824DPTMW01_122021** Run ID: **VOA9_398699** SeqNo: **6448438** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.44	2.0	40	0	93.6	64 - 133	38.87	3.74	20	
Carbon tetrachloride	23.26	1.0	20	0	116	72 - 136	24.04	3.28	20	
Chlorobenzene	21.92	1.0	20	0	110	82 - 118	22.62	3.15	20	
Chloroethane	24.81	1.0	20	0	124	60 - 138	22.27	10.8	20	
Chloroform	19.35	1.0	20	0	96.8	79 - 124	20.02	3.38	20	
Chloromethane	19.38	1.0	20	0	96.9	50 - 139	20.18	4.01	20	
cis-1,2-Dichloroethene	19.85	1.0	20	0	99.2	78 - 123	20.58	3.64	20	
cis-1,3-Dichloropropene	19.1	1.0	20	0	95.5	75 - 124	19.8	3.6	20	
Dibromochloromethane	20.26	1.0	20	0	101	74 - 126	20.83	2.76	20	
Dibromomethane	21.44	1.0	20	0	107	79 - 123	21.71	1.24	20	
Dichlorodifluoromethane	16.96	1.0	20	0	84.8	32 - 152	17.28	1.9	20	
Ethylbenzene	22.31	1.0	20	0	112	79 - 121	23.16	3.76	20	
Hexachlorobutadiene	22.07	1.0	20	0	110	66 - 134	21.17	4.15	20	
Isopropylbenzene	24.05	1.0	20	0	120	72 - 131	24.87	3.35	20	
m,p-Xylene	45.81	2.0	40	0	115	80 - 121	47.62	3.87	20	
Methylene chloride	19.58	2.0	20	0	97.9	74 - 124	20.18	3	20	
Naphthalene	20.9	1.0	20	0	105	61 - 128	19.7	5.94	20	
n-Butylbenzene	23.41	1.0	20	0	117	75 - 128	23.12	1.25	20	
n-Propylbenzene	23.52	1.0	20	0	118	76 - 126	23.58	0.245	20	
o-Xylene	22.87	1.0	20	0	114	78 - 122	23.92	4.47	20	
sec-Butylbenzene	24.01	1.0	20	0	120	77 - 126	23.46	2.3	20	
Styrene	23.56	1.0	20	0	118	78 - 123	24.05	2.03	20	
tert-Butylbenzene	23.75	1.0	20	0	119	78 - 124	23.52	0.974	20	
Tetrachloroethene	22.76	1.0	20	0	114	74 - 129	23.5	3.18	20	
Toluene	23.13	1.0	20	0	116	80 - 121	24.15	4.34	20	
trans-1,2-Dichloroethene	19.55	1.0	20	0	97.7	75 - 124	20.29	3.76	20	
trans-1,3-Dichloropropene	19.46	1.0	20	0	97.3	73 - 127	19.48	0.0966	20	
Trichloroethene	22.3	1.0	20	0	112	79 - 123	24.07	7.62	20	
Trichlorofluoromethane	20.64	1.0	20	0	103	65 - 141	21.56	4.36	20	
Vinyl chloride	19.06	1.0	20	0	95.3	58 - 137	20.23	5.94	20	
Surr: 1,2-Dichloroethane-d4	*46.51*	*1.0*	*50*	*0*	*93.0*	*81 - 118*	*46.66*	*0.31*	*20*	
Surr: 4-Bromofluorobenzene	*52.3*	*1.0*	*50*	*0*	*105*	*85 - 114*	*53.66*	*2.58*	*20*	
Surr: Dibromofluoromethane	*46.63*	*1.0*	*50*	*0*	*93.3*	*80 - 119*	*46.12*	*1.09*	*20*	
Surr: Toluene-d8	*54.27*	*1.0*	*50*	*0*	*109*	*89 - 112*	*55.07*	*1.46*	*20*	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID:	R398699 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21121254-01	HS21121254-02	HS21121254-03	HS21121254-04
HS21121254-05	HS21121254-06	HS21121254-07	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: R398772 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-220103** Units: **ug/L** Analysis Date: **03-Jan-2022 13:10**
Client ID: Run ID: **VOA9_398772** SeqNo: **6449607** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*41.83*	*1.0*	*50*	*0*	*83.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.34*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*42.95*	*1.0*	*50*	*0*	*85.9*	*80 - 119*				
Surr: Toluene-d8	*52.84*	*1.0*	*50*	*0*	*106*	*89 - 112*				

LCS Sample ID: **VLCSW-220103** Units: **ug/L** Analysis Date: **03-Jan-2022 12:25**
Client ID: Run ID: **VOA9_398772** SeqNo: **6449606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	21.54	1.0	20	0	108	79 - 123				
Surr: 1,2-Dichloroethane-d4	*45.36*	*1.0*	*50*	*0*	*90.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.02*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*45.62*	*1.0*	*50*	*0*	*91.2*	*80 - 119*				
Surr: Toluene-d8	*49.37*	*1.0*	*50*	*0*	*98.7*	*89 - 112*				

MS Sample ID: **HS21121254-01MS** Units: **ug/L** Analysis Date: **03-Jan-2022 14:17**
Client ID: **MW8_122021** Run ID: **VOA9_398772** SeqNo: **6449610** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	300	5.0	100	203.2	96.8	79 - 123				
Surr: 1,2-Dichloroethane-d4	*203.8*	*5.0*	*250*	*0*	*81.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*254.7*	*5.0*	*250*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*211.9*	*5.0*	*250*	*0*	*84.8*	*80 - 119*				
Surr: Toluene-d8	*265.5*	*5.0*	*250*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: HS21121254

QC BATCH REPORT

Batch ID: **R398772 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21121254-01MSD** Units: **ug/L** Analysis Date: **03-Jan-2022 14:39**
Client ID: **MW8_122021** Run ID: **VOA9_398772** SeqNo: **6449611** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	283.6	5.0	100	203.2	80.4	79 - 123	300	5.62	20	
Surr: 1,2-Dichloroethane-d4	*207.7*	*5.0*	*250*	*0*	*83.1*	*81 - 118*	*203.8*	*1.89*	*20*	
Surr: 4-Bromofluorobenzene	*257.1*	*5.0*	*250*	*0*	*103*	*85 - 114*	*254.7*	*0.934*	*20*	
Surr: Dibromofluoromethane	*214.5*	*5.0*	*250*	*0*	*85.8*	*80 - 119*	*211.9*	*1.24*	*20*	
Surr: Toluene-d8	*265.7*	*5.0*	*250*	*0*	*106*	*89 - 112*	*265.5*	*0.0561*	*20*	

The following samples were analyzed in this batch: HS21121254-01 HS21121254-06

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18 24
WorkOrder: **HS21121254**

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

ALS Houston, US Date: 14-Jan-22

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 14-Jan-22

Sample Receipt Checklist

Work Order ID: HS21121254 **Date/Time Received:** **21-Dec-2021 11:30**

Client Name: Bhate Environmental **Received by:** **Eric Widjaja**

Completed By: /S/ Jared R. Makan (eSignature) 21-Dec-2021 14:28 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 23-Dec-2021 10:00 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.7°C UC/C	IR31
Cooler(s)/Kit(s):	47962	
Date/Time sample(s) sent to storage:	12/21/2021 14:30	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☐	☐	N/A ☑
pH adjusted?	☐	☐	N/A ☑

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01116189

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	1, 4 - DIOXANE							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
MW8_122021	20 Dec 2021	0910	-	N		WG	5	X	X		X										
1824DPTMW01_122021	20 Dec 2021	0955	-	N		WG	5	X	X		X										
1824DPTMW03_122021	20 Dec 2021	1045	-	N		WG	5	X	X		X										
1824DPTMW03_122021_a	20 Dec 2021	1045		FD		WG	5	X	X		X										
C03_122021	20 Dec 2021	1135		N		WG	5	X	X		X										
1824DPTMW02_122021	20 Dec 2021	1220	-	N		WG	5	X	X		X										
TRIP BLANK	20 Dec 2021		-	TB		W	2	X													
			-																		
			-																		
			-																		
			-																		

Sample Analysis Requested (5)

Quality Assurance Samples (6)

HS21121254

Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: STANDARD TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/20/21	1430	1. [illegible]	12/21/21	1130
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed ____ Ex ____ Airbill ____ Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

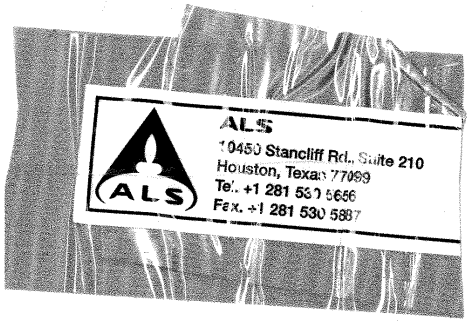
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

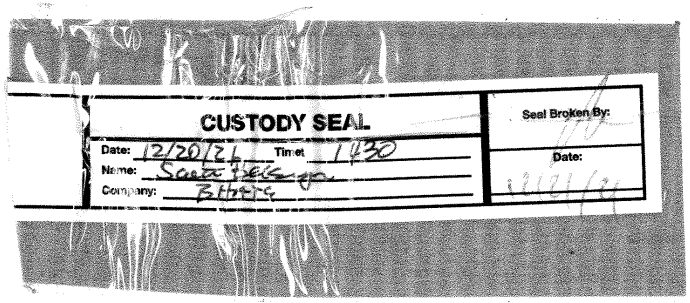
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

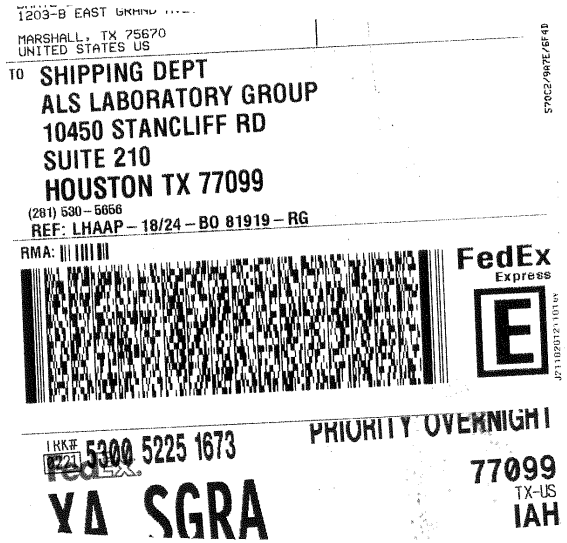
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

Cooler 47962
1.7°C
UCIC
CF0.0
(R#3)

01116190


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887


CUSTODY SEAL
Date: 12/20/24
Time: 1130
Name:
Company:
Seal Broken By:
Date:


1203-B EAST GRAND
MARSHALL, TX 75670
UNITED STATES US
TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-18/24-BO 81919-RG
RMA:
FedEx
Express
TRK# 5300 5225 1673
PRIORITY OVERNIGHT
77099
TX-US
IAH
XA SGRA

January 06, 2022

Service Request No:E2101293

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21121254

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 21, 2021
For your reference, these analyses have been assigned our service request number **E2101293.**

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.:**	E2101293
Project:	HS21121254	**Date Received:**	12/21/21
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

Seven samples were received for analysis at ALS Environmental in Houston on 12/21/21.

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:

EQ2100704: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS/DLCS recoveries are within QC limits. The MS/MSD was performed on an unrelated sample.

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:**E2101293
Project: HS21121254

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101293-001	MW8_122021	12/20/2021	0910
E2101293-002	1824DPTMW01_122021	12/20/2021	0955
E2101293-003	1824DPTMW03_122021	12/20/2021	1045
E2101293-004	1824DPTMW03_122021_a	12/20/2021	1045
E2101293-005	CO3_122021	12/20/2021	1135
E2101293-006	1824DPTMW02_122021	12/20/2021	1220

Service Request Summary

Folder #: **E2101293**
Client Name: ALS Environmental - US
Project Name: HS21121254
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/21/21
Internal Due Date: 1/13/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21121254
EDD: No EDD Specified

6 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101293-001	MW8_122021	Water	12/20/21 0910	**IV**
E2101293-002	1824DPTMW01_122021	Water	12/20/21 0955	**IV**
E2101293-003	1824DPTMW03_122021	Water	12/20/21 1045	**IV**
E2101293-004	1824DPTMW03_122021_a	Water	12/20/21 1045	**IV**
E2101293-005	CO3_122021	Water	12/20/21 1135	**IV**
E2101293-006	1824DPTMW02_122021	Water	12/20/21 1220	**IV**

Service Request Summary

Folder #:	**E2101293**	Project Chemist:	Corey Grandits
Client Name:	ALS Environmental - US	Originating Lab:	HOUSTON
Project Name:	HS21121254	Logged By:	CGRANDITS
Project Number:		Date Received:	12/21/21
		Internal Due Date:	1/13/2022
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA	QAP:	LAB QAP
		Qualifier Set:	Lab Standard
		Formset:	Lab Standard
		Merged?:	Y
Phone Number:		Report to MDL?:	Y
Cell Number:		P.O. Number:	HS21121254
Fax Number:		EDD:	No EDD Specified
E-mail:	ragenp.giga@alsglobal.com		

6 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	6	Level IV due 1/13

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2021	6/30/2022
Maine Department of Health and Human Services	2020016	6/5/2022
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: **Texas** **COC ID:** **17750**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21121254
TSR:	Houston House Acct

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21121254-01**	**MW8_122021**	**Groundwater**	**20 Dec 2021 09:10**
	Provide Level II and Level IV reports in separate pdf			06 Jan 2022
2.	**HS21121254-02**	**1824DPTMW01_122021**	**Groundwater**	**20 Dec 2021 09:55**
	Provide Level II and Level IV reports in separate pdf			06 Jan 2022
3.	**HS21121254-03**	**1824DPTMW03_122021**	**Groundwater**	**20 Dec 2021 10:45**
	Provide Level II and Level IV reports in separate pdf			06 Jan 2022
4.	**HS21121254-04**	**1824DPTMW03_122021_a**	**Groundwater**	**20 Dec 2021 10:45**
	Provide Level II and Level IV reports in separate pdf			06 Jan 2022
5.	**HS21121254-05**	**CO3_122021**	**Groundwater**	**20 Dec 2021 11:35**
	Provide Level II and Level IV reports in separate pdf			06 Jan 2022
6.	**HS21121254-06**	**1824DPTMW02_122021**	**Groundwater**	**20 Dec 2021 12:20**
	Provide Level II and Level IV reports in separate pdf			06 Jan 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: **Texas**

COC ID: **17750**

Relinquished By:	NR	Date/Time:	
Received By:	Courtney G.	Date/Time:	12.21.21 1601
Cooler ID(s):		Temperature(s):	

ALS Environmental

Cooler Receipt Form

Project Chemist: CH

Client/Project: ALS-H

Thermometer ID: IR31

Date/Time Received: 12-21-22 Initials: CH Date/Time Logged in: 12-21-22 Initials: CH

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		12-21-21	1611	CH	5.2	☒
						☐
						☐
						☐

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

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#: 393229 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/28/21 10:29

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101279-001	MW9_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101279-002	MW16_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101279-003	18CPTMW23_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101279-004	18WW24_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2101279-005	18WW22_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101279-006	18WW17_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101279-007	18CPTMW16_121521	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101283-001	BDD--SWSF-082621-A	.01	6850/ClO4 DOD			Water	10mL	
9	E2101283-002	BDD--SWSF-082621-B	.01	6850/ClO4 DOD			Water	10mL	
10	E2101283-003	BDD--SWSF-082621-C	.01	6850/ClO4 DOD			Water	10mL	
11	E2101293-001	MW8_122021	.01	6850/ClO4 DOD			Water	10mL	
12	E2101293-002	1824DPTMW01_122021	.01	6850/ClO4 DOD			Water	10mL	
13	E2101293-003	1824DPTMW03_122021	.01	6850/ClO4 DOD			Water	10mL	
14	E2101293-004	1824DPTMW03_122021_a	.01	6850/ClO4 DOD			Water	10mL	
15	E2101293-005	CO3_122021	.01	6850/ClO4 DOD			Water	10mL	
16	E2101293-006	1824DPTMW02_122021	.01	6850/ClO4 DOD			Water	10mL	
17	EQ2100704-01	MB		6850/ClO4 DOD			Liquid	10mL	
18	EQ2100704-02	LCS		6850/ClO4 DOD			Liquid	10mL	
19	EQ2100704-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
20	EQ2100704-04	18WW24_121521 MS	.01	6850/ClO4 DOD			Liquid	10mL	
21	EQ2100704-05	18WW24_121521 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101279-001	100.00µL	E2101279-002	100.00µL	E2101279-003	100.00µL	E2101279-004	100.00µL	E2101279-005	100.00µL	E2101279-006	100.00µL
E2101279-007	100.00µL	E2101283-001	100.00µL	E2101283-002	100.00µL	E2101283-003	100.00µL	E2101293-001	100.00µL	E2101293-002	100.00µL
E2101293-003	100.00µL	E2101293-004	100.00µL	E2101293-005	100.00µL	E2101293-006	100.00µL	EQ2100704-01	100.00µL	EQ2100704-02	100.00µL
EQ2100704-03	100.00µL	EQ2100704-04	100.00µL	EQ2100704-05	100.00µL						

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100704-02	1.00µL	EQ2100704-03	1.00µL	EQ2100704-04	1.00µL	EQ2100704-05	1.00µL

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Information Benchsheet

Prep Run#: 393229 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/28/21 10:29

Preparation Steps

Step: Preparation
Started: 12/28/21 10:29
Finished: 12/28/21 11:30
By: GRIVERA
Comments

Comments:

Reviewed By: GR Date: 12/2/21

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:**	E2101293
Project:	HS21121254	**Date Collected:**	12/20/21 0910
Sample Matrix:	Water	**Date Received:**	12/21/21
Sample Name:	MW8_122021	**Units:**	µg/L
Lab Code:	E2101293-001	**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	**3880**		20.0	10.0	5.00	200	12/28/21	12/29/21 18:12	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	12/20/21 0955
Sample Matrix:	Water	**Date Received:**	12/21/21
Sample Name:	1824DPTMW01_122021	**Units:**	µg/L
Lab Code:	E2101293-002	**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	**19.8**		0.200	0.100	0.0500	2	12/28/21	1/3/22 11:46	393229	750638	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	12/20/21 1045
Sample Matrix:	Water	**Date Received:**	12/21/21
Sample Name:	1824DPTMW03_122021	**Units:**	µg/L
Lab Code:	E2101293-003	**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	**0.0978**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 18:28	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	12/20/21 1045
Sample Matrix:	Water	**Date Received:**	12/21/21
Sample Name:	1824DPTMW03_122021_a	**Units:**	µg/L
Lab Code:	E2101293-004	**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	**0.113**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 18:36	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	12/20/21 1135
Sample Matrix:	Water	**Date Received:**	12/21/21
Sample Name:	CO3_122021	**Units:**	µg/L
Lab Code:	E2101293-005	**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	**220**		2.00	1.00	0.500	20	12/28/21	12/29/21 18:43	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	12/20/21 1220
Sample Matrix:	Water	**Date Received:**	12/21/21
Sample Name:	1824DPTMW02_122021	**Units:**	µg/L
Lab Code:	E2101293-006	**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	**107000**		500	250	125	5000	12/28/21	12/29/21 18:51	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100704-01	**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	12/28/21	12/29/21 14:47	393229	750447	

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	**Service Request:**	E2101293
Project:	HS21121254	**Date Analyzed:**	12/29/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	393229

	Lab Control Sample EQ2100704-02			Duplicate Lab Control Sample EQ2100704-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.116	0.100	116	0.116	0.100	116	84 - 119	<1	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:**	E2101293
Project:	HS21121254	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100704-02	**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	**0.116**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 15:50	393229	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101293
Project:	HS21121254	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100704-03	**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	**0.116**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 16:14	393229	750447	

Location Identification				MW5_120621	18CPTMW08DW_120621	18CPTMW08SW_120621	18CPTMW12SW_120621	18CPTMW12DW_120621	MW7_120621	MW23_120621	120_120721	MW14_120721	1824DPTMW06_120721	1824DPTMW06_120721_a	18CPTMW22R_120721	18CPTMW22SW_120721
Date		MCL/MSC/ PCL		12/6/2021							12/7/2021					
Lab Package	CAS NUMBER		UNITS	HS21120428-01	HS21120428-02	HS21120428-03	HS21120428-04	HS21120428-05	HS21120428-06	HS21120428-07	HS21120475-01	HS21120475-02	HS21120475-03	HS21120475-04	HS21120475-05	HS21120475-06
Well ID				MW-5	18CPTMW08DW	18CPTMW08SW	18CPTMW12SW	18CPTMW12DW	MW-7	MW-23	120	MW-14	1824DPTMW06	1824DPTMW06	18CPTMW22R	18CPTMW22SW
Aquifer Zone				Shallow	Wilcox	Wilcox	Wilcox	Wilcox	Shallow	Shallow	Shallow	Wilcox	Wilcox	Wilcox	Shallow	Wilcox
Method: SW8260																
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	**1.8**	NA	**4.4**	< 0.50	< 0.50	< 2.5	< 2.5	**11**	**20**	**1.2**	**1.3**	< 0.50	< 0.50
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	NA	**0.74 J**	< 0.50	< 0.50	**6.6**	< 2.5	**38**	**69**	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	**25**	**69**	**20**	**55**	**1.6**	**1.6**	< 0.50	< 0.50
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50 UJ	NA	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 2.5 UJ	< 2.5	< 5.0 UJ	< 5.0 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ
2-Butanone	78-93-3	61,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 10	< 10	< 20	< 20	< 2.0	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 10	< 10	< 20	< 20	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	67-64-1	92,000	µg/L	< 2.0 UJ	NA	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 10 UJ	< 10 UJ	< 20	< 20	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	71-43-2	5	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	**5.4**	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	75-25-2	36	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	74-83-9	140	µg/L	< 1.0 UJ	NA	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 5.0 UJ	< 5.0 UJ	< 10 UJ	< 10 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 10	< 10	< 20	< 20	< 2.0	< 2.0	< 2.0	< 2.0
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	**9.0**	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	108-90-7	100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	75-00-3	41,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	67-66-3	1,000	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	**13**	**10**	**12**	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	74-87-3	220	µg/L	< 0.50 UJ	NA	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 2.5 UJ	< 2.5 UJ	< 5.0 UJ	< 5.0 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ
cis-1,2-Dichloroethene	156-59-2	70	µg/L	**5.8**	NA	**11**	< 0.50	< 0.50	**19**	**21**	**800**	**1300**	**5.0**	**5.1**	< 0.50	< 0.50
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	74-95-3	380	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	100-41-4	700	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10 UJ	< 10 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	75-09-2	5	µg/L	**1.9 J**	NA	< 1.0	< 1.0	< 2.0	**9.2 J**	**6.7 J**	< 10	< 10	< 2.0	< 2.0	< 2.0	< 2.0
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0

Location Identification				MW5_120621	18CPTMW08DW_120621	18CPTMW08SW_120621	18CPTMW12SW_120621	18CPTMW12DW_120621	MW7_120621	MW23_120621	120_120721	MW14_120721	1824DPTMW06_120721	1824DPTMW06_120721_a	18CPTMW22R_120721	18CPTMW22SW_120721
Date		MCL/MSC/ PCL		12/6/2021							12/7/2021					
Lab Package	CAS NUMBER		UNITS	HS21120428-01	HS21120428-02	HS21120428-03	HS21120428-04	HS21120428-05	HS21120428-06	HS21120428-07	HS21120475-01	HS21120475-02	HS21120475-03	HS21120475-04	HS21120475-05	HS21120475-06
Well ID				MW-5	18CPTMW08DW	18CPTMW08SW	18CPTMW12SW	18CPTMW12DW	MW-7	MW-23	120	MW-14	1824DPTMW06	1824DPTMW06	18CPTMW22R	18CPTMW22SW
Aquifer Zone				Shallow	Wilcox	Wilcox	Wilcox	Wilcox	Shallow	Shallow	Shallow	Wilcox	Wilcox	Wilcox	Shallow	Wilcox
Method: SW8260																
Naphthalene	91-20-3	2,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100-42-5	100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	108-88-3	1,000	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	**2.2 J**	**5.4 J**	**13**	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 2.5	< 2.5	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	79-01-6	5	µg/L	**18**	NA	**38**	**1.3**	< 0.50	**1700**	**3100**	**4900**	**6200**	**3.0**	**3.2**	< 0.50	**0.97 J**
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 5.0	< 5.0	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	75-01-4	2	µg/L	**1.5**	NA	**1.9**	< 0.50	< 0.50	< 2.5	< 2.5	**13**	< 5.0	< 0.50	< 0.50	< 0.50	< 0.50
Method: SW8270SIM																
1,4-Dioxane	123-91-1	9.1*	ug/L	**0.96**	**0.86**	**2.2**	**1.8**	**1.7**	**4.0**	NA	**49**	**96**	**2.0**	**4.7**	**0.48**	**1.3**
Method: 6850																
Perchlorate	14797-73-0	17*	µg/L	**28900**	**4240**	**19700**	**0.134**	**0.0516 J**	**16300**	**81600**	**15200**	**164000**	**1.14 J**	**0.828 J**	**0.392**	**11700**
Method: SW6020A																
Aluminum	7429-90-5	100	mg/L	0.00396 UB	NA	NA	0.0123 UB	< 0.00500	NA	NA	NA	**0.0386**	NA	NA	**8.22**	**0.0534**
Antimony	7440-36-0	0.006	mg/L	< 0.00100	NA	NA	< 0.00100	< 0.00100	NA	NA	NA	**0.000416 J**	NA	NA	< 0.00100	< 0.00100
Arsenic	7440-38-2	0.01	mg/L	< 0.00100	NA	NA	**0.000813 J**	**0.00264 J**	NA	NA	NA	**0.00422 J**	NA	NA	**0.00351 J**	**0.00211 J**
Barium	7440-39-3	2	mg/L	**0.698**	NA	NA	**0.901**	**0.327**	NA	NA	NA	**0.341**	NA	NA	**0.171**	**0.110**
Beryllium	7440-41-7	0.004	mg/L	< 0.000500	NA	NA	< 0.000500	< 0.000500	NA	NA	NA	**0.000356 J**	NA	NA	**0.000971 J**	< 0.000500
Cadmium	7440-43-9	0.005	mg/L	**0.000671 J**	NA	NA	**0.000311 J**	< 0.000500	NA	NA	NA	**0.000880 J**	NA	NA	< 0.000500	< 0.000500
Calcium	7440-70-2	NV	mg/L	**15.5**	NA	NA	**56.6**	**27.4**	NA	NA	NA	**124**	NA	NA	**1.91**	**12.7**
Chromium	7440-47-3	0.1	mg/L	**0.0771**	NA	NA	**0.00295 J**	**0.00329 J**	NA	NA	NA	**0.211**	NA	NA	**0.00922**	**0.0188**
Cobalt	7440-48-4	6.1	mg/L	**0.00228 J**	NA	NA	**0.0126**	**0.000326 J**	NA	NA	NA	**0.0317**	NA	NA	**0.0146**	< 0.000500
Copper	7440-50-8	1.3	mg/L	**0.00121 J**	NA	NA	< 0.00250	< 0.00250	NA	NA	NA	**0.00229 J**	NA	NA	**0.00724**	< 0.00250
Iron	7439-89-6	NV	mg/L	**0.392**	NA	NA	**0.613**	**6.45**	NA	NA	NA	**66.4**	NA	NA	**10.8**	**0.0452 J**
Lead	7439-92-1	0.015	mg/L	< 0.00100	NA	NA	< 0.00100	< 0.00100	NA	NA	NA	< 0.00100	NA	NA	**0.00631**	< 0.00100
Magnesium	7439-95-4	NV	mg/L	**16.5**	NA	NA	**32.5**	**8.60**	NA	NA	NA	**50.4**	NA	NA	**2.26**	**1.05**
Manganese	7439-96-5	1.1*	mg/L	**0.0644**	NA	NA	**1.46**	**0.201**	NA	NA	NA	**3.11**	NA	NA	**0.112**	**0.00737**
Nickel	7440-02-0	0.49*	mg/L	**0.0599**	NA	NA	**0.0132**	**0.000774 J**	NA	NA	NA	**0.465**	NA	NA	**0.00890**	< 0.00100
Potassium	7440-09-7	NV	mg/L	**1.89**	NA	NA	**36.1**	**55.1**	NA	NA	NA	**15.7**	NA	NA	**0.867**	**244**
Selenium	7782-49-2	0.05	mg/L	< 0.00250	NA	NA	< 0.00250	< 0.00250	NA	NA	NA	**0.00143 J**	NA	NA	< 0.00250	**0.00331 J**
Silver	7440-22-4	0.51	mg/L	< 0.000500	NA	NA	< 0.000500	< 0.000500	NA	NA	NA	< 0.000500	NA	NA	< 0.000500	< 0.000500
Sodium	7440-23-5	NV	mg/L	**87.2**	NA	NA	**225**	**160**	NA	NA	NA	**292**	NA	NA	**33.1**	**272**
Thallium	7440-28-0	0.002	mg/L	< 0.000500	NA	NA	< 0.000500	< 0.000500	NA	NA	NA	< 0.000500	NA	NA	< 0.000500	< 0.000500
Vanadium	7440-62-2	0.72	mg/L	**0.00234 J**	NA	NA	**0.00161 J**	**0.000991 J**	NA	NA	NA	**0.000712 J**	NA	NA	**0.0146**	**0.00108 J**
Zinc	7440-66-6	31	mg/L	**0.0175**	NA	NA	**0.0169**	**0.00268 J**	NA	NA	NA	**0.915**	NA	NA	**0.0284**	**0.00264 J**
Method: SW7470A																
Mercury	7439-97-6	0.002	mg/L	**0.0000990 J**	NA	NA	**0.000130 J**	< 0.000100	NA	NA	NA	**0.000153 J**	NA	NA	**0.000153 J**	**0.0000410 J**

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Level

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Location Identification				MW19_120721	MW18_120721	MW18_120721_a	18CPTMW04SW-120821	18CPTMW04-120821	MW22_120821	MW22_120821_a	18CPTMW06_120821	18ww06_120821	18ww02-120821	18CPTMW15-120821	MW-2_120921	MW-2_120921_a	18CPTMW01SW_120921
Date		MCL/MSC/ PCL					12/8/2021										
Lab Package	CAS NUMBER		UNITS	HS21120475-07	HS21120475-08	HS21120475-09	HS21120589-01	HS21120589-02	HS21120589-03	HS21120589-04	HS21120589-05	HS21120589-06	HS21120589-07	HS21120589-08	HS21120658-01	HS21120658-02	HS21120658-03
Well ID				MW-19	MW-18	MW-18	18CPTMW04SW	18CPTMW04	MW-22	MW-22	18CPTMW06	18WW06	18WW02	18CPTMW15	MW-2	MW-2	18CPTMW01SW
Aquifer Zone				Shallow	Shallow	Shallow	Wilcox	Wilcox	Shallow	Shallow	Wilcox	Wilcox	Wilcox	Shallow	Shallow	Shallow	Wilcox
Method: SW8260																	
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	**5.7 J**	< 10 UJ
1,1-Dichloroethane	75-34-3	10,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**18 J**	**22**	< 5.0 UJ
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**160**	**190**	< 5.0
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	**0.63 J**	**5.1**	**5.1**	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
2-Butanone	78-93-3	61,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0 UJ	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 20	< 20
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0	< 2.0	< 2.0	< 2.0 UJ	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20	< 20	< 20
Acetone	67-64-1	92,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 2.0 UJ	< 20	< 20	< 20
Benzene	71-43-2	5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.88 J**	**0.89 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 5.0
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	**20 J**
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50	< 0.50	< 0.50	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
Bromoform	75-25-2	36	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Bromomethane	74-83-9	140	µg/L	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 10 UJ	< 10 UJ	< 10 UJ
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 20 UJ	< 20 UJ	< 20 UJ
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Chlorobenzene	108-90-7	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
Chloroform	67-66-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**2.3**	**2.3**	< 0.50	< 0.50	< 0.50	< 0.50	**22**	**26**	< 5.0
Chloromethane	74-87-3	220	µg/L	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
cis-1,2-Dichloroethene	156-59-2	70	µg/L	**5.1**	**0.89 J**	**0.94 J**	< 0.50	**9.0**	**3.6**	**3.6**	< 0.50	< 0.50	< 0.50	< 0.50	**18000**	**17000**	**1600**
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 5.0
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
Dibromomethane	74-95-3	380	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0 UJ	< 5.0	< 5.0 UJ
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 10 UJ	< 10 UJ	< 10 UJ
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Methylene chloride	75-09-2	5	µg/L	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1600**	**1900**	**21000**
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10

Location Identification				MW19_120721	MW18_120721	MW18_120721_a	18CPTMW04SW-120821	18CPTMW04-120821	MW22_120821	MW22_120821_a	18CPTMW06_120821	18ww06_120821	18ww02-120821	18CPTMW15-120821	MW-2_120921	MW-2_120921_a	18CPTMW01SW_120921
Date		MCL/MSC/ PCL					12/8/2021										
Lab Package	CAS NUMBER		UNITS	HS21120475-07	HS21120475-08	HS21120475-09	HS21120589-01	HS21120589-02	HS21120589-03	HS21120589-04	HS21120589-05	HS21120589-06	HS21120589-07	HS21120589-08	HS21120658-01	HS21120658-02	HS21120658-03
Well ID				MW-19	MW-18	MW-18	18CPTMW04SW	18CPTMW04	MW-22	MW-22	18CPTMW06	18WW06	18WW02	18CPTMW15	MW-2	MW-2	18CPTMW01SW
Aquifer Zone				Shallow	Shallow	Shallow	Wilcox	Wilcox	Shallow	Shallow	Wilcox	Wilcox	Wilcox	Shallow	Shallow	Shallow	Wilcox
Method: SW8260																	
Naphthalene	91-20-3	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10	< 10
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**31**	**37**	< 10
Toluene	108-88-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**7.7 J**	**9.4 J**	< 5.0
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**37**	**44**	**5.7 J**
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50	< 0.50	< 0.50	< 0.50 UJ	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 5.0
Trichloroethene	79-01-6	5	µg/L	**6.8**	**11**	**11**	< 0.50	**200**	**380**	**370**	**2.0**	< 0.50	< 0.50	**1.5**	**3600**	**3300**	**230**
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10 UJ	< 10	< 10 UJ
Vinyl chloride	75-01-4	2	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.55 J**	**0.51 J**	< 0.50	< 0.50	< 0.50	< 0.50	**8.4 J**	**10**	< 5.0
Method: SW8270SIM																	
1,4-Dioxane	123-91-1	9.1*	ug/L	NA	NA	NA	**1.4**	**1.1**	NA	NA	**0.79**	**0.81**	**0.92**	**1.7**	**1.8**	**1.2**	**0.052**
Method: 6850																	
Perchlorate	14797-73-0	17*	µg/L	**0.117**	**0.0818 J**	**0.700 J**	**0.0581 J**	**129**	**1060**	**1180**	**0.0396 J**	< 0.0500	**0.0331 J**	**0.364**	**0.263**	**0.281**	< 0.0500
Method: SW6020A																	
Aluminum	7429-90-5	100	mg/L	**0.673**	NA	NA	**0.142**	NA	**0.0378 J**	**0.0220 J**	NA	NA	**0.408**	NA	**0.0230**	**0.0232**	**0.0257**
Antimony	7440-36-0	0.006	mg/L	< 0.00100	NA	NA	**0.000647 J**	NA	**0.000604 J**	**0.000509 J**	NA	NA	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100
Arsenic	7440-38-2	0.01	mg/L	**0.00328 J**	NA	NA	**0.00684**	NA	**0.00153 J**	**0.00143 J**	NA	NA	**0.000528 J**	NA	**0.0259**	**0.0265**	**0.0108**
Barium	7440-39-3	2	mg/L	**0.323**	NA	NA	**0.925**	NA	**1.02**	**0.972**	NA	NA	**0.0445**	NA	**2.68**	**3.06**	**1.13**
Beryllium	7440-41-7	0.004	mg/L	< 0.000500	NA	NA	< 0.00500	NA	< 0.00500	< 0.00500	NA	NA	< 0.00500	NA	**0.000349 J**	**0.000350 J**	< 0.000500
Cadmium	7440-43-9	0.005	mg/L	**0.00134 J**	NA	NA	< 0.00500	NA	**0.000493 J**	**0.000436 J**	NA	NA	< 0.00500	NA	< 0.000500	< 0.000500	< 0.000500
Calcium	7440-70-2	NV	mg/L	**114**	NA	NA	**30.1**	NA	**97.1**	**91.3**	NA	NA	**7.00**	NA	**71.5**	**73.8**	**37.1**
Chromium	7440-47-3	0.1	mg/L	**0.0517**	NA	NA	**0.0111**	NA	**1.25**	**1.00**	NA	NA	**0.0151**	NA	**0.218**	**0.252**	**0.00254 J**
Cobalt	7440-48-4	6.1	mg/L	**0.0142**	NA	NA	**0.00805**	NA	**0.0102**	**0.00965**	NA	NA	**0.000189 J**	NA	**0.136**	**0.145**	**0.000996 J**
Copper	7440-50-8	1.3	mg/L	**0.00490 J**	NA	NA	<0.00100	NA	**0.0231**	**0.0207**	NA	NA	**0.00254 J**	NA	**0.00670**	**0.00651**	< 0.00250
Iron	7439-89-6	NV	mg/L	**47.1**	NA	NA	**29.3**	NA	**13.8**	**12.3**	NA	NA	**0.896**	NA	**31.8**	**33.1**	**54.2**
Lead	7439-92-1	0.015	mg/L	**0.000644 J**	NA	NA	< 0.00100	NA	< 0.00100	< 0.00100	NA	NA	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100
Magnesium	7439-95-4	NV	mg/L	**64.7**	NA	NA	**17.7**	NA	**27.9**	**25.9**	NA	NA	**1.32**	NA	**53.5**	**55.8**	**23.4**
Manganese	7439-96-5	1.1*	mg/L	**2.71**	NA	NA	**0.561**	NA	**0.288**	**0.267**	NA	NA	**0.0803**	NA	**7.69**	**8.83**	**0.576**
Nickel	7440-02-0	0.49*	mg/L	**0.0433**	NA	NA	**0.00606**	NA	**0.930**	**0.865**	NA	NA	**0.00942**	NA	**0.396**	**0.408**	**0.00192 J**
Potassium	7440-09-7	NV	mg/L	**4.46**	NA	NA	**103**	NA	**2.06**	**1.95**	NA	NA	**1.93**	NA	**2.91**	**3.07**	**8.39**
Selenium	7782-49-2	0.05	mg/L	**0.00637**	NA	NA	< 0.00250	NA	< 0.00250	< 0.00250	NA	NA	< 0.00250	NA	< 0.00250	< 0.00250	< 0.00250
Silver	7440-22-4	0.51	mg/L	< 0.000500	NA	NA	< 0.00500	NA	< 0.00500	< 0.00500	NA	NA	< 0.00500	NA	< 0.000500	< 0.000500	< 0.000500
Sodium	7440-23-5	NV	mg/L	**854**	NA	NA	**132**	NA	**368**	**351**	NA	NA	**29.0**	NA	**201**	**234**	**109**
Thallium	7440-28-0	0.002	mg/L	< 0.000500	NA	NA	< 0.00500	NA	< 0.00500	< 0.00500	NA	NA	< 0.00500	NA	< 0.000500	< 0.000500	< 0.000500
Vanadium	7440-62-2	0.72	mg/L	**0.00157 J**	NA	NA	< 0.00100	NA	**0.00613**	**0.00521**	NA	NA	**0.00225 J**	NA	**0.00119 J**	**0.00127 J**	< 0.00100
Zinc	7440-66-6	31	mg/L	**0.0101**	NA	NA	**0.0239**	NA	**0.00370 J**	**0.00243 J**	NA	NA	**0.00230 J**	NA	**0.0630**	**0.0680**	**0.00769**
Method: SW7470A																	
Mercury	7439-97-6	0.002	mg/L	< 0.000100	NA	NA	**0.0000430 J**	NA	**0.0000740 J**	**0.0000910 J**	NA	NA	**0.0000370 J**	NA	< 0.000100	< 0.000100	< 0.000100

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Level

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Location Identification				MW3_120921	18WW10_120921	MW17_120921	18CPTMW14_120921	AWD1_120921	18CPTMW03SW_121321	18DPTMW05_121321	MW21_121321	18CPTMW10DW_121321	18CPTMW10DW_121321_a	18CPTMW10SW_121321	18ww08_121321	18CPTMW19_121321
Date		MCL/MSC/ PCL		12/9/2021					12/13/2021							
Lab Package	CAS NUMBER		UNITS	HS21120658-04	HS21120658-05	HS21120658-06	HS21120658-07	HS21120658-08	HS21120917-01	HS21120917-02	HS21120917-03	HS21120917-04	HS21120917-05	HS21120917-06	HS21120917-07	HS21120917-08
Well ID				MW-3	18WW10	MW-17	18CPTMW14	AWD-1	18CPTMW03SW	18DPTMW05	MW-21	18CPTMW10DW	18CPTMW10DW	18CPTMW10SW	18WW08	18CPTMW19
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox	Shallow	Shallow	Wilcox	Wilcox	Wilcox	Shallow	Shallow
Method: SW8260																
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	**8.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	**4.0 J**	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	**3.2 J**	< 0.50	< 0.50	< 0.50	**0.65 J**	< 0.50
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	**0.60 J**	**71 J**	**16**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	**3.0 J**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone	78-93-3	61,000	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	591-78-6	6,100	µg/L	< 2.0 UJ	< 2.0	NA	< 10	NA	< 2.0	< 10	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	**3.9 J**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0 UJ	< 2.0	NA	< 10	NA	< 2.0	< 10	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	67-64-1	92,000	µg/L	< 2.0	< 2.0	NA	< 10	NA	< 2.0	< 10	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	71-43-2	5	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	**1.6**	**9.4 J**	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	75-25-2	36	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	74-83-9	140	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0 UJ	NA	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0 UJ	< 2.0	NA	< 10 UJ	NA	< 2.0	< 10	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	**14 J**	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	108-90-7	100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	67-66-3	1,000	µg/L	**1.00 J**	< 0.50	NA	**9.0**	NA	< 0.50	**30 J**	**9.2**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	74-87-3	220	µg/L	< 0.50	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,2-Dichloroethene	156-59-2	70	µg/L	**55 J**	< 0.50	NA	**11**	NA	**32**	**69 J**	**880**	< 0.50	< 0.50	< 0.50	**2.9**	< 0.50
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	124-48-1	34	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	74-95-3	380	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0 UJ	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	75-09-2	5	µg/L	< 2.0	< 2.0	NA	**23**	NA	< 2.0	< 5.0 UJ	< 5.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Location Identification				MW3_120921	18WW10_120921	MW17_120921	18CPTMW14_120921	AWD1_120921	18CPTMW03SW_121321	18DPTMW05_121321	MW21_121321	18CPTMW10DW_121321	18CPTMW10DW_121321_a	18CPTMW10SW_121321	18ww08_121321	18CPTMW19_121321
Date		MCL/MSC/ PCL		12/9/2021					12/13/2021							
Lab Package	CAS NUMBER		UNITS	HS21120658-04	HS21120658-05	HS21120658-06	HS21120658-07	HS21120658-08	HS21120917-01	HS21120917-02	HS21120917-03	HS21120917-04	HS21120917-05	HS21120917-06	HS21120917-07	HS21120917-08
Well ID				MW-3	18WW10	MW-17	18CPTMW14	AWD-1	18CPTMW03SW	18DPTMW05	MW-21	18CPTMW10DW	18CPTMW10DW	18CPTMW10SW	18WW08	18CPTMW19
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox	Shallow	Shallow	Wilcox	Wilcox	Wilcox	Shallow	Shallow
Method: SW8260																
Naphthalene	91-20-3	2,000	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	95-47-6	10,000**	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0 UJ	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	127-18-4	5	µg/L	**1.3**	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0 UJ	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	108-88-3	1,000	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	156-60-5	100	µg/L	**2.6 J**	< 0.50	NA	< 2.5	NA	**1.2**	< 2.5 UJ	**6.7**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50 UJ	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5 UJ	< 2.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	79-01-6	5	µg/L	**270 J**	3.3 UB	NA	**890**	NA	7.4 UB	**4600 J**	**4500 J**	2.6 UB	2.3 UB	1.9 UB	**10**	< 0.50
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	NA	< 5.0	NA	< 1.0	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	75-01-4	2	µg/L	**23 J**	< 0.50	NA	< 2.5	NA	< 0.50	< 2.5	**20**	< 0.50	< 0.50	< 0.50	**1.2**	< 0.50
Method: SW8270SIM																
1,4-Dioxane	123-91-1	9.1*	ug/L	NA	**0.078**	**0.11**	**0.17**	**3.5**	**1.3**	**46**	**3.6**	NA	NA	**0.28**	**0.10**	**0.21**
Method: 6850																
Perchlorate	14797-73-0	17*	µg/L	**8220**	**0.147**	**0.0282 J**	**4300**	**0.345**	**0.0753**	**402000**	**9660**	**0.245**	**0.262**	**0.0861**	**23600**	**2.37**
Method: SW6020A																
Aluminum	7429-90-5	100	mg/L	0.0118 UB	NA	NA	**0.532**	**1.61**	**0.0351**	NA	**0.0233**	**0.175**	**0.168**	NA	NA	NA
Antimony	7440-36-0	0.006	mg/L	< 0.00100	NA	NA	< 0.00100	**0.000856 J**	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	NA	NA	NA
Arsenic	7440-38-2	0.01	mg/L	**0.000461 J**	NA	NA	**0.00205 J**	**0.0127**	**0.00479 J**	NA	**0.000799 J**	**0.00276 J**	**0.00255 J**	NA	NA	NA
Barium	7440-39-3	2	mg/L	**0.551**	NA	NA	**3.95**	**0.298**	**0.607**	NA	**4.09**	**0.208**	**0.202**	NA	NA	NA
Beryllium	7440-41-7	0.004	mg/L	< 0.000500	NA	NA	< 0.000500	**0.000305 J**	< 0.000500	NA	< 0.000500	< 0.000500	< 0.000500	NA	NA	NA
Cadmium	7440-43-9	0.005	mg/L	**0.000341 J**	NA	NA	**0.000270 J**	< 0.000500	< 0.000500	NA	**0.000508 J**	< 0.000500	< 0.000500	NA	NA	NA
Calcium	7440-70-2	NV	mg/L	**31.7**	NA	NA	**440**	**2.58**	**122**	NA	**132**	**17.1**	**17.4**	NA	NA	NA
Chromium	7440-47-3	0.1	mg/L	**0.00305 J**	NA	NA	**0.0213**	**0.0181**	**0.00571**	NA	**0.623**	**0.00517**	**0.00525**	NA	NA	NA
Cobalt	7440-48-4	6.1	mg/L	**0.00452 J**	NA	NA	**0.00530**	**0.00786**	**0.00155 J**	NA	**0.0370**	**0.000251 J**	**0.000249 J**	NA	NA	NA
Copper	7440-50-8	1.3	mg/L	**0.00138 J**	NA	NA	< 0.00250	**0.00226 J**	< 0.00250	NA	**0.0219**	**0.00129 J**	**0.00117 J**	NA	NA	NA
Iron	7439-89-6	NV	mg/L	**0.808**	NA	NA	**0.797**	**6.11**	**11.5**	NA	**5.13**	**7.90**	**8.05**	NA	NA	NA
Lead	7439-92-1	0.015	mg/L	< 0.00100	NA	NA	< 0.00100	**0.00179 J**	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	NA	NA	NA
Magnesium	7439-95-4	NV	mg/L	**17.9**	NA	NA	**124**	**2.93**	**19.4**	NA	**99.9**	**8.58**	**8.49**	NA	NA	NA
Manganese	7439-96-5	1.1*	mg/L	**2.39**	NA	NA	**0.285**	**0.242**	**0.674**	NA	**1.14**	**0.185**	**0.186**	NA	NA	NA
Nickel	7440-02-0	0.49*	mg/L	**0.00722**	NA	NA	**0.00476 J**	**0.0320**	**0.00314 J**	NA	**0.478**	**0.00201 J**	**0.00161 J**	NA	NA	NA
Potassium	7440-09-7	NV	mg/L	**1.72**	NA	NA	**10.5**	**2.98**	**118**	NA	**1.92**	**72.8**	**72.5**	NA	NA	NA
Selenium	7782-49-2	0.05	mg/L	< 0.00250	NA	NA	< 0.00250	**0.00325 J**	< 0.00250	NA	< 0.00250	< 0.00250	< 0.00250	NA	NA	NA
Silver	7440-22-4	0.51	mg/L	< 0.000500	NA	NA	< 0.000500	< 0.000500	< 0.000500	NA	< 0.000500	< 0.000500	< 0.000500	NA	NA	NA
Sodium	7440-23-5	NV	mg/L	**277**	NA	NA	**637**	**105**	**217**	NA	**399**	**178**	**175**	NA	NA	NA
Thallium	7440-28-0	0.002	mg/L	< 0.000500	NA	NA	< 0.000500	< 0.000500	< 0.000500	NA	< 0.000500	< 0.000500	< 0.000500	NA	NA	NA
Vanadium	7440-62-2	0.72	mg/L	**0.000602 J**	NA	NA	**0.00242 J**	**0.00600**	< 0.00100	NA	**0.00387 J**	**0.00112 J**	**0.000822 J**	NA	NA	NA
Zinc	7440-66-6	31	mg/L	**0.00696**	NA	NA	**0.00528**	**0.0113**	**0.00667**	NA	**0.0147**	**0.00590**	**0.00461 J**	NA	NA	NA
Method: SW7470A																
Mercury	7439-97-6	0.002	mg/L	**0.0000540 J**	NA	NA	**0.0000640 J**	**0.000145 J**	< 0.000100	NA	**0.000189 J**	**0.0000530 J**	< 0.000100	NA	NA	NA

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Level

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Location Identification				126_121421	109_121421	18CPTMW07_121421	18CPTMW24_121421	CO8_121421	18DPTMW04_121421	125_121421	MW9_121521	MW16_121521	18CPTMW23_121521	18WW24_121521	18WW22_121521	18WW17_121521	18CPTMW16_121521
Date		MCL/MSC/ PCL		12/14/2021							12/15/2021						
Lab Package	CAS NUMBER		UNITS	HS21120921-01	HS21120921-02	HS21120921-03	HS21120921-04	HS21120921-05	HS21120921-06	HS21120921-07	HS21121014-01	HS21121014-02	HS21121014-03	HS21121014-04	HS21121014-05	HS21121014-06	HS21121014-07
Well ID				126	109	18CPTMW07	18CPTMW24	C-08	18DPTMW04	125	MW-9	MW-16	18CPTMW23	18WW24	18WW22	18WW17	18CPTMW16
Aquifer Zone				Shallow	Shallow	Wilcox	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox	Shallow
Method: SW8260																	
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,1-Dichloroethane	75-34-3	10,000	µg/L	< 0.50	**0.40 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50 UJ	< 0.50	< 0.50	NA
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	**4.8 J**	< 5.0	< 0.50	< 0.50	< 0.50	NA
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,2-Dichloroethane	107-06-2	5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	**30**	**110**	< 0.50	< 0.50	< 0.50	NA
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
2-Butanone	78-93-3	61,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 50	< 10	< 20	< 2.0	< 2.0	< 2.0	NA
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 50	< 10	< 20	< 2.0	< 2.0	< 2.0	NA
Acetone	67-64-1	92,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 50	< 10	< 20	< 2.0	< 2.0	< 2.0	NA
Benzene	71-43-2	5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Bromoform	75-25-2	36	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Bromomethane	74-83-9	140	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 50	< 10	< 20	< 2.0	< 2.0	< 2.0	NA
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Chlorobenzene	108-90-7	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Chloroform	67-66-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Chloromethane	74-87-3	220	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
cis-1,2-Dichloroethene	156-59-2	70	µg/L	< 0.50	**65**	< 0.50	**14**	< 0.50	< 0.50	< 0.50	**28**	**18**	**230**	< 0.50	**1.3**	< 0.50	NA
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Dibromomethane	74-95-3	380	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Methylene chloride	75-09-2	5	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 50	< 5.0	< 10	< 1.0 UJ	< 1.0	< 1.0	NA
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA

Location Identification				126_121421	109_121421	18CPTMW07_121421	18CPTMW24_121421	CO8_121421	18DPTMW04_121421	125_121421	MW9_121521	MW16_121521	18CPTMW23_121521	18WW24_121521	18WW22_121521	18WW17_121521	18CPTMW16_121521
Date		MCL/MSC/ PCL		12/14/2021							12/15/2021						
Lab Package	CAS NUMBER		UNITS	HS21120921-01	HS21120921-02	HS21120921-03	HS21120921-04	HS21120921-05	HS21120921-06	HS21120921-07	HS21121014-01	HS21121014-02	HS21121014-03	HS21121014-04	HS21121014-05	HS21121014-06	HS21121014-07
Well ID				126	109	18CPTMW07	18CPTMW24	C-08	18DPTMW04	125	MW-9	MW-16	18CPTMW23	18WW24	18WW22	18WW17	18CPTMW16
Aquifer Zone				Shallow	Shallow	Wilcox	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox	Shallow
Method: SW8260																	
Naphthalene	91-20-3	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Toluene	108-88-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	**0.43 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50 UJ	< 0.50	< 0.50	NA
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Trichloroethene	79-01-6	5	µg/L	< 0.50	**120**	< 0.50	**7.5**	**1.3**	**1.3**	**1.1**	**1200**	**380**	**1600**	< 0.50	**56**	< 0.50	NA
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 25	< 5.0	< 10	< 1.0	< 1.0	< 1.0	NA
Vinyl chloride	75-01-4	2	µg/L	< 0.50	< 0.50	< 0.50	**15**	< 0.50	< 0.50	< 0.50	< 12	< 2.5	< 5.0	< 0.50	< 0.50	< 0.50	NA
Method: SW8270SIM																	
1,4-Dioxane	123-91-1	9.1*	ug/L	< 0.010	**0.054**	**0.059**	**0.053**	< 0.010	< 0.010	NA	**2.4**	**4.8**	**5.5**	NA	< 0.010	NA	< 0.010
Method: 6850																	
Perchlorate	14797-73-0	17*	µg/L	**0.658**	**21500**	**0.0850**	**27.6**	**0.273**	**10.9**	**2670**	**81.8**	**0.0269 J**	**4.63**	**0.0729 J**	**0.457**	**136000**	< 0.0500
Method: SW6020A																	
Aluminum	7429-90-5	100	mg/L	**0.228**	NA	NA	**0.0334**	**0.275**	NA	**3.50**	**0.0293**	NA	NA	**0.434**	**0.247**	0.0105 UB	NA
Antimony	7440-36-0	0.006	mg/L	<0.000400	NA	NA	<0.000400	<0.000400	NA	<0.000400	< 0.00100	NA	NA	< 0.00100	< 0.00100	< 0.00100	NA
Arsenic	7440-38-2	0.01	mg/L	**0.0233**	NA	NA	**0.00718**	**0.00112 J**	NA	**0.0129**	< 0.00100	NA	NA	**0.000899 J**	**0.00206 J**	**0.000746 J**	NA
Barium	7440-39-3	2	mg/L	**10.5**	NA	NA	**10.6**	**5.42**	NA	**0.139**	**0.105**	NA	NA	**0.0464**	**0.0919**	**3.45**	NA
Beryllium	7440-41-7	0.004	mg/L	**0.000259 J**	NA	NA	<0.000200	<0.000200	NA	**0.000384 J**	< 0.000500	NA	NA	**0.000886 J**	< 0.000500	< 0.000500	NA
Cadmium	7440-43-9	0.005	mg/L	**0.000726 J**	NA	NA	<0.000200	**0.000477 J**	NA	**0.000269 J**	< 0.000500	NA	NA	**0.000369 J**	< 0.000500	**0.000404 J**	NA
Calcium	7440-70-2	NV	mg/L	**310**	NA	NA	**393**	**302**	NA	**1.90**	**9.38**	NA	NA	**53.2**	**15.4**	**316**	NA
Chromium	7440-47-3	0.1	mg/L	**0.00180 J**	NA	NA	**0.00229 J**	**0.00143 J**	NA	**0.0110**	**0.147**	NA	NA	**0.00165 J**	**0.0251**	**0.0272**	NA
Cobalt	7440-48-4	6.1	mg/L	**0.0311**	NA	NA	**0.00259 J**	**0.00603**	NA	**0.00305 J**	**0.00666**	NA	NA	**0.0211**	**0.000265 J**	**0.00102 J**	NA
Copper	7440-50-8	1.3	mg/L	**0.00126 J**	NA	NA	<0.00100	**0.00101 J**	NA	**0.00402 J**	**0.00225 J**	NA	NA	**0.00278 J**	<0.00100	**0.0141**	NA
Iron	7439-89-6	NV	mg/L	**20.7**	NA	NA	**6.84**	**2.28**	NA	**8.10**	**1.22**	NA	NA	**0.364**	**0.0609 J**	**0.253**	NA
Lead	7439-92-1	0.015	mg/L	**0.000872 J**	NA	NA	<0.000600	<0.000600	NA	**0.00482 J**	< 0.00100	NA	NA	< 0.00100	< 0.00100	< 0.00100	NA
Magnesium	7439-95-4	NV	mg/L	**245**	NA	NA	**258**	**179**	NA	**1.94**	**3.66**	NA	NA	**45.5**	**2.06**	**209**	NA
Manganese	7439-96-5	1.1*	mg/L	**0.398**	NA	NA	**0.483**	**1.18**	NA	**0.0581**	**0.147**	NA	NA	**7.16**	**0.00243 J**	**0.0300**	NA
Nickel	7440-02-0	0.49*	mg/L	**0.0204**	NA	NA	**0.00758**	**0.00775**	NA	**0.00696**	**0.0476**	NA	NA	**0.178 J**	<0.000600	**0.0531**	NA
Potassium	7440-09-7	NV	mg/L	**4.25**	NA	NA	**2.50**	**2.70**	NA	**1.47**	**0.304**	NA	NA	**0.738**	**3.47**	**1.68**	NA
Selenium	7782-49-2	0.05	mg/L	<0.00110	NA	NA	<0.00110	<0.00110	NA	<0.00110	< 0.00250	NA	NA	< 0.00250	< 0.00250	**0.00214 J**	NA
Silver	7440-22-4	0.51	mg/L	<0.000200	NA	NA	<0.000200	<0.000200	NA	<0.000200	<0.000200	NA	NA	<0.000200	<0.000200	<0.000200	NA
Sodium	7440-23-5	NV	mg/L	**836**	NA	NA	**983**	**866**	NA	**35.7**	**18.3**	NA	NA	**732**	**45.8**	**1090**	NA
Thallium	7440-28-0	0.002	mg/L	<0.000200	NA	NA	<0.000200	<0.000200	NA	<0.000200	< 0.000500	NA	NA	< 0.000500	< 0.000500	< 0.000500	NA
Vanadium	7440-62-2	0.72	mg/L	**0.00361 J**	NA	NA	**0.00188 J**	**0.00212 J**	NA	**0.0126**	**0.00125 J**	NA	NA	**0.00152 J**	**0.0189**	**0.00226 J**	NA
Zinc	7440-66-6	31	mg/L	**0.0266**	NA	NA	**0.00652**	**0.0107**	NA	**0.0209**	**0.0366**	NA	NA	**0.0622**	< 0.00250	**0.0280**	NA
Method: SW7470A																	
Mercury	7439-97-6	0.002	mg/L	**0.0000840 J**	NA	NA	< 0.000100	**0.000121 J**	NA	**0.0000580 J**	**0.000116 J**	NA	NA	**0.0000570 J**	**0.0000540 J**	**0.0000770 J**	NA

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Level

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

Location Identification				MW8_122021	1824DPTMW01_122021	1824DPTMW03_122021	1824DPTMW03_122021_a	CO3_122021	1824DPTMW02_122021
Date		MCL/MSC/ PCL		12/20/2021					
Lab Package	CAS NUMBER		UNITS	HS21121254-01	HS21121254-02	HS21121254-03	HS21121254-04	HS21121254-05	HS21121254-06
Well ID				MW-8	1824DPTMW01	1824DPTMW03	1824DPTMW03	C-03	1824DPTMW02
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Wilcox	Shallow
Method: SW8260									
1,1,1,2-Tetrachloroethane	630-20-6	110	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	71-55-6	200	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	79-00-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	75-34-3	10,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.62 J**
1,1-Dichloroethene	75-35-4	7	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	563-58-6	2.9	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	87-61-6	310	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	96-18-4	0.041	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	120-82-1	70	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	95-63-6	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	96-12-8	0.2	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	106-93-4	0.05	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	95-50-1	600	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	107-06-2	5	µg/L	**2.9**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	78-87-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	108-67-8	5,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	541-73-1	3,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	142-28-9	29	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	106-46-7	75	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	594-20-7	42	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone	78-93-3	61,000	µg/L	< 1.0	< 1.0	< 1.0	**1.3 J**	< 1.0	< 1.0
2-Chlorotoluene	95-49-8	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	591-78-6	6,100	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	106-43-4	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	99-87-6	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	108-10-1	8,200	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	67-64-1	92,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	71-43-2	5	µg/L	**0.84 J**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromobenzene	108-86-1	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	74-97-5	4,100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	75-27-4	4.6	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	75-25-2	36	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	74-83-9	140	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	75-15-0	10,000	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon tetrachloride	56-23-5	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	108-90-7	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	75-00-3	41,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	67-66-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**1.7**
Chloromethane	74-87-3	220	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,2-Dichloroethene	156-59-2	70	µg/L	**23**	< 0.50	< 0.50	< 0.50	< 0.50	**11**
cis-1,3-Dichloropropene	10061-01-5	5.3	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	124-48-1	34	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	74-95-3	380	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	75-71-8	20,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	100-41-4	700	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	87-68-3	20	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	98-82-8	10,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m,p-Xylene	179601-23-1	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	75-09-2	5	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
n-Butylbenzene	104-51-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	103-65-1	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Location Identification				MW8_122021	1824DPTMW01_122021	1824DPTMW03_122021	1824DPTMW03_122021_a	CO3_122021	1824DPTMW02_122021
Date		MCL/MSC/ PCL		12/20/2021					
Lab Package	CAS NUMBER		UNITS	HS21121254-01	HS21121254-02	HS21121254-03	HS21121254-04	HS21121254-05	HS21121254-06
Well ID				MW-8	1824DPTMW01	1824DPTMW03	1824DPTMW03	C-03	1824DPTMW02
Aquifer Zone				Shallow	Shallow	Shallow	Shallow	Wilcox	Shallow
Method: SW8260									
Naphthalene	91-20-3	2,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	95-47-6	10,000**	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	135-98-8	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100-42-5	100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	98-06-6	4,100	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	127-18-4	5	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	108-88-3	1,000	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	156-60-5	100	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.42 J**
trans-1,3-Dichloropropene	10061-02-6	29	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	79-01-6	5	µg/L	**200**	< 0.50	< 0.50	< 0.50	< 0.50	**190**
Trichlorofluoromethane	75-69-4	31,000	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	75-01-4	2	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.86 J**
Method: SW8270SIM									
1,4-Dioxane	123-91-1	9.1*	ug/L	**1.7**	**0.052**	< 0.010	< 0.010	**0.12**	**0.50**
Method: 6850									
Perchlorate	14797-73-0	17*	µg/L	**3880**	**19.8**	**0.0978 J**	**0.113**	**220**	**107000**
Method: SW6020A									
Aluminum	7429-90-5	100	mg/L	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	0.006	mg/L	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	0.01	mg/L	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	2	mg/L	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	0.004	mg/L	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	0.005	mg/L	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	NV	mg/L	NA	NA	NA	NA	NA	NA
Chromium	7440-47-3	0.1	mg/L	NA	NA	NA	NA	NA	NA
Cobalt	7440-48-4	6.1	mg/L	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	1.3	mg/L	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	NV	mg/L	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	0.015	mg/L	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	NV	mg/L	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	1.1*	mg/L	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	0.49*	mg/L	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	NV	mg/L	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	0.05	mg/L	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	0.51	mg/L	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	NV	mg/L	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	0.002	mg/L	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	0.72	mg/L	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	31	mg/L	NA	NA	NA	NA	NA	NA
Method: SW7470A									
Mercury	7439-97-6	0.002	mg/L	NA	NA	NA	NA	NA	NA

Notes:

Blue highlighting indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations/Protective Concentration Level

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

UB - considered a non-detect due to blank contamination

NV - No Value

*Perchlorate, manganese, 1,4-dioxane and nickel compared to the PCL

** Value is for total xylenes

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

a - duplicate sample

< - non-detect

October 27, 2021

Service Request No:E2101141

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Suite 129
Lakewood, CO 80228

Laboratory Results for: LHAAP

Dear Marcia,

Enclosed are the results of the sample(s) submitted to our laboratory October 26, 2021
For your reference, these analyses have been assigned our service request number **E2101141.**

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
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ALS Environmental

Client:	Bhate	**Service Request No.:**	E2101141
Project:	LHAAP	**Date Received:**	10/26/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 10/26/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100620: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS/DLCS RPD marginally exceed QC limit; the individual recoveries are within 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: Bhate Environmental Associates, Inc. **Service Request:**E2101141
Project: LHAAP

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101141-001	LH18/24-SP650_102521_AIX	10/25/2021	1400

Service Request Summary

Folder #: **E2101141**
Client Name: Bhate Environmental Associates, Inc.
Project Name: LHAAP
Project Number:

Report To: Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Lakewood, CO 80228
USA
Phone Number: 303-597-2450
Cell Number:
Fax Number:
E-mail: molive@bhate.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 10/26/21
Internal Due Date: 10/27/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: 2878
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101141-001	LH18/24-SP650_102521_AIX	GW	10/25/21 1400	**IV**

Service Request Summary

Folder #:	**E2101141**	Project Chemist:	Corey Grandits
Client Name:	Bhate Environmental Associates, Inc.	Originating Lab:	HOUSTON
Project Name:	LHAAP	Logged By:	CGRANDITS
Project Number:		Date Received:	10/26/21
		Internal Due Date:	10/27/2021
Report To:	Marcia Olive	QAP:	LAB QAP
	Bhate Environmental Associates, Inc.	Qualifier Set:	Lab Standard
	445 Union Blvd	Formset:	Lab Standard
	Lakewood, CO 80228 USA	Merged?:	Y
Phone Number:	303-597-2450	Report to MDL?:	Y
Cell Number:		P.O. Number:	2878
Fax Number:		EDD:	No EDD Specified
E-mail:	molive@bhate.com		

1 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	

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	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.
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.

Data Qualifiers

Lab Standard

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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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01116242

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT SPECIAL SAMPLES

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	PERCHLORATE										Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_102521_AIX	WG	10/25/21 / 14:00		1	X											

Analyses

HS21101448
Bhate Environmental Associates, Inc.
Ground Water Treatment Plant Special Samples

Additional Remarks: **24 HR. TAT**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	10/25/21	14:30	NR	10/26/21	10:15						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

46cdS
u/c 1.5
1463 r

10450 Stancliff Road, Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Client: BHATE Date: 10/26/21 WO#: _____

Time Received: 10.15 Received by: _____ BO#: NA

Matrices: Solid/Sludge Water Oil Wipes Hydrocarbon Liquid Other

Kit ID/Cooler ID	Trip Blank ID	Cooler Temp (C) Observed/Corrected	IR #	Temp BLK Present?
46668		1.5 / 1.5	31	Y N
		/		Y N
		/		Y N
		/		Y N
		/		Y N

Delivery Method: FedEx UPS Greyhound ALS Client Other_____

Date/Time of Unpacking: 10/26/21 10.15 Unpacked by: _____

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
Chain of Custody present?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of Custody – Sampler's name present?	Yes	No	
Chain of Custody agrees with sample labels?	Yes	No	
Samples in proper container/bottle?	Yes	No	
VOA/TX1005/1006 Solids in hermetically Sealed Vials:	Yes	No	No VOA/TX1005/1006 Solid
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	
Water - VOA vials have zero headspace?	Yes	No	N/A No VOA submitted
Non-VOA waters preserved with HCl, H2SO4, HNO3 are pH <2?			Yes No N/A
Waters preserved with NaOH/Ascorbic acid are pH>12?	Yes	No	N/A
pH adjusted?	Yes*	No	N/A *See Preservation Logbook

pH adjusted by: _____ **pH Paper Lot:** _____

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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

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Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 390118 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 10/26/21 15:36

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101141-001	LH18/24-SP650_102521_AIX	.01	6850/ClO4 DOD			GW	10mL	
2	EQ2100620-01	MB		6850/ClO4 DOD			Liquid	10mL	
3	EQ2100620-02	LCS		6850/ClO4 DOD			Liquid	10mL	
4	EQ2100620-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101141-001 100.00µL EQ2100620-01 100.00µL EQ2100620-02 100.00µL EQ2100620-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100620-02 1.00µL EQ2100620-03 1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 10/26/21 15:36
Finished: 10/26/21 16:14
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 10/26/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ 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:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101141
Project:	LHAAP	**Date Collected:**	10/25/21 1400
Sample Matrix:	GW	**Date Received:**	10/26/21
Sample Name:	LH18/24-SP650_102521_AIX	**Units:**	µg/L
Lab Code:	E2101141-001	**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	**0.0536**	J	0.100	0.0500	0.0250	1	10/26/21	10/26/21 18:52	390118	743915	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101141
Project:	LHAAP	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100620-01	**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	10/26/21	10/26/21 18:28	390118	743915	

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: Bhate Environmental Associates, Inc.
Project: LHAAP
Sample Matrix: Water

Service Request: E2101141
Date Analyzed: 10/26/21

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: 390118

	Lab Control Sample EQ2100620-02			Duplicate Lab Control Sample EQ2100620-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0901	0.100	90	0.106	0.100	106	84 - 119	16 *	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:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101141
Project:	LHAAP	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100620-02	**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	**0.0901**	J	0.100	0.0500	0.0250	1	10/26/21	10/26/21 18:36	390118	743915	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101141
Project:	LHAAP	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100620-03	**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	**0.106**		0.100	0.0500	0.0250	1	10/26/21	10/26/21 18:44	390118	743915	

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

October 27, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21101165**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Oct 21, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21101165

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21101165-01	LH18/24-SP650_102021	Water		20-Oct-2021 14:00	21-Oct-2021 11:40	☐
HS21101165-02	LH18/24-SP650_102021_BIX	Water		20-Oct-2021 14:00	21-Oct-2021 11:40	☐

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21101165

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

WetChemistry by Method E350.3

Batch ID: R394202

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E415.1

Batch ID: R394043

Sample ID: HS21100892-01MS

- MS and MSD are for an unrelated sample

WetChemistry by Method E365.3

Batch ID: R393987

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 27-Oct-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21101165
Sample ID:	LH18/24-SP650_102021	Lab ID:HS21101165-01
Collection Date:	20-Oct-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**88**	a	**1.0**	**2.0**	**2.0**	**mg/L**	10	26-Oct-2021 13:35
ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**8.07**	a	**0.100**	**0.250**	**0.250**	**mg/L**	10	21-Oct-2021 15:02
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**5.65**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	21-Oct-2021 23:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Oct-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21101165
Sample ID:	LH18/24-SP650_102021_BIX	Lab ID:HS21101165-02
Collection Date:	20-Oct-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Oct-2021 15:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21101165

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R393987 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978				**Matrix:** Water	
HS21101165-01	LH18/24-SP650_102021	20 Oct 2021 14:00			21 Oct 2021 15:02	10
Batch ID: R394023 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21101165-02	LH18/24-SP650_102021_BIX	20 Oct 2021 14:00			22 Oct 2021 15:14	1
Batch ID: R394043 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Water	
HS21101165-01	LH18/24-SP650_102021	20 Oct 2021 14:00			21 Oct 2021 23:21	1
Batch ID: R394202 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS21101165-01	LH18/24-SP650_102021	20 Oct 2021 14:00			26 Oct 2021 13:35	10

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21101165

QC BATCH REPORT

Batch ID: R393987 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978

MBLK Sample ID: **MBLK-R393987** Units: **mg/L** Analysis Date: **21-Oct-2021 15:02**
Client ID: Run ID: **UV-2450_393987** SeqNo: **6333080** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-R393987** Units: **mg/L** Analysis Date: **21-Oct-2021 15:02**
Client ID: Run ID: **UV-2450_393987** SeqNo: **6333079** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.229	0.0250	0.25	0	91.6	85 - 115				

LCSD Sample ID: **LCSD-R393987** Units: **mg/L** Analysis Date: **21-Oct-2021 15:02**
Client ID: Run ID: **UV-2450_393987** SeqNo: **6333085** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.23	0.0250	0.25	0	92.0	85 - 115	0.229	0.436	20	

MS Sample ID: **HS21101149-03MS** Units: **mg/L** Analysis Date: **21-Oct-2021 15:02**
Client ID: Run ID: **UV-2450_393987** SeqNo: **6333082** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.278	0.0250	0.25	0.016	105	80 - 120				

MSD Sample ID: **HS21101149-03MSD** Units: **mg/L** Analysis Date: **21-Oct-2021 15:02**
Client ID: Run ID: **UV-2450_393987** SeqNo: **6333081** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.275	0.0250	0.25	0.016	104	80 - 120	0.278	1.08	20	

The following samples were analyzed in this batch: HS21101165-01

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21101165

QC BATCH REPORT

Batch ID: R394043 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON BY E415.1**

MBLK Sample ID: **MBLK- 10212021** Units: **mg/L** Analysis Date: **21-Oct-2021 19:50**
Client ID: Run ID: **TOC_04_394043** SeqNo: **6334258** 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- 10212021** Units: **mg/L** Analysis Date: **21-Oct-2021 20:01**
Client ID: Run ID: **TOC_04_394043** SeqNo: **6334259** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.16	1.00	10	0	102	85 - 115				

LCSD Sample ID: **LCSD- 10212021** Units: **mg/L** Analysis Date: **21-Oct-2021 20:13**
Client ID: Run ID: **TOC_04_394043** SeqNo: **6334260** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.12	1.00	10	0	101	85 - 115	10.16	0.394	20	

MS Sample ID: **HS21100892-01MS** Units: **mg/L** Analysis Date: **21-Oct-2021 20:35**
Client ID: Run ID: **TOC_04_394043** SeqNo: **6334262** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	17.58	1.00	10	5.551	120	80 - 120				S

The following samples were analyzed in this batch: HS21101165-01

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21101165

QC BATCH REPORT

Batch ID: R394202 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-R394202** Units: **mg/L** Analysis Date: **26-Oct-2021 13:35**
Client ID: Run ID: **WetChem_HS_394202** SeqNo: **6338160** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-R394202** Units: **mg/L** Analysis Date: **26-Oct-2021 13:35**
Client ID: Run ID: **WetChem_HS_394202** SeqNo: **6338159** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.986	0.20	10	0	99.9	80 - 120				

MS Sample ID: **HS21101037-01MS** Units: **mg/L** Analysis Date: **26-Oct-2021 13:35**
Client ID: Run ID: **WetChem_HS_394202** SeqNo: **6338164** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.78	0.20	10	0.165	106	80 - 120				

MSD Sample ID: **HS21101037-01MSD** Units: **mg/L** Analysis Date: **26-Oct-2021 13:35**
Client ID: Run ID: **WetChem_HS_394202** SeqNo: **6338163** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.87	0.20	10	0.165	107	80 - 120	10.78	0.85	20	

The following samples were analyzed in this batch: HS21101165-01

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS21101165**

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
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 27-Oct-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21101165

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21101165-01	LH18/24-SP650_102021	Login	10/21/2021 1:53:10 PM	PJM	WET377
HS21101165-01	LH18/24-SP650_102021	Login	10/21/2021 1:53:10 PM	PJM	WET377
HS21101165-01	LH18/24-SP650_102021	Login	10/21/2021 1:53:10 PM	PJM	WET226
HS21101165-02	LH18/24-SP650_102021_BIX	Login	10/21/2021 1:53:10 PM	PJM	Sub

ALS Houston, US Date: 27-Oct-21

Sample Receipt Checklist

Work Order ID: HS21101165 **Date/Time Received:** **21-Oct-2021 11:40**

Client Name: Bhate Environmental **Received by:** **Pablo Marinez**

Completed By: /S/ Pablo Marinez (eSignature) 21-Oct-2021 13:53 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 22-Oct-2021 07:36 (Date/Time)

Matrices: **WATER** Carrier name: **FedEx Priority Overnight**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:CLIENT
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	2.6°C UC/C	IR 31
Cooler(s)/Kit(s):	24161	
Date/Time sample(s) sent to storage:	10/21/21 14:00	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O. Number

HS21101165

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_102021	Water	10/20/21 / 14:00		3	X	X			H2SO4	
LH18/24-SP650_102021	Water	10/20/21 / 14:00		1			X		NONE	
LH18/24–SP650_102021_BIX	Water	10/20/21 / 14:00		1				X	NONE	

Additional Remarks: **24 Hour TAT on Perchlorate. Standard TAT on other parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	10/20/21	14:30	Paul [illegible]	10/21/21	11:40	P					

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:\1-ces\Forms\Chain of Custody - BiWeekly

24161 2.6c
1R31 4.0

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

24161

CUSTODY SEAL

Date: 10/20/21 Time: 1430
Name: Scott Beesinger
Company: BHAPA

Seal Broken By: [illegible]
Date: 10/21/21

24161 OCT 21 2021

Part # 156469-434 RITZ CP 05/19

Must Deliver Next Business Day
Time and Tempature Sensitive!

24161

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIROMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 14AUG18
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3111

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 46 - RJ

RMA:

546C1/3309/53C1

FedEx Express

J17101610200Ulw

TRK# 4280 9531 7307

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

4230674 200ct2021 GGGA 56DG3/14BA/1B23

October 22, 2021

Service Request No:E2101125

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21101165

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory October 21, 2021
For your reference, these analyses have been assigned our service request number **E2101125.**

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.:**	E2101125
Project:	HS21101165	**Date Received:**	10/21/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 10/21/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100614: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS RPD exceeded QC limits; the individual 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:**E2101125

Project: HS21101165

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101125-001	LH18/24-SP650_102021_BIX	10/20/2021	1400

Service Request Summary

Folder #: **E2101125**
Client Name: ALS Environmental - US
Project Name: HS21101165
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 10/21/21
Internal Due Date: 10/22/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21101165
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101125-001	LH18/24-SP650_102021_BIX	Water	10/20/21 1400	**IV**

Service Request Summary

Folder #: **E2101125**
Client Name: ALS Environmental - US
Project Name: HS21101165
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 10/21/21
Internal Due Date: 10/22/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21101165
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	IV due 11/11

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	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.
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.

Data Qualifiers

Lab Standard

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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: 17143**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Ragen Giga
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RagenP.Giga@ALSGlobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21101165
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21101165-02**	**LH18/24-SP650_102021_BIX**	**Water**	**20 Oct 2021 14:00**
	6850-Perch. DOD Level II & Level IV in separate pdf			22 Oct 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: S. [illegible] Date/Time:

Received By: [illegible] Date/Time: 10/21/21 1400

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-21

Thermometer ID: IR31

Date/Time Received: 10-21-21 Initials: CG

Date/Time Logged in: 10-21-21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ ALS Courier ○ 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		10-21-21	1405	CG	1.9	☑
						☐
						☐
						☐

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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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
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Preparation Information Benchsheet

Prep Run#: 389907 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** **Prep Date/Time:** 10/22/21 09:08

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101125-001	LH18/24-SP650_102021_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	EQ2100614-01	MB		6850/ClO4 DOD			Liquid	10mL	
3	EQ2100614-02	LCS		6850/ClO4 DOD			Liquid	10mL	
4	EQ2100614-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
5	K2112099-004	AUS-0A2B-W21-GW-10132021	.04	6850/ClO4			Water	10mL	
6	K2112099-005	AUS-0A2B-W06-GW-10132021	.04	6850/ClO4			Water	10mL	
7	K2112099-007	AUS-0A2B-W02-GW-10122021	.04	6850/ClO4			Water	10mL	
8	K2112099-008	AUS-0A2B-W12R-GW-10122021	.04	6850/ClO4			Water	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101125-001	100.00µL	EQ2100614-01	100.00µL	EQ2100614-01	100.00µL	EQ2100614-02	100.00µL	EQ2100614-02	100.00µL	EQ2100614-03	100.00µL
EQ2100614-03	100.00µL	K2112099-004	100.00µL	K2112099-005	100.00µL	K2112099-007	100.00µL	K2112099-008	100.00µL		

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100614-02	1.00µL	EQ2100614-02	1.00µL	EQ2100614-03	1.00µL	EQ2100614-03	1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 10/22/21 09:08
Finished: 10/22/21 10:15
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 10/22/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ 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

Client:	ALS Environmental - US	**Service Request:**	E2101125
Project:	HS21101165	**Date Collected:**	10/20/21 1400
Sample Matrix:	Water	**Date Received:**	10/21/21
Sample Name:	LH18/24-SP650_102021_BIX	**Units:**	µg/L
Lab Code:	E2101125-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**3020**		10.0	5.00	2.50	100	10/22/21	10/22/21 11:57	389907	743436	

Client:	ALS Environmental - US	**Service Request:**	E2101125
Project:	HS21101165	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100614-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

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	10/22/21	10/22/21 10:46	389907	743436	

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

Client: ALS Environmental - US
Project: HS21101165
Sample Matrix: Water

Service Request: E2101125
Date Analyzed: 10/22/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method:

Units: µg/L
Basis: NA

Extraction Lot: 389907

	Lab Control Sample EQ2100614-02			Duplicate Lab Control Sample EQ2100614-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0916	0.100	92	0.107	0.100	107	84 - 119	16 *	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.

Client:	ALS Environmental - US	**Service Request:**	E2101125
Project:	HS21101165	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100614-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0916**	J	0.100	0.0500	0.0250	1	10/22/21	10/22/21 10:54	389907	743436	

Client:	ALS Environmental - US	**Service Request:**	E2101125
Project:	HS21101165	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100614-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.107**		0.100	0.0500	0.0250	1	10/22/21	10/22/21 11:02	389907	743436	

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Houston, TX 77099
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November 05, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21101182**

Laboratory Results for: **Longhorn GW Treatment Plant Bi-Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Oct 21, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
Work Order: HS21101182

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21101182-01	LH18/24-SP650_102021	Water		20-Oct-2021 14:00	21-Oct-2021 11:40	☐
HS21101182-02	Trip Blank	Water	CG-082521-465	20-Oct-2021 00:00	21-Oct-2021 11:40	☐

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
Work Order: HS21101182

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R394174

Sample ID: HS21101283-10MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SW9056

Batch ID: R395000

Sample ID: HS21101171-02MS

- MS and MSD are for an unrelated sample (Chloride)

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21101182
Sample ID: LH18/24-SP650_102021 Lab ID:HS21101182-01
Collection Date: 20-Oct-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	25-Oct-2021 13:41
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	25-Oct-2021 13:41
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	25-Oct-2021 13:41
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	25-Oct-2021 13:41
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	25-Oct-2021 13:41
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21101182
Sample ID: LH18/24-SP650_102021 Lab ID:HS21101182-01
Collection Date: 20-Oct-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
cis-1,2-Dichloroethene	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	25-Oct-2021 13:41
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	25-Oct-2021 13:41
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	25-Oct-2021 13:41
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 13:41
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Trichloroethene	**1.00**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	25-Oct-2021 13:41
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 13:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 13:41
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*25-Oct-2021 13:41*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*25-Oct-2021 13:41*
Surr: Dibromofluoromethane	*95.0*			**0**	*80-119*	*%REC*	*1*	*25-Oct-2021 13:41*
Surr: Toluene-d8	*96.2*			**0**	*89-112*	*%REC*	*1*	*25-Oct-2021 13:41*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: TH
Chloride	**970**		**4.00**	**10.0**	**10.0**	**mg/L**	20	05-Nov-2021 03:37
Sulfate	**34.3**		**0.400**	**1.00**	**1.00**	**mg/L**	2	05-Nov-2021 03:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
Sample ID: Trip Blank
Collection Date: 20-Oct-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21101182
Lab ID:HS21101182-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	25-Oct-2021 12:59
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	25-Oct-2021 12:59
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	25-Oct-2021 12:59
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	25-Oct-2021 12:59
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	25-Oct-2021 12:59
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21101182

Sample ID: Trip Blank Lab ID:HS21101182-02

Collection Date: 20-Oct-2021 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	25-Oct-2021 12:59
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	25-Oct-2021 12:59
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	25-Oct-2021 12:59
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	25-Oct-2021 12:59
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	25-Oct-2021 12:59
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*25-Oct-2021 12:59*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*25-Oct-2021 12:59*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*1*	*25-Oct-2021 12:59*
Surr: Toluene-d8	*96.8*			**0**	*89-112*	*%REC*	*1*	*25-Oct-2021 12:59*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R394174 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21101182-01	LH18/24-SP650_102021	20 Oct 2021 14:00			25 Oct 2021 13:41	1
HS21101182-02	Trip Blank	20 Oct 2021 00:00			25 Oct 2021 12:59	1
Batch ID: R395000 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS21101182-01	LH18/24-SP650_102021	20 Oct 2021 14:00			05 Nov 2021 03:37	20
HS21101182-01	LH18/24-SP650_102021	20 Oct 2021 14:00			05 Nov 2021 03:29	2

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211025** Units: **ug/L** Analysis Date: **25-Oct-2021 12:17**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337695** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211025** Units: **ug/L** Analysis Date: **25-Oct-2021 12:17**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337695** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.47*	*1.0*	*50*	*0*	*88.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.67*	*1.0*	*50*	*0*	*97.3*	*85 - 114*				
Surr: Dibromofluoromethane	*46.93*	*1.0*	*50*	*0*	*93.9*	*80 - 119*				
Surr: Toluene-d8	*48.55*	*1.0*	*50*	*0*	*97.1*	*89 - 112*				

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211025** Units: **ug/L** Analysis Date: **25-Oct-2021 11:35**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337694** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.7	1.0	20	0	109	78 - 124				
1,1,1-Trichloroethane	20.28	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	20.48	1.0	20	0	102	71 - 121				
1,1,2-Trichloroethane	19.88	1.0	20	0	99.4	80 - 119				
1,1-Dichloroethane	20.02	1.0	20	0	100	77 - 125				
1,1-Dichloroethene	19.75	1.0	20	0	98.8	71 - 131				
1,1-Dichloropropene	19.85	1.0	20	0	99.2	78 - 125				
1,2,3-Trichlorobenzene	20.7	1.0	20	0	103	69 - 129				
1,2,3-Trichloropropane	19.08	1.0	20	0	95.4	73 - 122				
1,2,4-Trichlorobenzene	22.15	1.0	20	0	111	69 - 130				
1,2,4-Trimethylbenzene	20.37	1.0	20	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	19.49	1.0	20	0	97.4	62 - 128				
1,2-Dibromoethane	21.73	1.0	20	0	109	77 - 121				
1,2-Dichlorobenzene	21.37	1.0	20	0	107	80 - 119				
1,2-Dichloroethane	19.64	1.0	20	0	98.2	73 - 128				
1,2-Dichloropropane	19.85	1.0	20	0	99.2	78 - 122				
1,3,5-Trimethylbenzene	20.33	1.0	20	0	102	75 - 124				
1,3-Dichlorobenzene	21.52	1.0	20	0	108	80 - 119				
1,3-Dichloropropane	19.87	1.0	20	0	99.3	80 - 119				
1,4-Dichlorobenzene	21.25	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	20.5	1.0	20	0	102	60 - 139				
2-Butanone	34.88	2.0	40	0	87.2	56 - 143				
2-Chlorotoluene	20.11	1.0	20	0	101	79 - 122				
2-Hexanone	36.52	2.0	40	0	91.3	57 - 139				
4-Chlorotoluene	19.78	1.0	20	0	98.9	78 - 122				
4-Isopropyltoluene	21.37	1.0	20	0	107	77 - 127				
4-Methyl-2-pentanone	35.99	2.0	40	0	90.0	67 - 130				
Acetone	30.7	2.0	40	0	76.7	39 - 160				
Benzene	20.42	1.0	20	0	102	79 - 120				
Bromobenzene	21.56	1.0	20	0	108	80 - 120				
Bromochloromethane	20.91	1.0	20	0	105	78 - 123				
Bromodichloromethane	19.69	1.0	20	0	98.5	79 - 125				
Bromoform	22.41	1.0	20	0	112	66 - 130				
Bromomethane	23.09	1.0	20	0	115	53 - 141				

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211025** Units: **ug/L** Analysis Date: **25-Oct-2021 11:35**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337694** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	40.31	2.0	40	0	101	64 - 133				
Carbon tetrachloride	19.98	1.0	20	0	99.9	72 - 136				
Chlorobenzene	21.12	1.0	20	0	106	82 - 118				
Chloroethane	22.47	1.0	20	0	112	60 - 138				
Chloroform	20.31	1.0	20	0	102	79 - 124				
Chloromethane	21.73	1.0	20	0	109	50 - 139				
cis-1,2-Dichloroethene	20.99	1.0	20	0	105	78 - 123				
cis-1,3-Dichloropropene	20.71	1.0	20	0	104	75 - 124				
Dibromochloromethane	22.04	1.0	20	0	110	74 - 126				
Dibromomethane	20.21	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	20.22	1.0	20	0	101	32 - 152				
Ethylbenzene	21.53	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	22.91	1.0	20	0	115	66 - 134				
Isopropylbenzene	21.67	1.0	20	0	108	72 - 131				
m,p-Xylene	42.03	2.0	40	0	105	80 - 121				
Methylene chloride	21.81	2.0	20	0	109	74 - 124				
Naphthalene	22.04	1.0	20	0	110	61 - 128				
n-Butylbenzene	21.21	1.0	20	0	106	75 - 128				
n-Propylbenzene	20.41	1.0	20	0	102	76 - 126				
o-Xylene	20.97	1.0	20	0	105	78 - 122				
sec-Butylbenzene	20.66	1.0	20	0	103	77 - 126				
Styrene	21.43	1.0	20	0	107	78 - 123				
tert-Butylbenzene	20.48	1.0	20	0	102	78 - 124				
Tetrachloroethene	21.88	1.0	20	0	109	74 - 129				
Toluene	19.99	1.0	20	0	100.0	80 - 121				
trans-1,2-Dichloroethene	21.31	1.0	20	0	107	75 - 124				
trans-1,3-Dichloropropene	21.09	1.0	20	0	105	73 - 127				
Trichloroethene	20.85	1.0	20	0	104	79 - 123				
Trichlorofluoromethane	19.13	1.0	20	0	95.7	65 - 141				
Vinyl chloride	18.63	1.0	20	0	93.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.07*	*1.0*	*50*	*0*	*98.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.34*	*1.0*	*50*	*0*	*98.7*	*85 - 114*				
Surr: Dibromofluoromethane	*51.67*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*46.08*	*1.0*	*50*	*0*	*92.2*	*89 - 112*				

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21101283-10MS** Units: **ug/L** Analysis Date: **25-Oct-2021 14:02**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337700** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	202.6	10	200	0	101	78 - 124				
1,1,1-Trichloroethane	185.4	10	200	0	92.7	74 - 131				
1,1,2,2-Tetrachloroethane	189.9	10	200	0	94.9	71 - 121				
1,1,2-Trichloroethane	187.5	10	200	0	93.7	80 - 119				
1,1-Dichloroethane	169.5	10	200	0	84.8	77 - 125				
1,1-Dichloroethene	171.4	10	200	8.191	81.6	71 - 131				
1,1-Dichloropropene	185.1	10	200	0	92.5	78 - 125				
1,2,3-Trichlorobenzene	153.6	10	200	0	76.8	69 - 129				
1,2,3-Trichloropropane	175.1	10	200	0	87.5	73 - 122				
1,2,4-Trichlorobenzene	175.2	10	200	0	87.6	69 - 130				
1,2,4-Trimethylbenzene	191.2	10	200	0	95.6	76 - 124				
1,2-Dibromo-3-chloropropane	177.5	10	200	0	88.7	62 - 128				
1,2-Dibromoethane	203.5	10	200	0	102	77 - 121				
1,2-Dichlorobenzene	186.1	10	200	0	93.1	80 - 119				
1,2-Dichloroethane	179.5	10	200	0	89.7	73 - 128				
1,2-Dichloropropane	177	10	200	0	88.5	78 - 122				
1,3,5-Trimethylbenzene	191.2	10	200	0	95.6	75 - 124				
1,3-Dichlorobenzene	196.8	10	200	0	98.4	80 - 119				
1,3-Dichloropropane	188.3	10	200	0	94.1	80 - 119				
1,4-Dichlorobenzene	200.1	10	200	0	100	79 - 118				
2,2-Dichloropropane	174.1	10	200	0	87.1	60 - 139				
2-Butanone	318.1	20	400	0	79.5	56 - 143				
2-Chlorotoluene	192.2	10	200	0	96.1	79 - 122				
2-Hexanone	357.8	20	400	0	89.5	57 - 139				
4-Chlorotoluene	183.6	10	200	0	91.8	78 - 122				
4-Isopropyltoluene	210.9	10	200	0	105	77 - 127				
4-Methyl-2-pentanone	344.7	20	400	0	86.2	67 - 130				
Acetone	321.9	20	400	0	80.5	39 - 160				
Benzene	188.4	10	200	0	94.2	79 - 120				
Bromobenzene	197.1	10	200	0	98.5	80 - 120				
Bromochloromethane	178.6	10	200	0	89.3	78 - 123				
Bromodichloromethane	183.1	10	200	0	91.5	79 - 125				
Bromoform	203.5	10	200	0	102	66 - 130				
Bromomethane	157.2	10	200	0	78.6	53 - 141				

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21101283-10MS** Units: **ug/L** Analysis Date: **25-Oct-2021 14:02**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337700** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	322.5	20	400	0	80.6	64 - 133				
Carbon tetrachloride	196.5	10	200	0	98.3	72 - 136				
Chlorobenzene	206.5	10	200	0	103	82 - 118				
Chloroethane	191.8	10	200	0	95.9	60 - 138				
Chloroform	173.8	10	200	0	86.9	79 - 124				
Chloromethane	137.8	10	200	0	68.9	50 - 139				
cis-1,2-Dichloroethene	1693	10	200	1576	58.3	78 - 123				SO
cis-1,3-Dichloropropene	189.4	10	200	0	94.7	75 - 124				
Dibromochloromethane	207.1	10	200	0	104	74 - 126				
Dibromomethane	188.4	10	200	0	94.2	79 - 123				
Dichlorodifluoromethane	96.55	10	200	0	48.3	32 - 152				
Ethylbenzene	211.3	10	200	0	106	79 - 121				
Hexachlorobutadiene	237.9	10	200	0	119	66 - 134				
Isopropylbenzene	213.3	10	200	0	107	72 - 131				
m,p-Xylene	411	20	400	0	103	80 - 121				
Methylene chloride	183.7	20	200	0	91.8	74 - 124				
Naphthalene	154	10	200	0	77.0	61 - 128				
n-Butylbenzene	206.3	10	200	0	103	75 - 128				
n-Propylbenzene	200.3	10	200	0	100	76 - 126				
o-Xylene	206	10	200	0	103	78 - 122				
sec-Butylbenzene	203.2	10	200	0	102	77 - 126				
Styrene	205.4	10	200	0	103	78 - 123				
tert-Butylbenzene	199.5	10	200	0	99.7	78 - 124				
Tetrachloroethene	227.4	10	200	0	114	74 - 129				
Toluene	193.8	10	200	0	96.9	80 - 121				
trans-1,2-Dichloroethene	188.5	10	200	12.19	88.1	75 - 124				
trans-1,3-Dichloropropene	190.9	10	200	0	95.4	73 - 127				
Trichloroethene	1022	10	200	888.5	66.9	79 - 123				SO
Trichlorofluoromethane	155	10	200	0	77.5	65 - 141				
Vinyl chloride	294.6	10	200	185.2	54.7	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*441.2*	*10*	*500*	*0*	*88.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*500*	*10*	*500*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*474.6*	*10*	*500*	*0*	*94.9*	*80 - 119*				
Surr: Toluene-d8	*479.8*	*10*	*500*	*0*	*96.0*	*89 - 112*				

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21101283-10MSD** Units: **ug/L** Analysis Date: **25-Oct-2021 14:23**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337701** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	199.1	10	200	0	99.5	78 - 124	202.6	1.75	20	
1,1,1-Trichloroethane	173.4	10	200	0	86.7	74 - 131	185.4	6.71	20	
1,1,2,2-Tetrachloroethane	201.7	10	200	0	101	71 - 121	189.9	6.03	20	
1,1,2-Trichloroethane	188.6	10	200	0	94.3	80 - 119	187.5	0.606	20	
1,1-Dichloroethane	165.9	10	200	0	83.0	77 - 125	169.5	2.13	20	
1,1-Dichloroethene	161.8	10	200	8.191	76.8	71 - 131	171.4	5.75	20	
1,1-Dichloropropene	184.5	10	200	0	92.2	78 - 125	185.1	0.325	20	
1,2,3-Trichlorobenzene	192.2	10	200	0	96.1	69 - 129	153.6	22.3	20	R
1,2,3-Trichloropropane	198.6	10	200	0	99.3	73 - 122	175.1	12.6	20	
1,2,4-Trichlorobenzene	210	10	200	0	105	69 - 130	175.2	18.1	20	
1,2,4-Trimethylbenzene	198.4	10	200	0	99.2	76 - 124	191.2	3.71	20	
1,2-Dibromo-3-chloropropane	202	10	200	0	101	62 - 128	177.5	13	20	
1,2-Dibromoethane	207.7	10	200	0	104	77 - 121	203.5	2.03	20	
1,2-Dichlorobenzene	205.8	10	200	0	103	80 - 119	186.1	10	20	
1,2-Dichloroethane	175.2	10	200	0	87.6	73 - 128	179.5	2.4	20	
1,2-Dichloropropane	171.3	10	200	0	85.7	78 - 122	177	3.26	20	
1,3,5-Trimethylbenzene	196	10	200	0	98.0	75 - 124	191.2	2.47	20	
1,3-Dichlorobenzene	211.2	10	200	0	106	80 - 119	196.8	7.05	20	
1,3-Dichloropropane	187.4	10	200	0	93.7	80 - 119	188.3	0.457	20	
1,4-Dichlorobenzene	208.1	10	200	0	104	79 - 118	200.1	3.93	20	
2,2-Dichloropropane	169.3	10	200	0	84.6	60 - 139	174.1	2.82	20	
2-Butanone	320.8	20	400	0	80.2	56 - 143	318.1	0.815	20	
2-Chlorotoluene	198.5	10	200	0	99.2	79 - 122	192.2	3.22	20	
2-Hexanone	377.6	20	400	0	94.4	57 - 139	357.8	5.39	20	
4-Chlorotoluene	193.2	10	200	0	96.6	78 - 122	183.6	5.08	20	
4-Isopropyltoluene	214.7	10	200	0	107	77 - 127	210.9	1.77	20	
4-Methyl-2-pentanone	362.1	20	400	0	90.5	67 - 130	344.7	4.91	20	
Acetone	363	20	400	0	90.7	39 - 160	321.9	12	20	
Benzene	181.9	10	200	0	90.9	79 - 120	188.4	3.5	20	
Bromobenzene	211.3	10	200	0	106	80 - 120	197.1	6.94	20	
Bromochloromethane	171.8	10	200	0	85.9	78 - 123	178.6	3.86	20	
Bromodichloromethane	178.2	10	200	0	89.1	79 - 125	183.1	2.7	20	
Bromoform	208	10	200	0	104	66 - 130	203.5	2.15	20	
Bromomethane	153	10	200	0	76.5	53 - 141	157.2	2.77	20	

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R394174 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21101283-10MSD** Units: **ug/L** Analysis Date: **25-Oct-2021 14:23**
Client ID: Run ID: **VOA6_394174** SeqNo: **6337701** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	305.5	20	400	0	76.4	64 - 133	322.5	5.43	20	
Carbon tetrachloride	186.1	10	200	0	93.0	72 - 136	196.5	5.47	20	
Chlorobenzene	201.4	10	200	0	101	82 - 118	206.5	2.47	20	
Chloroethane	150.2	10	200	0	75.1	60 - 138	191.8	24.3	20	R
Chloroform	172.4	10	200	0	86.2	79 - 124	173.8	0.756	20	
Chloromethane	127.4	10	200	0	63.7	50 - 139	137.8	7.82	20	
cis-1,2-Dichloroethene	1672	10	200	1576	47.8	78 - 123	1693	1.25	20	SO
cis-1,3-Dichloropropene	184.4	10	200	0	92.2	75 - 124	189.4	2.68	20	
Dibromochloromethane	210	10	200	0	105	74 - 126	207.1	1.42	20	
Dibromomethane	179.5	10	200	0	89.7	79 - 123	188.4	4.87	20	
Dichlorodifluoromethane	93.11	10	200	0	46.6	32 - 152	96.55	3.64	20	
Ethylbenzene	206.6	10	200	0	103	79 - 121	211.3	2.25	20	
Hexachlorobutadiene	227.1	10	200	0	114	66 - 134	237.9	4.64	20	
Isopropylbenzene	206.3	10	200	0	103	72 - 131	213.3	3.31	20	
m,p-Xylene	416.3	20	400	0	104	80 - 121	411	1.27	20	
Methylene chloride	179.5	20	200	0	89.7	74 - 124	183.7	2.3	20	
Naphthalene	208.8	10	200	0	104	61 - 128	154	30.2	20	R
n-Butylbenzene	211.6	10	200	0	106	75 - 128	206.3	2.53	20	
n-Propylbenzene	205.9	10	200	0	103	76 - 126	200.3	2.72	20	
o-Xylene	204.3	10	200	0	102	78 - 122	206	0.817	20	
sec-Butylbenzene	205.3	10	200	0	103	77 - 126	203.2	1.02	20	
Styrene	204.2	10	200	0	102	78 - 123	205.4	0.602	20	
tert-Butylbenzene	205.1	10	200	0	103	78 - 124	199.5	2.78	20	
Tetrachloroethene	220.5	10	200	0	110	74 - 129	227.4	3.09	20	
Toluene	186.8	10	200	0	93.4	80 - 121	193.8	3.7	20	
trans-1,2-Dichloroethene	183.8	10	200	12.19	85.8	75 - 124	188.5	2.52	20	
trans-1,3-Dichloropropene	187.2	10	200	0	93.6	73 - 127	190.9	1.92	20	
Trichloroethene	974.8	10	200	888.5	43.2	79 - 123	1022	4.75	20	SO
Trichlorofluoromethane	146.5	10	200	0	73.3	65 - 141	155	5.62	20	
Vinyl chloride	272.7	10	200	185.2	43.8	58 - 137	294.6	7.69	20	S
Surr: 1,2-Dichloroethane-d4	*442*	*10*	*500*	*0*	*88.4*	*81 - 118*	*441.2*	*0.201*	*20*	
Surr: 4-Bromofluorobenzene	*490.9*	*10*	*500*	*0*	*98.2*	*85 - 114*	*500*	*1.84*	*20*	
Surr: Dibromofluoromethane	*472.1*	*10*	*500*	*0*	*94.4*	*80 - 119*	*474.6*	*0.534*	*20*	
Surr: Toluene-d8	*483.4*	*10*	*500*	*0*	*96.7*	*89 - 112*	*479.8*	*0.745*	*20*	

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID:	R394174 (0)	Instrument:	VOA6	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21101182-01 HS21101182-02

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21101182

QC BATCH REPORT

Batch ID: R395000 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **05-Nov-2021 01:53**
Client ID: Run ID: **ICS-Integrion_395000** SeqNo: **6356584** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **05-Nov-2021 02:00**
Client ID: Run ID: **ICS-Integrion_395000** SeqNo: **6356585** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.92	0.500	20	0	99.6	80 - 120				
Sulfate	20.15	0.500	20	0	101	80 - 120				

MS Sample ID: **HS21101171-02MS** Units: **mg/L** Analysis Date: **05-Nov-2021 02:15**
Client ID: Run ID: **ICS-Integrion_395000** SeqNo: **6356587** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	939.2	5.00	100	799.3	140	80 - 120				SO
Sulfate	106.3	5.00	100	0	106	80 - 120				

MSD Sample ID: **HS21101171-02MSD** Units: **mg/L** Analysis Date: **05-Nov-2021 02:22**
Client ID: Run ID: **ICS-Integrion_395000** SeqNo: **6356588** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	923.8	5.00	100	799.3	125	80 - 120	939.2	1.65	20	SO
Sulfate	104.6	5.00	100	0	105	80 - 120	106.3	1.6	20	

The following samples were analyzed in this batch: HS21101182-01

ALS Houston, US Date: 05-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: **HS21101182**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 05-Nov-21

Sample Receipt Checklist

Work Order ID: HS21101182 **Date/Time Received:** **21-Oct-2021 11:40**

Client Name: Bhate Environmental **Received by:** **Pablo Marinez**

Completed By: /S/ Paresh M. Giga (eSignature) 21-Oct-2021 17:33 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 22-Oct-2021 20:27 (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 ☐	1 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):	2.6C U/c	IR31
Cooler(s)/Kit(s):	24161	
Date/Time sample(s) sent to storage:	10/21/2021 17:40	

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 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT BI-WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O Number

HS21101182

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Bi-Weekly Samples

Analyses

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC	CHLORIDE, SULFATE									Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_102021	Water	10/20/21 / 14:00		3	3										HCL	
LH18/24-SP650_102021	Water	10/20/21 / 14:00		1		1									NONE	
Trip Blank	Water	10/20/21		2	2										HCL	

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	10/20/21	14:30	Paul [illegible]	10/21/21	11:40						

9For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks

24161 2.6C
1823 LFO

(Word) S:\1-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

24161

CUSTODY SEAL

Date: 10/20/21 Time: 1430
Name: Scott Beesinger
Company: [illegible]

Seal Broken By: [illegible]
Date: 10/21/21

24161 OCT 21 2021

Must Deliver Next Business Day
Time and Tempature Sensitive!

24161

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIROMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 14AUG18
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3111

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 46 - RJ

RMA:

FedEx Express

TRK# 9531 7307

PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

4230674 200ct2021 GGGA 560G3/14BA/1023

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 09, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21110123**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Nov 03, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21110123

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110123-01	LH18/24-SP650_110221	Water		02-Nov-2021 14:00	03-Nov-2021 10:30	☐
HS21110123-02	LH18/24-SP650_110221_AIX	Water		02-Nov-2021 14:00	03-Nov-2021 10:30	☐

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21110123

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

WetChemistry by Method E350.3

Batch ID: R395243

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E415.1

Batch ID: R394923

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E365.3

Batch ID: R394903

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 09-Nov-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21110123
Sample ID:	LH18/24-SP650_110221	Lab ID:HS21110123-01
Collection Date:	02-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**140**	a	**1.0**	**2.0**	**2.0**	**mg/L**	10	09-Nov-2021 11:30
ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**9.26**	a	**0.100**	**0.250**	**0.250**	**mg/L**	10	04-Nov-2021 12:12
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**9.65**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	03-Nov-2021 20:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 09-Nov-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21110123
Sample ID:	LH18/24-SP650_110221_AIX	Lab ID:HS21110123-02
Collection Date:	02-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	04-Nov-2021 17:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110123

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R394903 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978				**Matrix:** Water	
HS21110123-01	LH18/24-SP650_110221	02 Nov 2021 14:00			04 Nov 2021 12:12	10
Batch ID: R394923 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Water	
HS21110123-01	LH18/24-SP650_110221	02 Nov 2021 14:00			03 Nov 2021 20:57	1
Batch ID: R394929 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21110123-02	LH18/24-SP650_110221_AIX	02 Nov 2021 14:00			04 Nov 2021 17:12	1
Batch ID: R395243 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS21110123-01	LH18/24-SP650_110221	02 Nov 2021 14:00			09 Nov 2021 11:30	10

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110123

QC BATCH REPORT

Batch ID: R394903 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978

MBLK Sample ID: **MBLK-R394903** Units: **mg/L** Analysis Date: **04-Nov-2021 12:12**
Client ID: Run ID: **UV-2450_394903** SeqNo: **6354203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-R394903** Units: **mg/L** Analysis Date: **04-Nov-2021 12:12**
Client ID: Run ID: **UV-2450_394903** SeqNo: **6354202** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.251	0.0250	0.25	0	100	85 - 115				

LCSD Sample ID: **LCSD-R394903** Units: **mg/L** Analysis Date: **04-Nov-2021 12:12**
Client ID: Run ID: **UV-2450_394903** SeqNo: **6354201** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.251	0.0250	0.25	0	100	85 - 115	0.251	0	20	

The following samples were analyzed in this batch: HS21110123-01

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110123

QC BATCH REPORT

Batch ID: R394923 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON BY E415.1**

MBLK Sample ID: **MBLK-11032021** Units: **mg/L** Analysis Date: **03-Nov-2021 20:08**
Client ID: Run ID: **TOC_04_394923** SeqNo: **6354707** 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-11032021** Units: **mg/L** Analysis Date: **03-Nov-2021 20:24**
Client ID: Run ID: **TOC_04_394923** SeqNo: **6354708** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.94	1.00	10	0	109	85 - 115				

LCSD Sample ID: **LCSD-11032021** Units: **mg/L** Analysis Date: **03-Nov-2021 20:40**
Client ID: Run ID: **TOC_04_394923** SeqNo: **6354709** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.96	1.00	10	0	110	85 - 115	10.94	0.183	20	

MS Sample ID: **HS21110030-01MS** Units: **mg/L** Analysis Date: **03-Nov-2021 21:30**
Client ID: Run ID: **TOC_04_394923** SeqNo: **6354712** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	23.17	1.00	10	12.24	109	80 - 120				

The following samples were analyzed in this batch: HS21110123-01

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110123

QC BATCH REPORT

Batch ID: R395243 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-R395243** Units: **mg/L** Analysis Date: **09-Nov-2021 11:30**
Client ID: Run ID: **WetChem_HS_395243** SeqNo: **6361588** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-R395243** Units: **mg/L** Analysis Date: **09-Nov-2021 11:30**
Client ID: Run ID: **WetChem_HS_395243** SeqNo: **6361587** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.728	0.20	10	0	97.3	80 - 120				

MS Sample ID: **HS21110059-01MS** Units: **mg/L** Analysis Date: **09-Nov-2021 11:30**
Client ID: Run ID: **WetChem_HS_395243** SeqNo: **6361593** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.598	0.20	10	0.167	94.3	80 - 120				

MSD Sample ID: **HS21110059-01MSD** Units: **mg/L** Analysis Date: **09-Nov-2021 11:30**
Client ID: Run ID: **WetChem_HS_395243** SeqNo: **6361592** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.625	0.20	10	0.167	94.6	80 - 120	9.598	0.281	20	

The following samples were analyzed in this batch: HS21110123-01

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS21110123**

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
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 09-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21110123

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21110123-01	LH18/24-SP650_110221	Login	11/3/2021 12:39:41 PM	PMG	WET292
HS21110123-01	LH18/24-SP650_110221	Login	11/3/2021 12:39:41 PM	PMG	WET292
HS21110123-01	LH18/24-SP650_110221	Login	11/3/2021 12:39:41 PM	PMG	WET167
HS21110123-02	LH18/24-SP650_110221_AIX	Login	11/3/2021 12:39:41 PM	PMG	Sub

ALS Houston, US Date: 09-Nov-21

Sample Receipt Checklist

Work Order ID: HS21110123 **Date/Time Received:** **03-Nov-2021 10:30**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Paresh M. Giga (eSignature) 03-Nov-2021 12:42 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 03-Nov-2021 18:41 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:none
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	0.8C U/c	IR31
Cooler(s)/Kit(s):	47874	
Date/Time sample(s) sent to storage:	11/3/2021 12:50	

	Yes	No	
Water - VOA vials have zero headspace?	☐	☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job:
GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O. Number

HS21110123
Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_110221	Water	11/02/21 / 14:00		3	X	X			H2SO4	
LH18/24-SP650_110221	Water	11/02/21 / 14:00		1			X		NONE	
LH18/24–SP650_110221_AIX	Water	11/02/21 / 14:00		1				X	NONE	

Additional Remarks: **24 Hour TAT on Perchlorate. Standard TAT on other parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/02/21	14:30	[illegible]	11/3/2021	10:30						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
VK									

Remarks: 47874 0.8 +31 41.00

(Word) S:\1-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

47874

CUSTODY SEAL

Date: 11/2/21 Time: 1430
Name: Sean Pelayo
Company: BHATA

Seal Broken By: GM
Date: 11/03/21

47874 NOV 0 3 2021

Part # 159469-434 NTTV EXP 07/22

47874

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIROMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 27SEP21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3504
DIMS: 26x14x14 IN

TO **SHIPPING DEPT**
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 04 - RG

RMA:

FedEx Express

TRK# 5300 5222 5930

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

3923207 02Nov2021 GGGA 56DG1/A822/1823

November 04, 2021

Service Request No:E2101167

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21110123

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory November 03, 2021
For your reference, these analyses have been assigned our service request number **E2101167.**

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

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ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
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www.alsglobal.com

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2101167
Project:	HS21110123	**Date Received:**	11/03/21
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

One sample was received for analysis at ALS Environmental in Houston on 11/03/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100631: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS/DLCS recoveries are within QC limits.

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:**E2101167
Project: HS21110123

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101167-001	LH18/24-SP650_110221_AIX	11/2/2021	1400

Service Request Summary

Folder #: **E2101167**
Client Name: ALS Environmental - US
Project Name: HS21110123
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/03/21
Internal Due Date: 11/4/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110123
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101167-001	LH18/24-SP650_110221_AIX	Water	11/02/21 1400	**IV**

Folder Comments:

Send DWELR confirmation to Middletown PM for PADEP samples.

Service Request Summary

Folder #: **E2101167**
Client Name: ALS Environmental - US
Project Name: HS21110123
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/03/21
Internal Due Date: 11/4/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110123
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	IV due 11/24

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	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.
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.

Data Qualifiers

Lab Standard

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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense**

COC ID: **17238**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

RUSH

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21110123
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21110123-02**	**LH18/24-SP650_110221_AIX**	**Water**	**02 Nov 2021 14:00**
	6850-Perch. DOD Level II & Level IV in separate pdf			04 Nov 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
RUSH 24Hr.TAT

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 11/3/21 1327

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist: CH

Client/Project: ALS-H

Thermometer ID: 1231

Date/Time Received: 11/3/21 Initials: PH

Date/Time Logged in: 11/3/21 Initials: CH

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ ALS Courier ○ 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?
MA		11/3/21	1327	CH	4.1	☒
						☐
						☐
						☐

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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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
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 390572 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 11/3/21 09:21

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101163-001	2110430-01 (W-29)	.01	6850/ClO4			Water	10mL	
2	E2101163-002	2110430-02 (MW-2)	.01	6850/ClO4			Water	10mL	
3	E2101163-003	2110430-03 (W-3)	.01	6850/ClO4			Water	10mL	
4	E2101163-004	2110430-04 (MW-16)	.01	6850/ClO4			Water	10mL	
5	E2101167-001	LH18/24-SP650_110221_AIX	.01	6850/ClO4 DOD			Water	10mL	
6	EQ2100631-01	MB		6850/ClO4 DOD			Liquid	10mL	
7	EQ2100631-02	LCS		6850/ClO4 DOD			Liquid	10mL	
8	EQ2100631-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101163-001	100.00µL	E2101163-002	100.00µL	E2101163-003	100.00µL	E2101163-004	100.00µL	EQ2100631-01	100.00µL	EQ2100631-01	100.00µL
EQ2100631-02	100.00µL	EQ2100631-02	100.00µL	EQ2100631-03	100.00µL	EQ2100631-03	100.00µL				

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100631-02	1.00µL	EQ2100631-02	1.00µL	EQ2100631-03	1.00µL	EQ2100631-03	1.00µL

Preparation Materials

Water HPLC Grade	08/03/2021 Water (218530)	537M Glass Culture Tubes	537M Glass Tubes (218064)	6850 0.45um syringe filters	6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 11/3/21 09:21
Finished: 11/3/21 10:15
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 11/3/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101167
Project:	HS21110123	**Date Collected:**	11/ 2/21 1400
Sample Matrix:	Water	**Date Received:**	11/ 3/21
Sample Name:	LH18/24-SP650_110221_AIX	**Units:**	µg/L
Lab Code:	E2101167-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

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	11/ 3/21	11/3/21 18:37	390572	744737	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101167
Project:	HS21110123	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100631-01	**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	11/ 3/21	11/3/21 17:41	390572	744737	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101167
Project:	HS21110123	**Date Analyzed:**	11/ 3/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	390572

	Lab Control Sample EQ2100631-02			Duplicate Lab Control Sample EQ2100631-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.117	0.100	117	0.116	0.100	116	84 - 119	<1	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:**	E2101167
Project:	HS21110123	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100631-02	**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	**0.117**		0.100	0.0500	0.0250	1	11/ 3/21	11/3/21 17:49	390572	744737	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101167
Project:	HS21110123	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100631-03	**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	**0.116**		0.100	0.0500	0.0250	1	11/ 3/21	11/3/21 17:57	390572	744737	

10450 Stancliff Rd. Suite 210
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November 17, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21110151**

Laboratory Results for: **Longhorn GW Treatment Plant Bi-Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Nov 03, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
Work Order: HS21110151

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110151-01	LH18/24-SP650_110221	Water		02-Nov-2021 14:00	03-Nov-2021 10:30	☐
HS21110151-02	Trip Blank	Water	CG-101321-157	02-Nov-2021 14:00	03-Nov-2021 10:30	☐

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
Work Order: HS21110151

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R395766

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R395407

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21110151
Sample ID: LH18/24-SP650_110221 Lab ID:HS21110151-01
Collection Date: 02-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Nov-2021 20:54
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	15-Nov-2021 20:54
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	15-Nov-2021 20:54
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	15-Nov-2021 20:54
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	15-Nov-2021 20:54
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21110151
Sample ID: LH18/24-SP650_110221 Lab ID:HS21110151-01
Collection Date: 02-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
cis-1,2-Dichloroethene	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Nov-2021 20:54
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Nov-2021 20:54
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Nov-2021 20:54
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:54
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:54
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*15-Nov-2021 20:54*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*15-Nov-2021 20:54*
Surr: Dibromofluoromethane	*86.7*			**0**	*80-119*	*%REC*	*1*	*15-Nov-2021 20:54*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*15-Nov-2021 20:54*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**900**		**4.00**	**10.0**	**10.0**	**mg/L**	20	11-Nov-2021 01:28
Sulfate	**14.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2021 01:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21110151
Sample ID: Trip Blank Lab ID:HS21110151-02
Collection Date: 02-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Nov-2021 20:32
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	15-Nov-2021 20:32
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	15-Nov-2021 20:32
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	15-Nov-2021 20:32
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	15-Nov-2021 20:32
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi-Weekly Samples WorkOrder:HS21110151
Sample ID: Trip Blank Lab ID:HS21110151-02
Collection Date: 02-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Nov-2021 20:32
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Nov-2021 20:32
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	15-Nov-2021 20:32
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	15-Nov-2021 20:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Nov-2021 20:32
Surr: 1,2-Dichloroethane-d4	*89.0*			**0**	*81-118*	*%REC*	*1*	*15-Nov-2021 20:32*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*15-Nov-2021 20:32*
Surr: Dibromofluoromethane	*85.7*			**0**	*80-119*	*%REC*	*1*	*15-Nov-2021 20:32*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*15-Nov-2021 20:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R395407 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS21110151-01	LH18/24-SP650_110221	02 Nov 2021 14:00			11 Nov 2021 01:28	20
HS21110151-01	LH18/24-SP650_110221	02 Nov 2021 14:00			11 Nov 2021 01:20	1
Batch ID: R395766 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21110151-01	LH18/24-SP650_110221	02 Nov 2021 14:00			15 Nov 2021 20:54	1
HS21110151-02	Trip Blank	02 Nov 2021 14:00			15 Nov 2021 20:32	1

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211115** Units: **ug/L** Analysis Date: **15-Nov-2021 20:10**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374889** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211115** Units: **ug/L** Analysis Date: **15-Nov-2021 20:10**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374889** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.86*	*1.0*	*50*	*0*	*87.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.66*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*42.49*	*1.0*	*50*	*0*	*85.0*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211115** Units: **ug/L** Analysis Date: **15-Nov-2021 19:25**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374888** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.35	1.0	20	0	96.7	78 - 124				
1,1,1-Trichloroethane	20.97	1.0	20	0	105	74 - 131				
1,1,2,2-Tetrachloroethane	20.63	1.0	20	0	103	71 - 121				
1,1,2-Trichloroethane	20.74	1.0	20	0	104	80 - 119				
1,1-Dichloroethane	19.78	1.0	20	0	98.9	77 - 125				
1,1-Dichloroethene	20.62	1.0	20	0	103	71 - 131				
1,1-Dichloropropene	20.86	1.0	20	0	104	78 - 125				
1,2,3-Trichlorobenzene	21.07	1.0	20	0	105	69 - 129				
1,2,3-Trichloropropane	19.79	1.0	20	0	99.0	73 - 122				
1,2,4-Trichlorobenzene	21.19	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	21.68	1.0	20	0	108	76 - 124				
1,2-Dibromo-3-chloropropane	17.32	1.0	20	0	86.6	62 - 128				
1,2-Dibromoethane	21.82	1.0	20	0	109	77 - 121				
1,2-Dichlorobenzene	20.81	1.0	20	0	104	80 - 119				
1,2-Dichloroethane	20.22	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	20.56	1.0	20	0	103	78 - 122				
1,3,5-Trimethylbenzene	21.2	1.0	20	0	106	75 - 124				
1,3-Dichlorobenzene	20.62	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	20.56	1.0	20	0	103	80 - 119				
1,4-Dichlorobenzene	20.72	1.0	20	0	104	79 - 118				
2,2-Dichloropropane	18.84	1.0	20	0	94.2	60 - 139				
2-Butanone	38.49	2.0	40	0	96.2	56 - 143				
2-Chlorotoluene	20.89	1.0	20	0	104	79 - 122				
2-Hexanone	43.57	2.0	40	0	109	57 - 139				
4-Chlorotoluene	21.28	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	21.67	1.0	20	0	108	77 - 127				
4-Methyl-2-pentanone	39.87	2.0	40	0	99.7	67 - 130				
Acetone	37.9	2.0	40	0	94.8	39 - 160				
Benzene	20.51	1.0	20	0	103	79 - 120				
Bromobenzene	21.56	1.0	20	0	108	80 - 120				
Bromochloromethane	21.63	1.0	20	0	108	78 - 123				
Bromodichloromethane	18.73	1.0	20	0	93.6	79 - 125				
Bromoform	18.07	1.0	20	0	90.3	66 - 130				
Bromomethane	25.22	1.0	20	0	126	53 - 141				

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211115** Units: **ug/L** Analysis Date: **15-Nov-2021 19:25**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374888** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	41.73	2.0	40	0	104	64 - 133				
Carbon tetrachloride	18.44	1.0	20	0	92.2	72 - 136				
Chlorobenzene	20.29	1.0	20	0	101	82 - 118				
Chloroethane	19.3	1.0	20	0	96.5	60 - 138				
Chloroform	20.77	1.0	20	0	104	79 - 124				
Chloromethane	21.05	1.0	20	0	105	50 - 139				
cis-1,2-Dichloroethene	20.57	1.0	20	0	103	78 - 123				
cis-1,3-Dichloropropene	18.03	1.0	20	0	90.1	75 - 124				
Dibromochloromethane	18.57	1.0	20	0	92.8	74 - 126				
Dibromomethane	20.57	1.0	20	0	103	79 - 123				
Dichlorodifluoromethane	19.65	1.0	20	0	98.2	32 - 152				
Ethylbenzene	21.14	1.0	20	0	106	79 - 121				
Hexachlorobutadiene	22.17	1.0	20	0	111	66 - 134				
Isopropylbenzene	21.38	1.0	20	0	107	72 - 131				
m,p-Xylene	42.31	2.0	40	0	106	80 - 121				
Methylene chloride	19.18	2.0	20	0	95.9	74 - 124				
Naphthalene	20.21	1.0	20	0	101	61 - 128				
n-Butylbenzene	21.16	1.0	20	0	106	75 - 128				
n-Propylbenzene	21.42	1.0	20	0	107	76 - 126				
o-Xylene	20.98	1.0	20	0	105	78 - 122				
sec-Butylbenzene	21.53	1.0	20	0	108	77 - 126				
Styrene	21.57	1.0	20	0	108	78 - 123				
tert-Butylbenzene	21.2	1.0	20	0	106	78 - 124				
Tetrachloroethene	20.38	1.0	20	0	102	74 - 129				
Toluene	20.35	1.0	20	0	102	80 - 121				
trans-1,2-Dichloroethene	20.03	1.0	20	0	100	75 - 124				
trans-1,3-Dichloropropene	17.35	1.0	20	0	86.7	73 - 127				
Trichloroethene	20.54	1.0	20	0	103	79 - 123				
Trichlorofluoromethane	20.23	1.0	20	0	101	65 - 141				
Vinyl chloride	20.16	1.0	20	0	101	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.41*	*1.0*	*50*	*0*	*105*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.52*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*51.44*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*48.7*	*1.0*	*50*	*0*	*97.4*	*89 - 112*				

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21110572-01MS** Units: **ug/L** Analysis Date: **16-Nov-2021 00:15**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374900** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20200	1000	20000	0	101	78 - 124				
1,1,1-Trichloroethane	20280	1000	20000	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	20540	1000	20000	0	103	71 - 121				
1,1,2-Trichloroethane	21630	1000	20000	0	108	80 - 119				
1,1-Dichloroethane	19410	1000	20000	0	97.1	77 - 125				
1,1-Dichloroethene	19780	1000	20000	0	98.9	71 - 131				
1,1-Dichloropropene	22170	1000	20000	0	111	78 - 125				
1,2,3-Trichlorobenzene	20000	1000	20000	0	100	69 - 129				
1,2,3-Trichloropropane	20070	1000	20000	0	100	73 - 122				
1,2,4-Trichlorobenzene	19630	1000	20000	0	98.1	69 - 130				
1,2,4-Trimethylbenzene	22310	1000	20000	0	112	76 - 124				
1,2-Dibromo-3-chloropropane	16310	1000	20000	0	81.5	62 - 128				
1,2-Dibromoethane	21820	1000	20000	0	109	77 - 121				
1,2-Dichlorobenzene	21180	1000	20000	0	106	80 - 119				
1,2-Dichloroethane	20970	1000	20000	0	105	73 - 128				
1,2-Dichloropropane	21040	1000	20000	0	105	78 - 122				
1,3,5-Trimethylbenzene	22520	1000	20000	0	113	75 - 124				
1,3-Dichlorobenzene	20940	1000	20000	0	105	80 - 119				
1,3-Dichloropropane	21540	1000	20000	0	108	80 - 119				
1,4-Dichlorobenzene	21280	1000	20000	0	106	79 - 118				
2,2-Dichloropropane	14360	1000	20000	0	71.8	60 - 139				
2-Butanone	34470	2000	40000	0	86.2	56 - 143				
2-Chlorotoluene	21840	1000	20000	0	109	79 - 122				
2-Hexanone	41660	2000	40000	0	104	57 - 139				
4-Chlorotoluene	22080	1000	20000	0	110	78 - 122				
4-Isopropyltoluene	22790	1000	20000	0	114	77 - 127				
4-Methyl-2-pentanone	40380	2000	40000	0	101	67 - 130				
Acetone	36410	2000	40000	0	91.0	39 - 160				
Benzene	22810	1000	20000	1364	107	79 - 120				
Bromobenzene	21360	1000	20000	0	107	80 - 120				
Bromochloromethane	19810	1000	20000	0	99.1	78 - 123				
Bromodichloromethane	18910	1000	20000	0	94.6	79 - 125				
Bromoform	17650	1000	20000	0	88.3	66 - 130				
Bromomethane	22750	1000	20000	0	114	53 - 141				

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21110572-01MS** Units: **ug/L** Analysis Date: **16-Nov-2021 00:15**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374900** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36340	2000	40000	0	90.8	64 - 133				
Carbon tetrachloride	20160	1000	20000	0	101	72 - 136				
Chlorobenzene	21340	1000	20000	0	107	82 - 118				
Chloroethane	18200	1000	20000	0	91.0	60 - 138				
Chloroform	19870	1000	20000	0	99.4	79 - 124				
Chloromethane	15640	1000	20000	0	78.2	50 - 139				
cis-1,2-Dichloroethene	19500	1000	20000	0	97.5	78 - 123				
cis-1,3-Dichloropropene	17340	1000	20000	0	86.7	75 - 124				
Dibromochloromethane	18430	1000	20000	0	92.1	74 - 126				
Dibromomethane	20000	1000	20000	0	100	79 - 123				
Dichlorodifluoromethane	11260	1000	20000	0	56.3	32 - 152				
Ethylbenzene	22430	1000	20000	0	112	79 - 121				
Hexachlorobutadiene	21890	1000	20000	0	109	66 - 134				
Isopropylbenzene	22870	1000	20000	0	114	72 - 131				
m,p-Xylene	45290	2000	40000	0	113	80 - 121				
Methylene chloride	18070	2000	20000	0	90.4	74 - 124				
Naphthalene	18880	1000	20000	0	94.4	61 - 128				
n-Butylbenzene	21740	1000	20000	0	109	75 - 128				
n-Propylbenzene	23120	1000	20000	0	116	76 - 126				
o-Xylene	21970	1000	20000	0	110	78 - 122				
sec-Butylbenzene	23030	1000	20000	0	115	77 - 126				
Styrene	22560	1000	20000	0	113	78 - 123				
tert-Butylbenzene	22990	1000	20000	0	115	78 - 124				
Tetrachloroethene	21790	1000	20000	0	109	74 - 129				
Toluene	21790	1000	20000	0	109	80 - 121				
trans-1,2-Dichloroethene	19540	1000	20000	0	97.7	75 - 124				
trans-1,3-Dichloropropene	16530	1000	20000	0	82.6	73 - 127				
Trichloroethene	21310	1000	20000	0	107	79 - 123				
Trichlorofluoromethane	19800	1000	20000	0	99.0	65 - 141				
Vinyl chloride	17660	1000	20000	0	88.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45880*	*1000*	*50000*	*0*	*91.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51470*	*1000*	*50000*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*46010*	*1000*	*50000*	*0*	*92.0*	*80 - 119*				
Surr: Toluene-d8	*51370*	*1000*	*50000*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21110572-01MSD** Units: **ug/L** Analysis Date: **16-Nov-2021 00:37**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374901** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19210	1000	20000	0	96.1	78 - 124	20200	5.03	20	
1,1,1-Trichloroethane	19160	1000	20000	0	95.8	74 - 131	20280	5.71	20	
1,1,2,2-Tetrachloroethane	19830	1000	20000	0	99.2	71 - 121	20540	3.53	20	
1,1,2-Trichloroethane	21290	1000	20000	0	106	80 - 119	21630	1.56	20	
1,1-Dichloroethane	18610	1000	20000	0	93.0	77 - 125	19410	4.23	20	
1,1-Dichloroethene	18220	1000	20000	0	91.1	71 - 131	19780	8.22	20	
1,1-Dichloropropene	20820	1000	20000	0	104	78 - 125	22170	6.27	20	
1,2,3-Trichlorobenzene	19280	1000	20000	0	96.4	69 - 129	20000	3.67	20	
1,2,3-Trichloropropane	19100	1000	20000	0	95.5	73 - 122	20070	4.91	20	
1,2,4-Trichlorobenzene	19260	1000	20000	0	96.3	69 - 130	19630	1.9	20	
1,2,4-Trimethylbenzene	21320	1000	20000	0	107	76 - 124	22310	4.56	20	
1,2-Dibromo-3-chloropropane	16650	1000	20000	0	83.3	62 - 128	16310	2.11	20	
1,2-Dibromoethane	21460	1000	20000	0	107	77 - 121	21820	1.65	20	
1,2-Dichlorobenzene	19980	1000	20000	0	99.9	80 - 119	21180	5.82	20	
1,2-Dichloroethane	20350	1000	20000	0	102	73 - 128	20970	3	20	
1,2-Dichloropropane	20550	1000	20000	0	103	78 - 122	21040	2.36	20	
1,3,5-Trimethylbenzene	21060	1000	20000	0	105	75 - 124	22520	6.7	20	
1,3-Dichlorobenzene	19870	1000	20000	0	99.4	80 - 119	20940	5.22	20	
1,3-Dichloropropane	21010	1000	20000	0	105	80 - 119	21540	2.49	20	
1,4-Dichlorobenzene	20030	1000	20000	0	100	79 - 118	21280	6.02	20	
2,2-Dichloropropane	13540	1000	20000	0	67.7	60 - 139	14360	5.87	20	
2-Butanone	35120	2000	40000	0	87.8	56 - 143	34470	1.85	20	
2-Chlorotoluene	20650	1000	20000	0	103	79 - 122	21840	5.62	20	
2-Hexanone	42940	2000	40000	0	107	57 - 139	41660	3.03	20	
4-Chlorotoluene	20720	1000	20000	0	104	78 - 122	22080	6.38	20	
4-Isopropyltoluene	21600	1000	20000	0	108	77 - 127	22790	5.36	20	
4-Methyl-2-pentanone	40910	2000	40000	0	102	67 - 130	40380	1.31	20	
Acetone	36600	2000	40000	0	91.5	39 - 160	36410	0.536	20	
Benzene	21530	1000	20000	1364	101	79 - 120	22810	5.75	20	
Bromobenzene	20420	1000	20000	0	102	80 - 120	21360	4.52	20	
Bromochloromethane	18980	1000	20000	0	94.9	78 - 123	19810	4.27	20	
Bromodichloromethane	18340	1000	20000	0	91.7	79 - 125	18910	3.07	20	
Bromoform	17510	1000	20000	0	87.6	66 - 130	17650	0.808	20	
Bromomethane	20650	1000	20000	0	103	53 - 141	22750	9.69	20	

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395766 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21110572-01MSD** Units: **ug/L** Analysis Date: **16-Nov-2021 00:37**
Client ID: Run ID: **VOA9_395766** SeqNo: **6374901** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	34530	2000	40000	0	86.3	64 - 133	36340	5.09	20	
Carbon tetrachloride	19290	1000	20000	0	96.5	72 - 136	20160	4.42	20	
Chlorobenzene	20340	1000	20000	0	102	82 - 118	21340	4.81	20	
Chloroethane	16610	1000	20000	0	83.1	60 - 138	18200	9.13	20	
Chloroform	19070	1000	20000	0	95.3	79 - 124	19870	4.13	20	
Chloromethane	15330	1000	20000	0	76.6	50 - 139	15640	2.03	20	
cis-1,2-Dichloroethene	18560	1000	20000	0	92.8	78 - 123	19500	4.92	20	
cis-1,3-Dichloropropene	16880	1000	20000	0	84.4	75 - 124	17340	2.7	20	
Dibromochloromethane	18170	1000	20000	0	90.8	74 - 126	18430	1.4	20	
Dibromomethane	19660	1000	20000	0	98.3	79 - 123	20000	1.75	20	
Dichlorodifluoromethane	10710	1000	20000	0	53.5	32 - 152	11260	5.03	20	
Ethylbenzene	21200	1000	20000	0	106	79 - 121	22430	5.62	20	
Hexachlorobutadiene	20430	1000	20000	0	102	66 - 134	21890	6.91	20	
Isopropylbenzene	21960	1000	20000	0	110	72 - 131	22870	4.06	20	
m,p-Xylene	43000	2000	40000	0	108	80 - 121	45290	5.18	20	
Methylene chloride	17170	2000	20000	0	85.9	74 - 124	18070	5.09	20	
Naphthalene	19240	1000	20000	0	96.2	61 - 128	18880	1.87	20	
n-Butylbenzene	20790	1000	20000	0	104	75 - 128	21740	4.47	20	
n-Propylbenzene	21560	1000	20000	0	108	76 - 126	23120	6.96	20	
o-Xylene	21190	1000	20000	0	106	78 - 122	21970	3.59	20	
sec-Butylbenzene	21740	1000	20000	0	109	77 - 126	23030	5.76	20	
Styrene	21460	1000	20000	0	107	78 - 123	22560	5	20	
tert-Butylbenzene	21310	1000	20000	0	107	78 - 124	22990	7.57	20	
Tetrachloroethene	20430	1000	20000	0	102	74 - 129	21790	6.47	20	
Toluene	20970	1000	20000	0	105	80 - 121	21790	3.83	20	
trans-1,2-Dichloroethene	18440	1000	20000	0	92.2	75 - 124	19540	5.81	20	
trans-1,3-Dichloropropene	16160	1000	20000	0	80.8	73 - 127	16530	2.23	20	
Trichloroethene	20320	1000	20000	0	102	79 - 123	21310	4.76	20	
Trichlorofluoromethane	18540	1000	20000	0	92.7	65 - 141	19800	6.58	20	
Vinyl chloride	16150	1000	20000	0	80.8	58 - 137	17660	8.88	20	
Surr: 1,2-Dichloroethane-d4	*45580*	*1000*	*50000*	*0*	*91.2*	*81 - 118*	*45880*	*0.66*	*20*	
Surr: 4-Bromofluorobenzene	*52190*	*1000*	*50000*	*0*	*104*	*85 - 114*	*51470*	*1.39*	*20*	
Surr: Dibromofluoromethane	*45400*	*1000*	*50000*	*0*	*90.8*	*80 - 119*	*46010*	*1.33*	*20*	
Surr: Toluene-d8	*51160*	*1000*	*50000*	*0*	*102*	*89 - 112*	*51370*	*0.409*	*20*	

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID:	R395766 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21110151-01 HS21110151-02

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: HS21110151

QC BATCH REPORT

Batch ID: R395407 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **11-Nov-2021 00:21**
Client ID: Run ID: **ICS-Integrion_395407** SeqNo: **6365871** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **11-Nov-2021 00:29**
Client ID: Run ID: **ICS-Integrion_395407** SeqNo: **6365872** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.46	0.500	20	0	97.3	80 - 120				
Sulfate	19.58	0.500	20	0	97.9	80 - 120				

MS Sample ID: **HS21101626-10MS** Units: **mg/L** Analysis Date: **10-Nov-2021 23:07**
Client ID: Run ID: **ICS-Integrion_395407** SeqNo: **6365862** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	216.5	10.0	200	11.6	102	80 - 120				
Sulfate	739.5	10.0	200	543.7	97.9	80 - 120				

MSD Sample ID: **HS21101626-10MSD** Units: **mg/L** Analysis Date: **10-Nov-2021 23:14**
Client ID: Run ID: **ICS-Integrion_395407** SeqNo: **6365863** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	216.5	10.0	200	11.6	102	80 - 120	216.5	0	20	
Sulfate	739.7	10.0	200	543.7	98.0	80 - 120	739.5	0.0357	20	

The following samples were analyzed in this batch: HS21110151-01

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
WorkOrder: **HS21110151**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 17-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi-Weekly Samples
Work Order: HS21110151

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21110151-01	LH18/24-SP650_110221	Login	11/3/2021 5:12:40 PM	PMG	WET003
HS21110151-01	LH18/24-SP650_110221	Login	11/3/2021 5:12:40 PM	PMG	VOA116
HS21110151-02	Trip Blank	Login	11/3/2021 5:12:40 PM	PMG	VOA116

ALS Houston, US Date: 17-Nov-21

Sample Receipt Checklist

Work Order ID: HS21110151 **Date/Time Received:** **03-Nov-2021 10:30**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Paresh M. Giga (eSignature) 03-Nov-2021 17:14 (Date/Time) **Reviewed by:** /S/ Corey Grandits (eSignature) 04-Nov-2021 11:26 (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 ☐	1 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):	0.6C U/c	IR31
Cooler(s)/Kit(s):	47874	
Date/Time sample(s) sent to storage:	11/3/2021 17:20	

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 ATTN: Ragen Gigi

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job:
GROUNDWATER TREATMENT PLANT BI-WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O Number

HS21110151

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Bi-Weekly Sample:

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC	CHLORIDE, SULFATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_110221	Water	11/02/21 / 14:00		3	3		HCL	
LH18/24-SP650_110221	Water	11/02/21 / 14:00		1		1	NONE	
Trip Blank	Water	11/02/21		2	2		HCL	

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/02/21	14:30	[illegible]	11/3/2021	10:30						

9For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
47874	OK 0:80								

Remarks: #31 4:00

(Word) S:\1-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

47874

CUSTODY SEAL

Date: 11/2/21 Time: 1430
Name: Sean Bellinger
Company: BHAT

Seal Broken By: SM
Date: 11/03/21

47874 NOV 03 2021

ALS

47874

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIRONMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 27SEP21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3504
DIMS: 26x14x14 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 04 - RG

RMA:

FedEx Express

TRK# 5300 5222 5930

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

3923207 02Nov2021 GGGA 56DG1/A822/1D23

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 07, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21110552**

Laboratory Results for: **Longhorn GW Treatment Plant Monthly Effluent Samples**

Dear Marcia Olive,

ALS Environmental received 3 sample(s) on Nov 10, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
Work Order: HS21110552

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110552-01	LH18/24-SP650_110921	Water		09-Nov-2021 14:00	10-Nov-2021 10:55	☐
HS21110552-02	LH18/24-SP650_110921_AIX	Water		09-Nov-2021 14:00	10-Nov-2021 10:55	☐
HS21110552-03	Trip Blank	Water	CG 101321 -48	09-Nov-2021 14:00	10-Nov-2021 10:55	☐

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
Work Order: HS21110552

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 172502

Sample ID: LH18/24-SP650_110921 (HS21110552-01)

- The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Volatiles by Method SW8260

Batch ID: R396258

Sample ID: VSTD050

- Hexachlorobutadiene exceeded %D limits for CCV .Samples are ND for this compound.

Sample ID: HS21111159-01MS

- MS and MSD are for an unrelated sample

Metals by Method SW6020A

Batch ID: 172923

Sample ID: LH18/24-SP650_110921 (HS21110552-01MSD)

- 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. (Barium)

Sample ID: LH18/24-SP650_110921 (HS21110552-01PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. (Barium)

WetChemistry by Method SW7196

Batch ID: R395536

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS21110552
Sample ID: LH18/24-SP650_110921 Lab ID:HS21110552-01
Collection Date: 09-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Nov-2021 18:33
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Nov-2021 18:33
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Nov-2021 18:33
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Nov-2021 18:33
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Nov-2021 18:33
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS21110552
Sample ID: LH18/24-SP650_110921 Lab ID:HS21110552-01
Collection Date: 09-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
cis-1,2-Dichloroethene	**2.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Nov-2021 18:33
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Nov-2021 18:33
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Nov-2021 18:33
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:33
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:33
Surr: 1,2-Dichloroethane-d4	*93.4*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2021 18:33*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2021 18:33*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2021 18:33*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2021 18:33*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 15-Nov-2021		Analyst: JLJ
1,4-Dioxane	**4.6**	a	**1.0**	**1.0**	**1.0**	**ug/L**	100	06-Dec-2021 16:30
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*100*	*06-Dec-2021 16:30*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*100*	*06-Dec-2021 16:30*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*100*	*06-Dec-2021 16:30*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 24-Nov-2021		Analyst: JHD
Barium	**0.534**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	24-Nov-2021 19:29
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	24-Nov-2021 19:29
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	24-Nov-2021 19:29
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	24-Nov-2021 19:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 07-Dec-21

ANALYTICAL REPORT

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder:HS21110552
Sample ID: LH18/24-SP650_110921
Lab ID:HS21110552-01
Collection Date: 09-Nov-2021 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
HEXAVALENT CHROMIUM BY SW7196A		**Method:SW7196**						Analyst: AP
Chromium, Hexavalent	0.0100	U	0.00600	0.0100	0.0100	mg/L	1	10-Nov-2021 13:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 07-Dec-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Monthly Effluent Samples	WorkOrder:HS21110552
Sample ID:	LH18/24-SP650_110921_AIX	Lab ID:HS21110552-02
Collection Date:	09-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	12-Nov-2021 10:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS21110552
Sample ID: Trip Blank Lab ID:HS21110552-03
Collection Date: 09-Nov-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Nov-2021 18:11
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	22-Nov-2021 18:11
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	22-Nov-2021 18:11
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	22-Nov-2021 18:11
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	22-Nov-2021 18:11
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 07-Dec-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Monthly Effluent Samples	WorkOrder:HS21110552
Sample ID:	Trip Blank	Lab ID:HS21110552-03
Collection Date:	09-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Nov-2021 18:11
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	22-Nov-2021 18:11
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	22-Nov-2021 18:11
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	22-Nov-2021 18:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Nov-2021 18:11
Surr: 1,2-Dichloroethane-d4	*91.3*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2021 18:11*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2021 18:11*
Surr: Dibromofluoromethane	*86.6*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2021 18:11*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2021 18:11*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 07-Dec-21

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

Batch ID: 172502 **Start Date:** 15 Nov 2021 07:00 **End Date:** 15 Nov 2021 11:00
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110552-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 172923 **Start Date:** 24 Nov 2021 12:30 **End Date:** 24 Nov 2021 16:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110552-01		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 172502 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS21110552-01	LH18/24-SP650_110921	09 Nov 2021 14:00		15 Nov 2021 08:44	06 Dec 2021 16:30	100
Batch ID: 172923 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS21110552-01	LH18/24-SP650_110921	09 Nov 2021 14:00		24 Nov 2021 16:30	24 Nov 2021 19:29	1
Batch ID: R395499 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21110552-02	LH18/24-SP650_110921_AIX	09 Nov 2021 14:00			12 Nov 2021 10:11	1
Batch ID: R395536 (0)	**Test Name :** HEXAVALENT CHROMIUM BY SW7196A				**Matrix:** Water	
HS21110552-01	LH18/24-SP650_110921	09 Nov 2021 14:00			10 Nov 2021 13:45	1
Batch ID: R396258 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21110552-01	LH18/24-SP650_110921	09 Nov 2021 14:00			22 Nov 2021 18:33	1
HS21110552-03	Trip Blank	09 Nov 2021 14:00			22 Nov 2021 18:11	1

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: 172923 (0) **Instrument:** ICPMS06 **Method:** METALS BY ICPMS BY SW6020A

MBLK Sample ID: **MBLK-172923** Units: **mg/L** Analysis Date: **24-Nov-2021 19:25**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394676** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.00250	0.00500								U
Lead	0.00100	0.00500								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U

LCS Sample ID: **LCS-172923** Units: **mg/L** Analysis Date: **24-Nov-2021 19:27**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394677** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.05102	0.00500	0.05	0	102	86 - 114				
Lead	0.0506	0.00500	0.05	0	101	88 - 115				
Selenium	0.05317	0.00500	0.05	0	106	80 - 120				
Silver	0.05054	0.00500	0.05	0	101	85 - 116				

MS Sample ID: **HS21110552-01MS** Units: **mg/L** Analysis Date: **24-Nov-2021 19:33**
Client ID: **LH18/24-SP650_110921** Run ID: **ICPMS06_396498** SeqNo: **6394680** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.6248	0.00500	0.05	0.5338	182	86 - 114				SO
Lead	0.05412	0.00500	0.05	0.000034	108	88 - 115				
Selenium	0.04655	0.00500	0.05	0.000476	92.2	80 - 120				
Silver	0.04994	0.00500	0.05	0.000001	99.9	85 - 116				

MSD Sample ID: **HS21110552-01MSD** Units: **mg/L** Analysis Date: **24-Nov-2021 19:35**
Client ID: **LH18/24-SP650_110921** Run ID: **ICPMS06_396498** SeqNo: **6394681** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.6359	0.00500	0.05	0.5338	204	86 - 114	0.6248	1.76	20	SO
Lead	0.05467	0.00500	0.05	0.000034	109	88 - 115	0.05412	1.03	20	
Selenium	0.04672	0.00500	0.05	0.000476	92.5	80 - 120	0.04655	0.358	20	
Silver	0.05143	0.00500	0.05	0.000001	103	85 - 116	0.04994	2.94	20	

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: 172923 (0) **Instrument:** ICPMS06 **Method:** METALS BY ICPMS BY SW6020A

PDS Sample ID: **HS21110552-01PDS** Units: **mg/L** Analysis Date: **24-Nov-2021 19:38**
Client ID: **LH18/24-SP650_110921** Run ID: **ICPMS06_396498** SeqNo: **6394682** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.6881	0.00500	0.1	0.5338	154	80 - 120				SO

SD Sample ID: **HS21110552-01SD** Units: **mg/L** Analysis Date: **24-Nov-2021 19:31**
Client ID: **LH18/24-SP650_110921** Run ID: **ICPMS06_396498** SeqNo: **6394679** PrepDate: **24-Nov-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Barium	0.5276	0.0250					0.5338	1.16	10	
Lead	0.00500	0.0250					0.000034	0	10	U
Selenium	0.0125	0.0250					0.000476	0	10	U
Silver	0.00250	0.0250					0.000001	0	10	U

The following samples were analyzed in this batch: HS21110552-01

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: 172502 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-172502** Units: **ug/L** Analysis Date: **06-Dec-2021 15:12**
Client ID: Run ID: **SV-6_397059** SeqNo: **6407948** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.06588*	*0*	*0.08*	*0*	*82.4*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05825*	*0*	*0.08*	*0*	*72.8*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06346*	*0*	*0.08*	*0*	*79.3*	*40 - 140*				

LCS Sample ID: **LCS-172502** Units: **ug/L** Analysis Date: **06-Dec-2021 15:30**
Client ID: Run ID: **SV-6_397059** SeqNo: **6407949** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.103	0.010	0.08	0	129	40 - 140				
Surr: 2-Fluorobiphenyl	*0.06171*	*0*	*0.08*	*0*	*77.1*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05882*	*0*	*0.08*	*0*	*73.5*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06308*	*0*	*0.08*	*0*	*78.8*	*40 - 140*				

LCSD Sample ID: **LCSD-172502** Units: **ug/L** Analysis Date: **06-Dec-2021 15:48**
Client ID: Run ID: **SV-6_397059** SeqNo: **6407950** PrepDate: **15-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08729	0.010	0.08	0	109	40 - 140	0.103	16.5	20	
Surr: 2-Fluorobiphenyl	*0.05259*	*0*	*0.08*	*0*	*65.7*	*40 - 140*	*0.06171*	*16*	*20*	
Surr: 4-Terphenyl-d14	*0.06366*	*0*	*0.08*	*0*	*79.6*	*40 - 140*	*0.05882*	*7.9*	*20*	
Surr: Nitrobenzene-d5	*0.05619*	*0*	*0.08*	*0*	*70.2*	*40 - 140*	*0.06308*	*11.5*	*20*	

The following samples were analyzed in this batch: HS21110552-01

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211122** Units: **ug/L** Analysis Date: **22-Nov-2021 12:36**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388368** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211122** Units: **ug/L** Analysis Date: **22-Nov-2021 12:36**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388368** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.81*	*1.0*	*50*	*0*	*91.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.85*	*1.0*	*50*	*0*	*99.7*	*85 - 114*				
Surr: Dibromofluoromethane	*43.17*	*1.0*	*50*	*0*	*86.3*	*80 - 119*				
Surr: Toluene-d8	*50.55*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211122** Units: **ug/L** Analysis Date: **22-Nov-2021 11:51**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388367** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.11	1.0	20	0	90.5	78 - 124				
1,1,1-Trichloroethane	18.71	1.0	20	0	93.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.75	1.0	20	0	104	71 - 121				
1,1,2-Trichloroethane	20.48	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	19.79	1.0	20	0	99.0	77 - 125				
1,1-Dichloroethene	20.02	1.0	20	0	100	71 - 131				
1,1-Dichloropropene	20.6	1.0	20	0	103	78 - 125				
1,2,3-Trichlorobenzene	19.45	1.0	20	0	97.3	69 - 129				
1,2,3-Trichloropropane	19.65	1.0	20	0	98.2	73 - 122				
1,2,4-Trichlorobenzene	19.62	1.0	20	0	98.1	69 - 130				
1,2,4-Trimethylbenzene	20.85	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	15.52	1.0	20	0	77.6	62 - 128				
1,2-Dibromoethane	20.87	1.0	20	0	104	77 - 121				
1,2-Dichlorobenzene	19.97	1.0	20	0	99.9	80 - 119				
1,2-Dichloroethane	20.25	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	20.4	1.0	20	0	102	78 - 122				
1,3,5-Trimethylbenzene	20.52	1.0	20	0	103	75 - 124				
1,3-Dichlorobenzene	19.8	1.0	20	0	99.0	80 - 119				
1,3-Dichloropropane	20.84	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	20.17	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	17.5	1.0	20	0	87.5	60 - 139				
2-Butanone	37	2.0	40	0	92.5	56 - 143				
2-Chlorotoluene	20.87	1.0	20	0	104	79 - 122				
2-Hexanone	40.44	2.0	40	0	101	57 - 139				
4-Chlorotoluene	20.9	1.0	20	0	104	78 - 122				
4-Isopropyltoluene	20.58	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	37.36	2.0	40	0	93.4	67 - 130				
Acetone	35.14	2.0	40	0	87.8	39 - 160				
Benzene	20.56	1.0	20	0	103	79 - 120				
Bromobenzene	20.51	1.0	20	0	103	80 - 120				
Bromochloromethane	21.2	1.0	20	0	106	78 - 123				
Bromodichloromethane	17.19	1.0	20	0	86.0	79 - 125				
Bromoform	15.37	1.0	20	0	76.8	66 - 130				
Bromomethane	26.56	1.0	20	0	133	53 - 141				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211122** Units: **ug/L** Analysis Date: **22-Nov-2021 11:51**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388367** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.56	2.0	40	0	93.9	64 - 133				
Carbon tetrachloride	17.61	1.0	20	0	88.0	72 - 136				
Chlorobenzene	20.06	1.0	20	0	100	82 - 118				
Chloroethane	19.08	1.0	20	0	95.4	60 - 138				
Chloroform	20.48	1.0	20	0	102	79 - 124				
Chloromethane	20.68	1.0	20	0	103	50 - 139				
cis-1,2-Dichloroethene	20.32	1.0	20	0	102	78 - 123				
cis-1,3-Dichloropropene	16.84	1.0	20	0	84.2	75 - 124				
Dibromochloromethane	16.54	1.0	20	0	82.7	74 - 126				
Dibromomethane	19.83	1.0	20	0	99.1	79 - 123				
Dichlorodifluoromethane	15.97	1.0	20	0	79.9	32 - 152				
Ethylbenzene	20.28	1.0	20	0	101	79 - 121				
Hexachlorobutadiene	21.62	1.0	20	0	108	66 - 134				
Isopropylbenzene	20.08	1.0	20	0	100	72 - 131				
m,p-Xylene	41.61	2.0	40	0	104	80 - 121				
Methylene chloride	18.9	2.0	20	0	94.5	74 - 124				
Naphthalene	18.68	1.0	20	0	93.4	61 - 128				
n-Butylbenzene	20.55	1.0	20	0	103	75 - 128				
n-Propylbenzene	20.9	1.0	20	0	104	76 - 126				
o-Xylene	20.35	1.0	20	0	102	78 - 122				
sec-Butylbenzene	20.46	1.0	20	0	102	77 - 126				
Styrene	20.98	1.0	20	0	105	78 - 123				
tert-Butylbenzene	20.08	1.0	20	0	100	78 - 124				
Tetrachloroethene	19.36	1.0	20	0	96.8	74 - 129				
Toluene	20.51	1.0	20	0	103	80 - 121				
trans-1,2-Dichloroethene	20.04	1.0	20	0	100	75 - 124				
trans-1,3-Dichloropropene	16.07	1.0	20	0	80.4	73 - 127				
Trichloroethene	20.29	1.0	20	0	101	79 - 123				
Trichlorofluoromethane	19.7	1.0	20	0	98.5	65 - 141				
Vinyl chloride	19.03	1.0	20	0	95.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.76*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.17*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*51.04*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*49.82*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111159-07MS** Units: **ug/L** Analysis Date: **22-Nov-2021 15:57**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388377** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.96	1.0	20	0	99.8	78 - 124				
1,1,1-Trichloroethane	20.14	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121				
1,1,2-Trichloroethane	22.07	1.0	20	0	110	80 - 119				
1,1-Dichloroethane	20.37	1.0	20	0	102	77 - 125				
1,1-Dichloroethene	21.77	1.0	20	0	109	71 - 131				
1,1-Dichloropropene	23.35	1.0	20	0	117	78 - 125				
1,2,3-Trichlorobenzene	20.08	1.0	20	0	100	69 - 129				
1,2,3-Trichloropropane	20.76	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	20.6	1.0	20	0	103	69 - 130				
1,2,4-Trimethylbenzene	23.23	1.0	20	0	116	76 - 124				
1,2-Dibromo-3-chloropropane	16.41	1.0	20	0	82.1	62 - 128				
1,2-Dibromoethane	21.98	1.0	20	0	110	77 - 121				
1,2-Dichlorobenzene	21.84	1.0	20	0	109	80 - 119				
1,2-Dichloroethane	21.14	1.0	20	0	106	73 - 128				
1,2-Dichloropropane	21.5	1.0	20	0	107	78 - 122				
1,3,5-Trimethylbenzene	23.23	1.0	20	0	116	75 - 124				
1,3-Dichlorobenzene	21.69	1.0	20	0	108	80 - 119				
1,3-Dichloropropane	22.19	1.0	20	0	111	80 - 119				
1,4-Dichlorobenzene	21.71	1.0	20	0	109	79 - 118				
2,2-Dichloropropane	17.52	1.0	20	0	87.6	60 - 139				
2-Butanone	38.82	2.0	40	0	97.0	56 - 143				
2-Chlorotoluene	23.15	1.0	20	0	116	79 - 122				
2-Hexanone	45.62	2.0	40	0	114	57 - 139				
4-Chlorotoluene	22.99	1.0	20	0	115	78 - 122				
4-Isopropyltoluene	24.11	1.0	20	0	121	77 - 127				
4-Methyl-2-pentanone	41.6	2.0	40	0	104	67 - 130				
Acetone	48.79	2.0	40	0	122	39 - 160				
Benzene	22.23	1.0	20	0	111	79 - 120				
Bromobenzene	21.99	1.0	20	0	110	80 - 120				
Bromochloromethane	21	1.0	20	0	105	78 - 123				
Bromodichloromethane	17.93	1.0	20	0	89.6	79 - 125				
Bromoform	15.6	1.0	20	0	78.0	66 - 130				
Bromomethane	26.56	1.0	20	0	133	53 - 141				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111159-07MS** Units: **ug/L** Analysis Date: **22-Nov-2021 15:57**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388377** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.61	2.0	40	0	96.5	64 - 133				
Carbon tetrachloride	20.01	1.0	20	0	100	72 - 136				
Chlorobenzene	21.92	1.0	20	0	110	82 - 118				
Chloroethane	21.24	1.0	20	0	106	60 - 138				
Chloroform	20.73	1.0	20	0	104	79 - 124				
Chloromethane	23.3	1.0	20	0	117	50 - 139				
cis-1,2-Dichloroethene	20.65	1.0	20	0	103	78 - 123				
cis-1,3-Dichloropropene	17.52	1.0	20	0	87.6	75 - 124				
Dibromochloromethane	17.77	1.0	20	0	88.8	74 - 126				
Dibromomethane	20.82	1.0	20	0	104	79 - 123				
Dichlorodifluoromethane	21.45	1.0	20	0	107	32 - 152				
Ethylbenzene	22.98	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	23.05	1.0	20	0	115	66 - 134				
Isopropylbenzene	23.78	1.0	20	0	119	72 - 131				
m,p-Xylene	47.11	2.0	40	0	118	80 - 121				
Methylene chloride	18.96	2.0	20	0	94.8	74 - 124				
Naphthalene	19.54	1.0	20	0	97.7	61 - 128				
n-Butylbenzene	23.63	1.0	20	0	118	75 - 128				
n-Propylbenzene	24.39	1.0	20	0	122	76 - 126				
o-Xylene	22.66	1.0	20	0	113	78 - 122				
sec-Butylbenzene	24.32	1.0	20	0	122	77 - 126				
Styrene	23.2	1.0	20	0	116	78 - 123				
tert-Butylbenzene	23.59	1.0	20	0	118	78 - 124				
Tetrachloroethene	22.77	1.0	20	0	114	74 - 129				
Toluene	22.84	1.0	20	0	114	80 - 121				
trans-1,2-Dichloroethene	21.03	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	16.25	1.0	20	0	81.3	73 - 127				
Trichloroethene	23.98	1.0	20	0	120	79 - 123				
Trichlorofluoromethane	22.29	1.0	20	0	111	65 - 141				
Vinyl chloride	22.15	1.0	20	0	111	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.17*	*1.0*	*50*	*0*	*90.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.32*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*45.53*	*1.0*	*50*	*0*	*91.1*	*80 - 119*				
Surr: Toluene-d8	*51.31*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111159-01MS** Units: **ug/L** Analysis Date: **22-Nov-2021 16:42**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388379** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20000	1000	20000	0	100	78 - 124				
1,1,1-Trichloroethane	20160	1000	20000	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	21440	1000	20000	0	107	71 - 121				
1,1,2-Trichloroethane	22200	1000	20000	0	111	80 - 119				
1,1-Dichloroethane	19630	1000	20000	0	98.2	77 - 125				
1,1-Dichloroethene	21130	1000	20000	0	106	71 - 131				
1,1-Dichloropropene	23410	1000	20000	0	117	78 - 125				
1,2,3-Trichlorobenzene	21690	1000	20000	0	108	69 - 129				
1,2,3-Trichloropropane	20560	1000	20000	0	103	73 - 122				
1,2,4-Trichlorobenzene	21710	1000	20000	0	109	69 - 130				
1,2,4-Trimethylbenzene	23770	1000	20000	0	119	76 - 124				
1,2-Dibromo-3-chloropropane	16790	1000	20000	0	83.9	62 - 128				
1,2-Dibromoethane	21900	1000	20000	0	109	77 - 121				
1,2-Dichlorobenzene	22450	1000	20000	0	112	80 - 119				
1,2-Dichloroethane	21060	1000	20000	0	105	73 - 128				
1,2-Dichloropropane	21640	1000	20000	0	108	78 - 122				
1,3,5-Trimethylbenzene	23630	1000	20000	0	118	75 - 124				
1,3-Dichlorobenzene	22080	1000	20000	0	110	80 - 119				
1,3-Dichloropropane	22300	1000	20000	0	111	80 - 119				
1,4-Dichlorobenzene	22460	1000	20000	0	112	79 - 118				
2,2-Dichloropropane	17500	1000	20000	0	87.5	60 - 139				
2-Butanone	35310	2000	40000	0	88.3	56 - 143				
2-Chlorotoluene	23200	1000	20000	0	116	79 - 122				
2-Hexanone	44540	2000	40000	0	111	57 - 139				
4-Chlorotoluene	23380	1000	20000	0	117	78 - 122				
4-Isopropyltoluene	24850	1000	20000	0	124	77 - 127				
4-Methyl-2-pentanone	41390	2000	40000	0	103	67 - 130				
Acetone	35300	2000	40000	0	88.2	39 - 160				
Benzene	22550	1000	20000	0	113	79 - 120				
Bromobenzene	22260	1000	20000	0	111	80 - 120				
Bromochloromethane	20410	1000	20000	0	102	78 - 123				
Bromodichloromethane	18370	1000	20000	0	91.8	79 - 125				
Bromoform	16070	1000	20000	0	80.4	66 - 130				
Bromomethane	25370	1000	20000	0	127	53 - 141				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111159-01MS** Units: **ug/L** Analysis Date: **22-Nov-2021 16:42**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388379** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	39040	2000	40000	0	97.6	64 - 133				
Carbon tetrachloride	20060	1000	20000	0	100	72 - 136				
Chlorobenzene	21890	1000	20000	0	109	82 - 118				
Chloroethane	21270	1000	20000	0	106	60 - 138				
Chloroform	20400	1000	20000	0	102	79 - 124				
Chloromethane	22910	1000	20000	0	115	50 - 139				
cis-1,2-Dichloroethene	20360	1000	20000	0	102	78 - 123				
cis-1,3-Dichloropropene	17750	1000	20000	0	88.7	75 - 124				
Dibromochloromethane	17970	1000	20000	0	89.8	74 - 126				
Dibromomethane	20420	1000	20000	0	102	79 - 123				
Dichlorodifluoromethane	21210	1000	20000	0	106	32 - 152				
Ethylbenzene	22900	1000	20000	0	115	79 - 121				
Hexachlorobutadiene	24630	1000	20000	0	123	66 - 134				
Isopropylbenzene	24080	1000	20000	0	120	72 - 131				
m,p-Xylene	47510	2000	40000	0	119	80 - 121				
Methylene chloride	18580	2000	20000	0	92.9	74 - 124				
Naphthalene	20740	1000	20000	0	104	61 - 128				
n-Butylbenzene	24740	1000	20000	0	124	75 - 128				
n-Propylbenzene	24780	1000	20000	0	124	76 - 126				
o-Xylene	22740	1000	20000	0	114	78 - 122				
sec-Butylbenzene	24930	1000	20000	0	125	77 - 126				
Styrene	23480	1000	20000	0	117	78 - 123				
tert-Butylbenzene	24110	1000	20000	0	121	78 - 124				
Tetrachloroethene	23880	1000	20000	1073	114	74 - 129				
Toluene	22690	1000	20000	0	113	80 - 121				
trans-1,2-Dichloroethene	20320	1000	20000	0	102	75 - 124				
trans-1,3-Dichloropropene	16580	1000	20000	0	82.9	73 - 127				
Trichloroethene	220200	1000	20000	179500	203	79 - 123				SEO
Trichlorofluoromethane	21720	1000	20000	0	109	65 - 141				
Vinyl chloride	21980	1000	20000	0	110	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44670*	*1000*	*50000*	*0*	*89.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51290*	*1000*	*50000*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*44600*	*1000*	*50000*	*0*	*89.2*	*80 - 119*				
Surr: Toluene-d8	*51100*	*1000*	*50000*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111159-07MSD** Units: **ug/L** Analysis Date: **22-Nov-2021 16:19**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388378** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.49	1.0	20	0	97.5	78 - 124	19.96	2.34	20	
1,1,1-Trichloroethane	19.73	1.0	20	0	98.7	74 - 131	20.14	2.04	20	
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121	21.24	0.0207	20	
1,1,2-Trichloroethane	21.82	1.0	20	0	109	80 - 119	22.07	1.13	20	
1,1-Dichloroethane	20.08	1.0	20	0	100	77 - 125	20.37	1.43	20	
1,1-Dichloroethene	21.04	1.0	20	0	105	71 - 131	21.77	3.37	20	
1,1-Dichloropropene	23	1.0	20	0	115	78 - 125	23.35	1.51	20	
1,2,3-Trichlorobenzene	20.36	1.0	20	0	102	69 - 129	20.08	1.42	20	
1,2,3-Trichloropropane	20.18	1.0	20	0	101	73 - 122	20.76	2.81	20	
1,2,4-Trichlorobenzene	20.58	1.0	20	0	103	69 - 130	20.6	0.109	20	
1,2,4-Trimethylbenzene	22.62	1.0	20	0	113	76 - 124	23.23	2.64	20	
1,2-Dibromo-3-chloropropane	15.77	1.0	20	0	78.9	62 - 128	16.41	3.98	20	
1,2-Dibromoethane	22.45	1.0	20	0	112	77 - 121	21.98	2.13	20	
1,2-Dichlorobenzene	21.26	1.0	20	0	106	80 - 119	21.84	2.71	20	
1,2-Dichloroethane	20.68	1.0	20	0	103	73 - 128	21.14	2.22	20	
1,2-Dichloropropane	21.78	1.0	20	0	109	78 - 122	21.5	1.32	20	
1,3,5-Trimethylbenzene	22.59	1.0	20	0	113	75 - 124	23.23	2.78	20	
1,3-Dichlorobenzene	20.74	1.0	20	0	104	80 - 119	21.69	4.47	20	
1,3-Dichloropropane	22.17	1.0	20	0	111	80 - 119	22.19	0.11	20	
1,4-Dichlorobenzene	21.19	1.0	20	0	106	79 - 118	21.71	2.42	20	
2,2-Dichloropropane	17.38	1.0	20	0	86.9	60 - 139	17.52	0.803	20	
2-Butanone	40.22	2.0	40	0	101	56 - 143	38.82	3.54	20	
2-Chlorotoluene	21.97	1.0	20	0	110	79 - 122	23.15	5.25	20	
2-Hexanone	45.73	2.0	40	0	114	57 - 139	45.62	0.244	20	
4-Chlorotoluene	22.29	1.0	20	0	111	78 - 122	22.99	3.1	20	
4-Isopropyltoluene	23.24	1.0	20	0	116	77 - 127	24.11	3.65	20	
4-Methyl-2-pentanone	41.79	2.0	40	0	104	67 - 130	41.6	0.477	20	
Acetone	47.3	2.0	40	0	118	39 - 160	48.79	3.1	20	
Benzene	22.13	1.0	20	0	111	79 - 120	22.23	0.44	20	
Bromobenzene	21.37	1.0	20	0	107	80 - 120	21.99	2.87	20	
Bromochloromethane	20.48	1.0	20	0	102	78 - 123	21	2.54	20	
Bromodichloromethane	18.43	1.0	20	0	92.1	79 - 125	17.93	2.75	20	
Bromoform	16.21	1.0	20	0	81.0	66 - 130	15.6	3.83	20	
Bromomethane	25.13	1.0	20	0	126	53 - 141	26.56	5.53	20	

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111159-07MSD** Units: **ug/L** Analysis Date: **22-Nov-2021 16:19**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388378** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.75	2.0	40	0	94.4	64 - 133	38.61	2.26	20	
Carbon tetrachloride	19.53	1.0	20	0	97.7	72 - 136	20.01	2.41	20	
Chlorobenzene	21.47	1.0	20	0	107	82 - 118	21.92	2.08	20	
Chloroethane	21.26	1.0	20	0	106	60 - 138	21.24	0.0801	20	
Chloroform	20.3	1.0	20	0	102	79 - 124	20.73	2.05	20	
Chloromethane	21.72	1.0	20	0	109	50 - 139	23.3	7.04	20	
cis-1,2-Dichloroethene	20.31	1.0	20	0	102	78 - 123	20.65	1.64	20	
cis-1,3-Dichloropropene	17.69	1.0	20	0	88.4	75 - 124	17.52	0.942	20	
Dibromochloromethane	17.56	1.0	20	0	87.8	74 - 126	17.77	1.15	20	
Dibromomethane	21.08	1.0	20	0	105	79 - 123	20.82	1.2	20	
Dichlorodifluoromethane	20.38	1.0	20	0	102	32 - 152	21.45	5.12	20	
Ethylbenzene	22.65	1.0	20	0	113	79 - 121	22.98	1.42	20	
Hexachlorobutadiene	22.98	1.0	20	0	115	66 - 134	23.05	0.31	20	
Isopropylbenzene	23.24	1.0	20	0	116	72 - 131	23.78	2.29	20	
m,p-Xylene	45.97	2.0	40	0	115	80 - 121	47.11	2.44	20	
Methylene chloride	18.56	2.0	20	0	92.8	74 - 124	18.96	2.14	20	
Naphthalene	19.89	1.0	20	0	99.5	61 - 128	19.54	1.79	20	
n-Butylbenzene	23.19	1.0	20	0	116	75 - 128	23.63	1.91	20	
n-Propylbenzene	23.41	1.0	20	0	117	76 - 126	24.39	4.11	20	
o-Xylene	22.48	1.0	20	0	112	78 - 122	22.66	0.787	20	
sec-Butylbenzene	23.34	1.0	20	0	117	77 - 126	24.32	4.11	20	
Styrene	22.85	1.0	20	0	114	78 - 123	23.2	1.55	20	
tert-Butylbenzene	22.79	1.0	20	0	114	78 - 124	23.59	3.47	20	
Tetrachloroethene	22.28	1.0	20	0	111	74 - 129	22.77	2.21	20	
Toluene	22.14	1.0	20	0	111	80 - 121	22.84	3.11	20	
trans-1,2-Dichloroethene	20.6	1.0	20	0	103	75 - 124	21.03	2.07	20	
trans-1,3-Dichloropropene	16.49	1.0	20	0	82.4	73 - 127	16.25	1.43	20	
Trichloroethene	22.84	1.0	20	0	114	79 - 123	23.98	4.86	20	
Trichlorofluoromethane	21.98	1.0	20	0	110	65 - 141	22.29	1.36	20	
Vinyl chloride	21.11	1.0	20	0	106	58 - 137	22.15	4.83	20	
Surr: 1,2-Dichloroethane-d4	*45.52*	*1.0*	*50*	*0*	*91.0*	*81 - 118*	*45.17*	*0.761*	*20*	
Surr: 4-Bromofluorobenzene	*51.22*	*1.0*	*50*	*0*	*102*	*85 - 114*	*51.32*	*0.194*	*20*	
Surr: Dibromofluoromethane	*46.09*	*1.0*	*50*	*0*	*92.2*	*80 - 119*	*45.53*	*1.21*	*20*	
Surr: Toluene-d8	*50.6*	*1.0*	*50*	*0*	*101*	*89 - 112*	*51.31*	*1.4*	*20*	

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111159-01MSD** Units: **ug/L** Analysis Date: **22-Nov-2021 17:04**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388380** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19080	1000	20000	0	95.4	78 - 124	20000	4.73	20	
1,1,1-Trichloroethane	19320	1000	20000	0	96.6	74 - 131	20160	4.23	20	
1,1,2,2-Tetrachloroethane	20560	1000	20000	0	103	71 - 121	21440	4.18	20	
1,1,2-Trichloroethane	21130	1000	20000	0	106	80 - 119	22200	4.96	20	
1,1-Dichloroethane	18770	1000	20000	0	93.9	77 - 125	19630	4.48	20	
1,1-Dichloroethene	20590	1000	20000	0	103	71 - 131	21130	2.58	20	
1,1-Dichloropropene	22540	1000	20000	0	113	78 - 125	23410	3.77	20	
1,2,3-Trichlorobenzene	19980	1000	20000	0	99.9	69 - 129	21690	8.22	20	
1,2,3-Trichloropropane	19700	1000	20000	0	98.5	73 - 122	20560	4.27	20	
1,2,4-Trichlorobenzene	20560	1000	20000	0	103	69 - 130	21710	5.43	20	
1,2,4-Trimethylbenzene	22370	1000	20000	0	112	76 - 124	23770	6.07	20	
1,2-Dibromo-3-chloropropane	16400	1000	20000	0	82.0	62 - 128	16790	2.31	20	
1,2-Dibromoethane	21640	1000	20000	0	108	77 - 121	21900	1.18	20	
1,2-Dichlorobenzene	20800	1000	20000	0	104	80 - 119	22450	7.63	20	
1,2-Dichloroethane	20610	1000	20000	0	103	73 - 128	21060	2.12	20	
1,2-Dichloropropane	21310	1000	20000	0	107	78 - 122	21640	1.52	20	
1,3,5-Trimethylbenzene	22180	1000	20000	0	111	75 - 124	23630	6.31	20	
1,3-Dichlorobenzene	20660	1000	20000	0	103	80 - 119	22080	6.65	20	
1,3-Dichloropropane	21580	1000	20000	0	108	80 - 119	22300	3.29	20	
1,4-Dichlorobenzene	20820	1000	20000	0	104	79 - 118	22460	7.56	20	
2,2-Dichloropropane	16450	1000	20000	0	82.3	60 - 139	17500	6.19	20	
2-Butanone	34670	2000	40000	0	86.7	56 - 143	35310	1.83	20	
2-Chlorotoluene	21510	1000	20000	0	108	79 - 122	23200	7.53	20	
2-Hexanone	42600	2000	40000	0	106	57 - 139	44540	4.45	20	
4-Chlorotoluene	21570	1000	20000	0	108	78 - 122	23380	8.02	20	
4-Isopropyltoluene	22950	1000	20000	0	115	77 - 127	24850	7.94	20	
4-Methyl-2-pentanone	39110	2000	40000	0	97.8	67 - 130	41390	5.67	20	
Acetone	34010	2000	40000	0	85.0	39 - 160	35300	3.7	20	
Benzene	21530	1000	20000	0	108	79 - 120	22550	4.59	20	
Bromobenzene	21080	1000	20000	0	105	80 - 120	22260	5.42	20	
Bromochloromethane	20340	1000	20000	0	102	78 - 123	20410	0.344	20	
Bromodichloromethane	17790	1000	20000	0	89.0	79 - 125	18370	3.19	20	
Bromoform	16060	1000	20000	0	80.3	66 - 130	16070	0.11	20	
Bromomethane	24780	1000	20000	0	124	53 - 141	25370	2.38	20	

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R396258 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111159-01MSD** Units: **ug/L** Analysis Date: **22-Nov-2021 17:04**
Client ID: Run ID: **VOA9_396258** SeqNo: **6388380** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37180	2000	40000	0	93.0	64 - 133	39040	4.87	20	
Carbon tetrachloride	19170	1000	20000	0	95.8	72 - 136	20060	4.56	20	
Chlorobenzene	21310	1000	20000	0	107	82 - 118	21890	2.67	20	
Chloroethane	19190	1000	20000	0	96.0	60 - 138	21270	10.2	20	
Chloroform	19780	1000	20000	0	98.9	79 - 124	20400	3.09	20	
Chloromethane	22000	1000	20000	0	110	50 - 139	22910	4.03	20	
cis-1,2-Dichloroethene	19800	1000	20000	0	99.0	78 - 123	20360	2.76	20	
cis-1,3-Dichloropropene	17480	1000	20000	0	87.4	75 - 124	17750	1.52	20	
Dibromochloromethane	17440	1000	20000	0	87.2	74 - 126	17970	3.01	20	
Dibromomethane	20590	1000	20000	0	103	79 - 123	20420	0.825	20	
Dichlorodifluoromethane	19890	1000	20000	0	99.4	32 - 152	21210	6.42	20	
Ethylbenzene	22090	1000	20000	0	110	79 - 121	22900	3.61	20	
Hexachlorobutadiene	23400	1000	20000	0	117	66 - 134	24630	5.13	20	
Isopropylbenzene	22870	1000	20000	0	114	72 - 131	24080	5.15	20	
m,p-Xylene	45320	2000	40000	0	113	80 - 121	47510	4.72	20	
Methylene chloride	18020	2000	20000	0	90.1	74 - 124	18580	3.09	20	
Naphthalene	19480	1000	20000	0	97.4	61 - 128	20740	6.23	20	
n-Butylbenzene	22930	1000	20000	0	115	75 - 128	24740	7.57	20	
n-Propylbenzene	22870	1000	20000	0	114	76 - 126	24780	8.04	20	
o-Xylene	21990	1000	20000	0	110	78 - 122	22740	3.34	20	
sec-Butylbenzene	23030	1000	20000	0	115	77 - 126	24930	7.92	20	
Styrene	22390	1000	20000	0	112	78 - 123	23480	4.74	20	
tert-Butylbenzene	22700	1000	20000	0	114	78 - 124	24110	6.02	20	
Tetrachloroethene	22780	1000	20000	1073	109	74 - 129	23880	4.72	20	
Toluene	21570	1000	20000	0	108	80 - 121	22690	5.04	20	
trans-1,2-Dichloroethene	19530	1000	20000	0	97.6	75 - 124	20320	3.96	20	
trans-1,3-Dichloropropene	16320	1000	20000	0	81.6	73 - 127	16580	1.53	20	
Trichloroethene	211200	1000	20000	179500	159	79 - 123	220200	4.15	20	SEO
Trichlorofluoromethane	20860	1000	20000	0	104	65 - 141	21720	4.05	20	
Vinyl chloride	20860	1000	20000	0	104	58 - 137	21980	5.22	20	
Surr: 1,2-Dichloroethane-d4	*44760*	*1000*	*50000*	*0*	*89.5*	*81 - 118*	*44670*	*0.22*	*20*	
Surr: 4-Bromofluorobenzene	*51310*	*1000*	*50000*	*0*	*103*	*85 - 114*	*51290*	*0.0361*	*20*	
Surr: Dibromofluoromethane	*45800*	*1000*	*50000*	*0*	*91.6*	*80 - 119*	*44600*	*2.65*	*20*	
Surr: Toluene-d8	*50890*	*1000*	*50000*	*0*	*102*	*89 - 112*	*51100*	*0.424*	*20*	

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID:	R396258 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21110552-01 HS21110552-03

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS21110552

QC BATCH REPORT

Batch ID: R395536 (0) **Instrument:** UV-2450 **Method:** HEXAVALENT CHROMIUM BY SW7196A

MBLK Sample ID: **MBLK-R395536** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: Run ID: **UV-2450_395536** SeqNo: **6369012** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.0100	0.0100								U

LCS Sample ID: **LCS-R395536** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: Run ID: **UV-2450_395536** SeqNo: **6369011** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.263	0.0100	0.25	0	105	90 - 111				

MS Sample ID: **HS21110552-01MS** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: **LH18/24-SP650_110921** Run ID: **UV-2450_395536** SeqNo: **6369006** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.256	0.0100	0.25	0	102	90 - 111				

MSD Sample ID: **HS21110552-01MSD** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: **LH18/24-SP650_110921** Run ID: **UV-2450_395536** SeqNo: **6369005** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.256	0.0100	0.25	0	102	90 - 111	0.256	0	20	

The following samples were analyzed in this batch: HS21110552-01

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: **HS21110552**

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

ALS Houston, US Date: 07-Dec-21

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 07-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
Work Order: HS21110552

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21110552-01	LH18/24-SP650_110921	Login	11/10/2021 1:01:33 PM	JRM	MET051
HS21110552-01	LH18/24-SP650_110921	Login	11/10/2021 1:01:33 PM	JRM	EXT074
HS21110552-01	LH18/24-SP650_110921	Login	11/10/2021 1:01:33 PM	JRM	WET248
HS21110552-01	LH18/24-SP650_110921	Login	11/10/2021 1:01:33 PM	JRM	VOA102
HS21110552-02	LH18/24-SP650_110921_AIX	Login	11/10/2021 1:01:33 PM	JRM	Sub
HS21110552-03	Trip Blank	Login	11/10/2021 1:01:33 PM	JRM	VOA102

ALS Houston, US Date: 07-Dec-21

Sample Receipt Checklist

Work Order ID: HS21110552 **Date/Time Received:** **10-Nov-2021 10:55**

Client Name: Bhate Environmental **Received by:** **Pablo Marinez**

Completed By: /S/ Jared R. Makan (eSignature) 10-Nov-2021 13:16 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 10-Nov-2021 21:09 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.1°C UC/C	IR31
Cooler(s)/Kit(s):	Blue	
Date/Time sample(s) sent to storage:	11/01/2021 13:15	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd., Suite 210 Houston, TX 77099 (281) 530 – 5656 ATTN: Ragen Gigi

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job:
GROUNDWATER TREATMENT PLANT MONTHLY EFFLUENT SAMPLES

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOLATILES	SILVER, SELENIUM, LEAD, BARIUM	HEXAVALENT CHROMIUM	1, 4 - DIOXANE	PERCHLORATE						Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_110921	Water	11/09/21 / 14:00		3	X										HCL	
LH18/24-SP650_110921	Water	11/09/21 / 14:00		2			X	X							NONE	
LH18/24-SP650_110921_AIX	Water	11/09/21 / 14:00		1					X						NONE	
LH18/24-SP650_110921	Water	11/09/21 / 14:00		1		X									HNO3	
Trip Blank	Water	11/09/21		2	X										HCL	

Analyses

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/09/21	14:30	Paul [illegible]	11/10/21	10:35						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS21110552

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Monthly Effluent Sam

Blue 1.1C
IRBL [illegible]

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

01116410

ALS

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUS
Date: 11/9/21
Name: Jesus Re
Company: ALS

STODY SEAL
Time: 1430
Seal Broken By: Jm
Date: 11/10/21

TRK# 4384 9531 7318
FedEx
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

3923207 09Nov2021 GGGA 560G2/9A7E/1023

November 12, 2021

Service Request No:E2101192

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21110552

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory November 10, 2021
For your reference, these analyses have been assigned our service request number **E2101192.**

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.:**	E2101192
Project:	HS21110552	**Date Received:**	11/10/21
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

One sample was received for analysis at ALS Environmental in Houston on 11/10/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100645: 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 and DLCS recoveries are within QC limits.

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:**E2101192
Project: HS21110552

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101192-001	LH18/24-SP650_110921_AIX	11/9/2021	1400

Service Request Summary

Folder #: **E2101192**
Client Name: ALS Environmental - US
Project Name: HS21110552
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/10/21
Internal Due Date: 11/24/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110552
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101192-001	LH18/24-SP650_110921_AIX	Water	11/09/21 1400	**IV**

Service Request Summary

Folder #:	**E2101192**
Client Name:	ALS Environmental - US
Project Name:	HS21110552
Project Number:	
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA
Phone Number:	
Cell Number:	
Fax Number:	
E-mail:	ragenp.giga@alsglobal.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	11/10/21
Internal Due Date:	11/24/2021
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	Y
P.O. Number:	HS21110552
EDD:	No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	IV due 12/03

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	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.
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.

Data Qualifiers

Lab Standard

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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, 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: 17288**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21110552
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21110552-02**	**LH18/24-SP650_110921_AIX**	**Water**	**09 Nov 2021 14:00**
	Provide Level II and Level IV reports in separate pdf			24 Nov 2021

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: Lorey G Date/Time: 11-10-21 1800

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-U

Thermometer ID: 1831

Date/Time Received: 11-10-21 Initials: CG

Date/Time Logged in: 11-10-21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ● ALS Courier ○ 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?
MA		11-10-21	1806	CG	4.8	☒
						☐
	—					☐
						☐

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

10450 Stancliff Rd., Suite 210
Houston, TX 77099
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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#: 391158 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** **Prep Date/Time:** 11/11/21 09:29

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101190-001	LH18/24-SP650_110921_AIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2101191-001	LH18/24-SP140_110921	.01	6850/ClO4 DOD			Water	10mL	
3	E2101192-001	LH18/24-SP650_110921_AIX	.01	6850/ClO4 DOD			Water	10mL	
4	EQ2100645-01	MB		6850/ClO4 DOD			Liquid	10mL	
5	EQ2100645-02	LCS		6850/ClO4 DOD			Liquid	10mL	
6	EQ2100645-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101190-001 100.00µL E2101191-001 100.00µL E2101192-001 100.00µL EQ2100645-01 100.00µL EQ2100645-02 100.00µL EQ2100645-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100645-02 1.00µL EQ2100645-03 1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 11/11/21 09:29
Finished: 11/11/21 10:00
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 11/11/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ 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:**	E2101192
Project:	HS21110552	**Date Collected:**	11/ 9/21 1400
Sample Matrix:	Water	**Date Received:**	11/10/21
Sample Name:	LH18/24-SP650_110921_AIX	**Units:**	µg/L
Lab Code:	E2101192-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	11/11/21	11/11/21 13:12	391158	745820	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101192
Project:	HS21110552	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100645-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

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	11/11/21	11/11/21 11:10	391158	745820	

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: HS21110552
Sample Matrix: Water

Service Request: E2101192
Date Analyzed: 11/11/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method:

Units: µg/L
Basis: NA

Extraction Lot: 391158

	Lab Control Sample EQ2100645-02			Duplicate Lab Control Sample EQ2100645-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.105	0.100	105	0.102	0.100	102	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:**	E2101192
Project:	HS21110552	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100645-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.105**		0.100	0.0500	0.0250	1	11/11/21	11/11/21 11:18	391158	745820	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101192
Project:	HS21110552	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100645-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.102**		0.100	0.0500	0.0250	1	11/11/21	11/11/21 11:26	391158	745820	

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

November 29, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21110553**

Laboratory Results for: **Longhorn GW Treatment Plant Monthly Influent**

Dear Marcia Olive,

ALS Environmental received 1 sample(s) on Nov 10, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
Work Order: HS21110553

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110553-01	LH18/24-SP140_110921	Water		09-Nov-2021 14:00	10-Nov-2021 10:35	☐

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
Work Order: HS21110553

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

Metals by Method SW6020A

Batch ID: 172923

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW7196

Batch ID: R395536

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 29-Nov-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Monthly Influent	WorkOrder:HS21110553
Sample ID:	LH18/24-SP140_110921	Lab ID:HS21110553-01
Collection Date:	09-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 24-Nov-2021		Analyst: JHD
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	24-Nov-2021 19:40
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	24-Nov-2021 19:40
HEXAVALENT CHROMIUM BY SW7196A		**Method:SW7196**						Analyst: AP
Chromium, Hexavalent	0.0100	U	0.00600	0.0100	0.0100	mg/L	1	10-Nov-2021 13:45
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	12-Nov-2021 10:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
WorkOrder: HS21110553

Batch ID: 172923 **Start Date:** 24 Nov 2021 12:30 **End Date:** 24 Nov 2021 16:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21110553-01		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
WorkOrder: HS21110553

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 172923 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS21110553-01	LH18/24-SP140_110921	09 Nov 2021 14:00		24 Nov 2021 16:30	24 Nov 2021 19:40	1
Batch ID: R395499 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21110553-01	LH18/24-SP140_110921	09 Nov 2021 14:00			12 Nov 2021 10:11	1
Batch ID: R395536 (0)	**Test Name :** HEXAVALENT CHROMIUM BY SW7196A				**Matrix:** Water	
HS21110553-01	LH18/24-SP140_110921	09 Nov 2021 14:00			10 Nov 2021 13:45	1

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
WorkOrder: HS21110553

QC BATCH REPORT

Batch ID: 172923 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-172923** Units: **mg/L** Analysis Date: **24-Nov-2021 19:25**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394676** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U

LCS Sample ID: **LCS-172923** Units: **mg/L** Analysis Date: **24-Nov-2021 19:27**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394677** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.05317	0.00500	0.05	0	106	80 - 120				
Silver	0.05054	0.00500	0.05	0	101	85 - 116				

MS Sample ID: **HS21110552-01MS** Units: **mg/L** Analysis Date: **24-Nov-2021 19:33**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394680** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.04655	0.00500	0.05	0.000476	92.2	80 - 120				
Silver	0.04994	0.00500	0.05	0.000001	99.9	85 - 116				

MSD Sample ID: **HS21110552-01MSD** Units: **mg/L** Analysis Date: **24-Nov-2021 19:35**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394681** PrepDate: **24-Nov-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.04672	0.00500	0.05	0.000476	92.5	80 - 120	0.04655	0.358	20	
Silver	0.05143	0.00500	0.05	0.000001	103	85 - 116	0.04994	2.94	20	

SD Sample ID: **HS21110552-01SD** Units: **mg/L** Analysis Date: **24-Nov-2021 19:31**
Client ID: Run ID: **ICPMS06_396498** SeqNo: **6394679** PrepDate: **24-Nov-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Selenium	0.0125	0.0250					0.000476	0	10	U
Silver	0.00250	0.0250					0.000001	0	10	U

The following samples were analyzed in this batch: HS21110553-01

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
WorkOrder: HS21110553

QC BATCH REPORT

Batch ID: R395536 (0) **Instrument: UV-2450** **Method: HEXAVALENT CHROMIUM BY SW7196A**

MBLK Sample ID: **MBLK-R395536** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: Run ID: **UV-2450_395536** SeqNo: **6369012** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.0100	0.0100								U

LCS Sample ID: **LCS-R395536** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: Run ID: **UV-2450_395536** SeqNo: **6369011** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.263	0.0100	0.25	0	105	90 - 111				

MS Sample ID: **HS21110552-01MS** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: Run ID: **UV-2450_395536** SeqNo: **6369006** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.256	0.0100	0.25	0	102	90 - 111				

MSD Sample ID: **HS21110552-01MSD** Units: **mg/L** Analysis Date: **10-Nov-2021 13:45**
Client ID: Run ID: **UV-2450_395536** SeqNo: **6369005** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.256	0.0100	0.25	0	102	90 - 111	0.256	0	20	

The following samples were analyzed in this batch: HS21110553-01

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
WorkOrder: **HS21110553**

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
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 29-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent
Work Order: HS21110553

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21110553-01	LH18/24-SP140_110921	Login	11/10/2021 1:04:58 PM	JRM	MET051
HS21110553-01	LH18/24-SP140_110921	Login	11/10/2021 1:04:58 PM	JRM	Sub
HS21110553-01	LH18/24-SP140_110921	Login	11/10/2021 1:04:58 PM	JRM	WET248

ALS Houston, US Date: 29-Nov-21

Sample Receipt Checklist

Work Order ID: HS21110553 **Date/Time Received:** **10-Nov-2021 10:35**

Client Name: Bhate Environmental **Received by:** **Pablo Marinez**

Completed By: /S/ Jared R. Makan (eSignature) 10-Nov-2021 13:18 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 10-Nov-2021 21:07 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.1°C UC/C	IR31
Cooler(s)/Kit(s):	Blue	
Date/Time sample(s) sent to storage:	11/10/2021 13:20	

	Yes	No	
Water - VOA vials have zero headspace?	☐	☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd., Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job:
GROUNDWATER TREATMENT PLANT MONTHLY INFLUENT SAMPLES

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	SILVER & SELENIUM	HEXAVALENT CHROMIUM	PERCHLORATE								Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP140_110921	Water	11/09/21 / 14:00		1	X										HNO3	
LH18/24-SP140_110921	Water	11/09/21 / 14:00		2		X	X								NONE	

Analyses

Additional Remarks: **STANDARD TURN AROUND TIME**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/09/21	14:30	Paul [illegible]	11-11-21	10:35						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

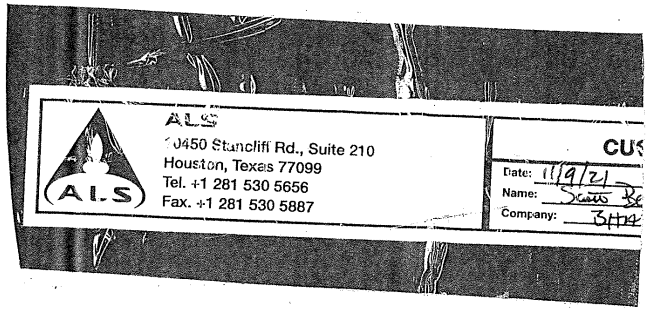
Remarks:

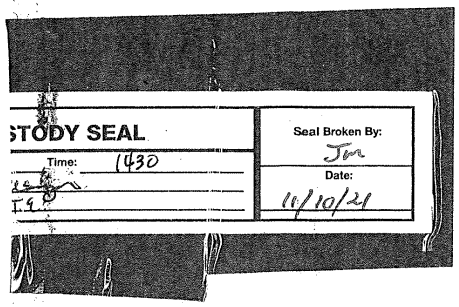
HS21110553

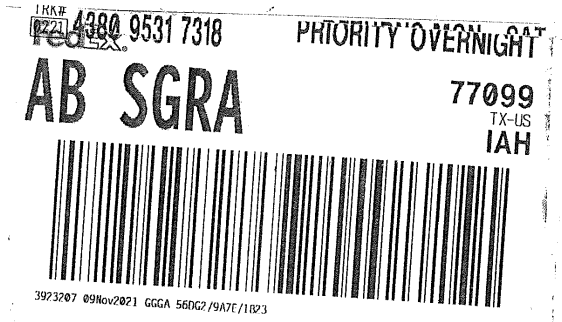
Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Monthly Influent

Blue 1.1C
LRS1 CPL

(Word) S:\1-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
ALS
CUS
Date: 11/9/21
Name:
Company:


STODY SEAL
Time: 1430
Seal Broken By:
Jm
Date:
11/10/21


TRK# 4380 9531 7318
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH
3923207 09Nov2021 GGGA 56DG2/9A7E/1023

November 12, 2021

Service Request No:E2101191

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21110553

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory November 10, 2021
For your reference, these analyses have been assigned our service request number **E2101191.**

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.:**	E2101191
Project:	HS21110553	**Date Received:**	11/10/21
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

One sample was received for analysis at ALS Environmental in Houston on 11/10/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100645: 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 and DLCS recoveries are within QC limits.

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:**E2101191
Project: HS21110553

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101191-001	LH18/24-SP140_110921	11/9/2021	1400

Service Request Summary

Folder #: **E2101191**
Client Name: ALS Environmental - US
Project Name: HS21110553
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/10/21
Internal Due Date: 11/24/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110553
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101191-001	LH18/24-SP140_110921	Water	11/09/21 1400	**IV**

Service Request Summary

Folder #: **E2101191**
Client Name: ALS Environmental - US
Project Name: HS21110553
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/10/21
Internal Due Date: 11/24/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110553
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	IV due 12/03

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	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.
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.

Data Qualifiers

Lab Standard

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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 17289**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21110553
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21110553-01**	**LH18/24-SP140_110921**	**Water**	**09 Nov 2021 14:00**
	6850-Perch. DOD Level II & Level IV in separate pdf			24 Nov 2021

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: LOREY G. Date/Time: 11-10-21 1800

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist: CK

Client/Project: ALS-U

Thermometer ID: 1031

Date/Time Received: 11-10-21 Initials: CK

Date/Time Logged in: 11-10-21 Initials: CK

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ● ALS Courier ○ 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		11-10-21	1800	CK	4.8	☒
						☐
						☐
						☐

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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Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 391158 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** **Prep Date/Time:** 11/11/21 09:29

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101190-001	LH18/24-SP650_110921_AIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2101191-001	LH18/24-SP140_110921	.01	6850/ClO4 DOD			Water	10mL	
3	E2101192-001	LH18/24-SP650_110921_AIX	.01	6850/ClO4 DOD			Water	10mL	
4	EQ2100645-01	MB		6850/ClO4 DOD			Liquid	10mL	
5	EQ2100645-02	LCS		6850/ClO4 DOD			Liquid	10mL	
6	EQ2100645-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101190-001 100.00µL E2101191-001 100.00µL E2101192-001 100.00µL EQ2100645-01 100.00µL EQ2100645-02 100.00µL EQ2100645-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100645-02 1.00µL EQ2100645-03 1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 11/11/21 09:29
Finished: 11/11/21 10:00
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 11/11/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101191
Project:	HS21110553	**Date Collected:**	11/ 9/21 1400
Sample Matrix:	Water	**Date Received:**	11/10/21
Sample Name:	LH18/24-SP140_110921	**Units:**	µg/L
Lab Code:	E2101191-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**8400**		40.0	20.0	10.0	400	11/11/21	11/11/21 15:12	391158	745820	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101191
Project:	HS21110553	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100645-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

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	11/11/21	11/11/21 11:10	391158	745820	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21110553
Sample Matrix: Water

Service Request: E2101191
Date Analyzed: 11/11/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method:

Units: µg/L
Basis: NA

Extraction Lot: 391158

	Lab Control Sample EQ2100645-02			Duplicate Lab Control Sample EQ2100645-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.105	0.100	105	0.102	0.100	102	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:**	E2101191
Project:	HS21110553	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100645-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.105**		0.100	0.0500	0.0250	1	11/11/21	11/11/21 11:18	391158	745820	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101191
Project:	HS21110553	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100645-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.102**		0.100	0.0500	0.0250	1	11/11/21	11/11/21 11:26	391158	745820	

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November 12, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21110557**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Nov 10, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21110557

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110557-01	LH18/24-SP650_110921	Water		09-Nov-2021 14:00	10-Nov-2021 10:35	☐
HS21110557-02	LH18/24-SP650_110921_AIX	Water		09-Nov-2021 14:00	10-Nov-2021 10:35	☐

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21110557

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

WetChemistry by Method E365.3

Batch ID: R395460

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E350.3

Batch ID: R395430

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E415.1

Batch ID: R395427

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 12-Nov-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21110557
Sample ID:	LH18/24-SP650_110921	Lab ID:HS21110557-01
Collection Date:	09-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**120**	a	**1.0**	**2.0**	**2.0**	**mg/L**	10	11-Nov-2021 12:00
ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**8.49**	a	**0.100**	**0.250**	**0.250**	**mg/L**	10	10-Nov-2021 16:11
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**7.95**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	11-Nov-2021 12:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 12-Nov-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21110557
Sample ID:	LH18/24-SP650_110921_AIX	Lab ID:HS21110557-02
Collection Date:	09-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	12-Nov-2021 10:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110557

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R395427 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Water	
HS21110557-01	LH18/24-SP650_110921	09 Nov 2021 14:00			11 Nov 2021 12:15	1
Batch ID: R395430 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS21110557-01	LH18/24-SP650_110921	09 Nov 2021 14:00			11 Nov 2021 12:00	10
Batch ID: R395460 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978				**Matrix:** Water	
HS21110557-01	LH18/24-SP650_110921	09 Nov 2021 14:00			10 Nov 2021 16:11	10
Batch ID: R395499 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21110557-02	LH18/24-SP650_110921_AIX	09 Nov 2021 14:00			12 Nov 2021 10:11	1

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110557

QC BATCH REPORT

Batch ID: R395427 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON BY E415.1

MBLK Sample ID: **MBLK-11102021** Units: **mg/L** Analysis Date: **11-Nov-2021 07:38**
Client ID: Run ID: **TOC_04_395427** SeqNo: **6366261** 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-11102021** Units: **mg/L** Analysis Date: **11-Nov-2021 07:54**
Client ID: Run ID: **TOC_04_395427** SeqNo: **6366262** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.7	1.00	10	0	107	85 - 115				

LCSD Sample ID: **LCSD-11102021** Units: **mg/L** Analysis Date: **11-Nov-2021 08:11**
Client ID: Run ID: **TOC_04_395427** SeqNo: **6366263** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.78	1.00	10	0	108	85 - 115	10.7	0.745	20	

MS Sample ID: **HS21110397-01MS** Units: **mg/L** Analysis Date: **11-Nov-2021 08:58**
Client ID: Run ID: **TOC_04_395427** SeqNo: **6366265** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	12.72	1.00	10	1.368	114	80 - 120				

The following samples were analyzed in this batch: HS21110557-01

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110557

QC BATCH REPORT

Batch ID: R395430 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-R395430** Units: **mg/L** Analysis Date: **11-Nov-2021 12:00**
Client ID: Run ID: **WetChem_HS_395430** SeqNo: **6366505** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-R395430** Units: **mg/L** Analysis Date: **11-Nov-2021 12:00**
Client ID: Run ID: **WetChem_HS_395430** SeqNo: **6366504** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.003	0.20	10	0	90.0	80 - 120				

MS Sample ID: **HS21110484-01MS** Units: **mg/L** Analysis Date: **11-Nov-2021 12:00**
Client ID: Run ID: **WetChem_HS_395430** SeqNo: **6366510** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	11.61	0.20	10	0.183	114	80 - 120				

MSD Sample ID: **HS21110484-01MSD** Units: **mg/L** Analysis Date: **11-Nov-2021 12:00**
Client ID: Run ID: **WetChem_HS_395430** SeqNo: **6366509** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	11.63	0.20	10	0.183	114	80 - 120	11.61	0.189	20	

The following samples were analyzed in this batch: HS21110557-01

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21110557

QC BATCH REPORT

Batch ID: R395460 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978

MBLK Sample ID: **MBLK-R395460** Units: **mg/L** Analysis Date: **10-Nov-2021 16:11**
Client ID: Run ID: **UV-2450_395460** SeqNo: **6367098** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-R395460** Units: **mg/L** Analysis Date: **10-Nov-2021 16:11**
Client ID: Run ID: **UV-2450_395460** SeqNo: **6367097** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.241	0.0250	0.25	0	96.4	85 - 115				

LCSD Sample ID: **LCSD-R395460** Units: **mg/L** Analysis Date: **10-Nov-2021 16:11**
Client ID: Run ID: **UV-2450_395460** SeqNo: **6367096** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.24	0.0250	0.25	0	96.0	85 - 115	0.241	0.416	20	

The following samples were analyzed in this batch: HS21110557-01

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS21110557**

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
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 12-Nov-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21110557

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21110557-01	LH18/24-SP650_110921	Login	11/10/2021 1:24:05 PM	JRM	WET218
HS21110557-01	LH18/24-SP650_110921	Login	11/10/2021 1:24:05 PM	JRM	WET218
HS21110557-01	LH18/24-SP650_110921	Login	11/10/2021 1:24:05 PM	JRM	WET162
HS21110557-02	LH18/24-SP650_110921_AIX	Login	11/10/2021 1:24:05 PM	JRM	Sub

ALS Houston, US Date: 12-Nov-21

Sample Receipt Checklist

Work Order ID: HS21110557 **Date/Time Received:** **10-Nov-2021 10:35**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: /S/ Jared R. Makan (eSignature) 10-Nov-2021 14:10 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 10-Nov-2021 21:03 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.1°C UC/C	IR31
Cooler(s)/Kit(s):	Blue	
Date/Time sample(s) sent to storage:	11/10/2021 14:10	

	Yes	No	
Water - VOA vials have zero headspace?	☐	☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.016.0001

Job: GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE							Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_110921	Water	11/09/21 / 14:00		3	X	X									H2SO4	
LH18/24-SP650_110921	Water	11/09/21 / 14:00		1			X								NONE	
LH18/24–SP650_110921_AIX	Water	11/09/21 / 14:00		1				X							NONE	

Analyses

Additional Remarks: 24 Hour TAT on Perchlorate. Standard TAT on other parameters

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/09/21	14:30	Paul [illegible]	11/10/21	1035						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS21110557

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

Blue Ice
LR31 LPO

(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

CU

Date: 11/9/21
Name: Scott B
Company: BHA

STODY SEAL

Time: 1430

Seal Broken By: Jm
Date: 11/10/21

TRK# 0221 4380 9531 7318

FedEx

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

3923207 09Nov2021 GGGA 56DG2/9A7E/1B23

November 12, 2021

Service Request No:E2101190

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21110557

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory November 10, 2021
For your reference, these analyses have been assigned our service request number **E2101190.**

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.:**	E2101190
Project:	HS21110557	**Date Received:**	11/10/21
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

One sample was received for analysis at ALS Environmental in Houston on 11/10/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100645: 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 and DLCS recoveries are within QC limits.

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:**E2101190
Project: HS21110557

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101190-001	LH18/24-SP650_110921_AIX	11/9/2021	1400

Service Request Summary

Folder #: **E2101190**
Client Name: ALS Environmental - US
Project Name: HS21110557
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/10/21
Internal Due Date: 11/11/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110557
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101190-001	LH18/24-SP650_110921_AIX	Water	11/09/21 1400	**IV**

Service Request Summary

Folder #: **E2101190**
Client Name: ALS Environmental - US
Project Name: HS21110557
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/10/21
Internal Due Date: 11/11/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21110557
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	IV due 12/03

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	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.
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.

Data Qualifiers

Lab Standard

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
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 17286**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21110557
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21110557-02**	**LH18/24-SP650_110921_AIX**	**Water**	**09 Nov 2021 14:00**
	6850-Perch. DOD Level II & Level IV in separate pdf			10 Nov 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. MULCAHY Date/Time: 11/10/21 13:30

Received By: COMET G Date/Time: 11/10/21 13:36

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist: CK

Client/Project: ALS-U

Thermometer ID: 1831

Date/Time Received: 11-10-21 Initials: CK

Date/Time Logged in: 11-10-21 Initials: CK

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		11-10-21	1330	CK	4.8	☑
						☐
						☐
						☐

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

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#: 391158 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** **Prep Date/Time:** 11/11/21 09:29

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101190-001	LH18/24-SP650_110921_AIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2101191-001	LH18/24-SP140_110921	.01	6850/ClO4 DOD			Water	10mL	
3	E2101192-001	LH18/24-SP650_110921_AIX	.01	6850/ClO4 DOD			Water	10mL	
4	EQ2100645-01	MB		6850/ClO4 DOD			Liquid	10mL	
5	EQ2100645-02	LCS		6850/ClO4 DOD			Liquid	10mL	
6	EQ2100645-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101190-001 100.00µL E2101191-001 100.00µL E2101192-001 100.00µL EQ2100645-01 100.00µL EQ2100645-02 100.00µL EQ2100645-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100645-02 1.00µL EQ2100645-03 1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 11/11/21 09:29
Finished: 11/11/21 10:00
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 11/11/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ 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:**	E2101190
Project:	HS21110557	**Date Collected:**	11/ 9/21 1400
Sample Matrix:	Water	**Date Received:**	11/10/21
Sample Name:	LH18/24-SP650_110921_AIX	**Units:**	µg/L
Lab Code:	E2101190-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	11/11/21	11/11/21 13:04	391158	745820	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101190
Project:	HS21110557	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100645-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

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	11/11/21	11/11/21 11:10	391158	745820	

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: HS21110557
Sample Matrix: Water

Service Request: E2101190
Date Analyzed: 11/11/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method:

Units: µg/L
Basis: NA

Extraction Lot: 391158

	Lab Control Sample EQ2100645-02			Duplicate Lab Control Sample EQ2100645-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.105	0.100	105	0.102	0.100	102	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:**	E2101190
Project:	HS21110557	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100645-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.105**		0.100	0.0500	0.0250	1	11/11/21	11/11/21 11:18	391158	745820	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101190
Project:	HS21110557	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100645-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.102**		0.100	0.0500	0.0250	1	11/11/21	11/11/21 11:26	391158	745820	

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 03, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21111479**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Nov 24, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21111479

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21111479-01	LH18/24-SP650_112321	Water		23-Nov-2021 14:00	24-Nov-2021 10:15	☐
HS21111479-02	LH18/24-SP650_112321_AIX	Water		23-Nov-2021 14:00	24-Nov-2021 10:15	☐

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21111479

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

WetChemistry by Method E415.1

Batch ID: R396914

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E350.3

Batch ID: R396842

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E365.3

Batch ID: R396568

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US

Date: 03-Dec-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21111479
Sample ID:	LH18/24-SP650_112321	Lab ID:HS21111479-01
Collection Date:	23-Nov-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**110**	a	**1.0**	**2.0**	**2.0**	**mg/L**	10	02-Dec-2021 15:00
ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**8.02**	a	**0.100**	**0.250**	**0.250**	**mg/L**	10	24-Nov-2021 17:37
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**7.12**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	02-Dec-2021 21:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 03-Dec-21

ANALYTICAL REPORT

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Sample ID: LH18/24-SP650_112321_AIX
Collection Date: 23-Nov-2021 14:00

WorkOrder:HS21111479
Lab ID:HS21111479-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	30-Nov-2021 19:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21111479

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R396568 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978				**Matrix:** Water	
HS21111479-01	LH18/24-SP650_112321	23 Nov 2021 14:00			24 Nov 2021 17:37	10
Batch ID: R396658 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21111479-02	LH18/24-SP650_112321_AIX	23 Nov 2021 14:00			30 Nov 2021 19:15	1
Batch ID: R396842 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS21111479-01	LH18/24-SP650_112321	23 Nov 2021 14:00			02 Dec 2021 15:00	10
Batch ID: R396914 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Water	
HS21111479-01	LH18/24-SP650_112321	23 Nov 2021 14:00			02 Dec 2021 21:18	1

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21111479

QC BATCH REPORT

Batch ID: R396568 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978

MBLK Sample ID: **MBLK-R396568** Units: **mg/L** Analysis Date: **24-Nov-2021 17:37**
Client ID: Run ID: **UV-2450_396568** SeqNo: **6396433** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-R396568** Units: **mg/L** Analysis Date: **24-Nov-2021 17:37**
Client ID: Run ID: **UV-2450_396568** SeqNo: **6396432** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.233	0.0250	0.25	0	93.2	85 - 115				

LCSD Sample ID: **LCSD-R396568** Units: **mg/L** Analysis Date: **24-Nov-2021 17:37**
Client ID: Run ID: **UV-2450_396568** SeqNo: **6396431** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.233	0.0250	0.25	0	93.2	85 - 115	0.233	0	20	

The following samples were analyzed in this batch: HS21111479-01

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21111479

QC BATCH REPORT

Batch ID: R396842 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-R396842** Units: **mg/L** Analysis Date: **02-Dec-2021 15:00**
Client ID: Run ID: **WetChem_HS_396842** SeqNo: **6402766** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-R396842** Units: **mg/L** Analysis Date: **02-Dec-2021 15:00**
Client ID: Run ID: **WetChem_HS_396842** SeqNo: **6402765** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.44	0.20	10	0	104	80 - 120				

MS Sample ID: **HS21111455-03MS** Units: **mg/L** Analysis Date: **02-Dec-2021 15:00**
Client ID: Run ID: **WetChem_HS_396842** SeqNo: **6402768** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.496	0.20	10	0.111	93.8	80 - 120				

MSD Sample ID: **HS21111455-03MSD** Units: **mg/L** Analysis Date: **02-Dec-2021 15:00**
Client ID: Run ID: **WetChem_HS_396842** SeqNo: **6402767** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.398	0.20	10	0.111	92.9	80 - 120	9.496	1.04	20	

The following samples were analyzed in this batch: HS21111479-01

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21111479

QC BATCH REPORT

Batch ID: R396914 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON BY E415.1

MBLK Sample ID: **MBLK-12012021** Units: **mg/L** Analysis Date: **02-Dec-2021 20:30**
Client ID: Run ID: **TOC_04_396914** SeqNo: **6404551** 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-12012021** Units: **mg/L** Analysis Date: **02-Dec-2021 20:46**
Client ID: Run ID: **TOC_04_396914** SeqNo: **6404552** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.42	1.00	10	0	104	85 - 115				

LCSD Sample ID: **LCSD-12012021** Units: **mg/L** Analysis Date: **02-Dec-2021 21:02**
Client ID: Run ID: **TOC_04_396914** SeqNo: **6404553** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.48	1.00	10	0	105	85 - 115	10.42	0.574	20	

MS Sample ID: **HS21111479-01MS** Units: **mg/L** Analysis Date: **02-Dec-2021 21:35**
Client ID: **LH18/24-SP650_112321** Run ID: **TOC_04_396914** SeqNo: **6404555** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	17.01	1.00	10	7.123	98.9	80 - 120				

The following samples were analyzed in this batch: HS21111479-01

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS21111479**

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

ALS Houston, US Date: 03-Dec-21

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 03-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21111479

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21111479-01	LH18/24-SP650_112321	Login	11/24/2021 1:07:38 PM	PMG	WET106
HS21111479-01	LH18/24-SP650_112321	Login	11/24/2021 1:07:38 PM	PMG	WET106
HS21111479-01	LH18/24-SP650_112321	Login	11/24/2021 1:07:38 PM	PMG	WET106
HS21111479-02	LH18/24-SP650_112321_AIX	Login	11/24/2021 1:07:38 PM	PMG	Sub

ALS Houston, US Date: 03-Dec-21

Sample Receipt Checklist

Work Order ID: HS21111479 **Date/Time Received:** **24-Nov-2021 10:15**

Client Name: Bhate Environmental **Received by:** **Paul Matta**

Completed By: /S/ Paresh M. Giga (eSignature) 24-Nov-2021 13:10 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 28-Nov-2021 13:13 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:none
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.9C U/c	IR31
Cooler(s)/Kit(s):	46349	
Date/Time sample(s) sent to storage:	11/24/2021 13:15	

	Yes	No	
Water - VOA vials have zero headspace?	☐	☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01116522

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O. Number

HS21111479

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE							Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_112321	Water	11/23/21 / 14:00		3	X	X									H2SO4	
LH18/24-SP650_112321	Water	11/23/21 / 14:00		1			X								NONE	
LH18/24–SP650_112321_AIX	Water	11/23/21 / 14:00		1				X							NONE	

Analyses

Additional Remarks: **24 Hour TAT on Perchlorate. Standard TAT on other parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/23/21	14:30	[illegible]	11/24/21	10:15						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
[illegible]	11/24/21	10:15					1.9		

Remarks: IR#31 U/C 46349 DR#31 CFO-0

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

01116523

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46349

CUSTODY SEAL

Date: 11/23/21 Time: 1430
Name: Scott Beesinger
Company: Bhatt

Seal 5135 11.24
GM
11/24/21

46349 NOV 2 4 2021

Must Deliver Next Business Day
Time and Tempature Sensitive!

46349

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIROMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 25APR18
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3111
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-50-RJ

RMA:

FedEx Express

TRK# 4380 9528 5135

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

3923207 23Nov2021 GGGA 56DG2/9A7E/1B23

November 30, 2021

Service Request No:E2101238

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21111479

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory November 24, 2021
For your reference, these analyses have been assigned our service request number **E2101238.**

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.:**	E2101238
Project:	HS21111479	**Date Received:**	11/24/21
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

One sample was received for analysis at ALS Environmental in Houston on 11/24/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100667: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

DOD accreditation is held for the method, water, analyte.

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:**E2101238
Project: HS21111479

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101238-001	LH18/24-SP650_112321_AIX	11/23/2021	1400

Service Request Summary

Folder #: **E2101238**
Client Name: ALS Environmental - US
Project Name: HS21111479
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/24/21
Internal Due Date: 11/30/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21111479
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101238-001	LH18/24-SP650_112321_AIX	Water	11/23/21 1400	**IV**

Service Request Summary

Folder #:	**E2101238**	Project Chemist:	Corey Grandits
Client Name:	ALS Environmental - US	Originating Lab:	HOUSTON
Project Name:	HS21111479	Logged By:	CGRANDITS
Project Number:		Date Received:	11/24/21
		Internal Due Date:	11/30/2021
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA	QAP:	LAB QAP
		Qualifier Set:	Lab Standard
		Formset:	Lab Standard
		Merged?:	Y
Phone Number:		Report to MDL?:	Y
Cell Number:		P.O. Number:	HS21111479
Fax Number:		EDD:	No EDD Specified
E-mail:	ragenp.giga@alsglobal.com		

1 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	IV due 12/17

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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

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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: 17463**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

RUSH

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21111479
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21111479-02**	**LH18/24-SP650_112321_AIX**	**Water**	**23 Nov 2021 14:00**
	6850-Perch. DOD Level II & Level IV in separate pdf			29 Nov 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
24Hr.TAT

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 11/24/21 1319

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist: LG

Client/Project: ALS-H

Thermometer ID: 1121

Date/Time Received: 11/24/21 Initials: LG

Date/Time Logged in: 11/24/21 Initials: LG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ ALS Courier ○ 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		11/24/21	1319	LG	3.0	☒
						☐
						☐
						☐

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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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
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 391930 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 11/29/21 09:32

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101237-001	1121082-1	.01	6850/ClO4			Water	10mL	
2	E2101238-001	LH18/24-SP650_112321_AIX	.01	6850/ClO4 DOD			Water	10mL	
3	EQ2100667-01	MB		6850/ClO4 DOD			Liquid	10mL	
4	EQ2100667-02	LCS		6850/ClO4 DOD			Liquid	10mL	
5	EQ2100667-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
6	K2113205-002	AUS-A11P-W01-GW-11092021	.03	6850/ClO4			Ground Water	10mL	
7	K2113205-006	AUS-A11P-W08R-GW-11092021	.03	6850/ClO4			Ground Water	10mL	
8	K2113205-007	AUS-A11P-W02-GW-11092021	.03	6850/ClO4			Ground Water	10mL	
9	K2113560-001	AUS-0A12-W23R-GW-11172021	.03	6850/ClO4			Ground Water	10mL	
10	K2113560-002	AUS-0A12-W08-GW-11172021	.03	6850/ClO4			Ground Water	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101237-001	100.00µL	E2101238-001	100.00µL	EQ2100667-01	100.00µL	EQ2100667-01	100.00µL	EQ2100667-02	100.00µL	EQ2100667-02	100.00µL
EQ2100667-03	100.00µL	EQ2100667-03	100.00µL	K2113205-002	100.00µL	K2113205-006	100.00µL	K2113205-007	100.00µL	K2113560-001	100.00µL
K2113560-002	100.00µL										

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100667-02	1.00µL	EQ2100667-02	1.00µL	EQ2100667-03	1.00µL	EQ2100667-03	1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 11/29/21 09:32
Finished: 11/29/21 10:20
By: GRIVERA
Comments

Comments: _____

Reviewed By: gr Date: 11/29/21

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:**	E2101238
Project:	HS21111479	**Date Collected:**	11/23/21 1400
Sample Matrix:	Water	**Date Received:**	11/24/21
Sample Name:	LH18/24-SP650_112321_AIX	**Units:**	µg/L
Lab Code:	E2101238-001	**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	11/29/21	11/29/21 14:40	391930	747582	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101238
Project:	HS21111479	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100667-01	**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	11/29/21	11/29/21 14:00	391930	747582	

Accuracy & Precision

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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	**Service Request:**	E2101238
Project:	HS21111479	**Date Analyzed:**	11/29/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	391930

	Lab Control Sample EQ2100667-02			Duplicate Lab Control Sample EQ2100667-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0991	0.100	99	0.109	0.100	109	84 - 119	10	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:**	E2101238
Project:	HS21111479	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100667-02	**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	**0.0991**	J	0.100	0.0500	0.0250	1	11/29/21	11/29/21 16:07	391930	747582	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101238
Project:	HS21111479	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100667-03	**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	**0.109**		0.100	0.0500	0.0250	1	11/29/21	11/29/21 14:16	391930	747582	

December 08, 2021

Service Request No:E2101253

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Suite 129
Lakewood, CO 80228

Laboratory Results for: GW Treatment Plant Special Samples

Dear Marcia,

Enclosed are the results of the sample(s) submitted to our laboratory December 04, 2021
For your reference, these analyses have been assigned our service request number **E2101253.**

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
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www.alsglobal.com

ALS Environmental

Client:	Bhate	**Service Request No.:**	E2101253
Project:	GW Perch	**Date Received:**	12/04/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 12/04/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100677: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

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: Bhate Environmental Associates, Inc. **Service Request:**E2101253
Project: GW Treatment Plant Special Samples/NWO1312.0150.016.0001

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101253-001	LH18/24-SP650_120321_AIX	12/3/2021	1100

Service Request Summary

Folder #: **E2101253**
Client Name: Bhate Environmental Associates, Inc.
Project Name: GW Treatment Plant Special Samples
Project Number: NWO1312.0150.016.0001

Report To: Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Lakewood, CO 80228
USA
Phone Number: 303-597-2450
Cell Number:
Fax Number:
E-mail: molive@bhate.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/04/21
Internal Due Date: 12/8/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: 2878
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101253-001	LH18/24-SP650_120321_AIX	Water	12/03/21 1100	II

Folder Comments:

Send DWELR confirmation to Middletown PM for PADEP samples.

Service Request Summary

Folder #:	**E2101253**
Client Name:	Bhate Environmental Associates, Inc.
Project Name:	GW Treatment Plant Special Samples
Project Number:	NWO1312.0150.016.0001
Report To:	Marcia Olive Bhate Environmental Associates, Inc. 445 Union Blvd Lakewood, CO 80228 USA
Phone Number:	303-597-2450
Cell Number:	
Fax Number:	
E-mail:	molive@bhate.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	12/04/21
Internal Due Date:	12/8/2021
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	Y
P.O. Number:	2878
EDD:	No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Rush

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

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Phone (713)266-1599 Fax (713)266-0130
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CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT SPECIAL SAMPLES

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	PERCHLORATE										Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_120321_AIX	WG	12/03/21 / 11:00		1	X											

Additional Remarks: **24 HR. TAT**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	12/03/21	13:30		12/4/2021	10:30						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
	ulc. 30								

Remarks: 4 6 5 11 0.3 #31 11:00

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Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
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Client: BHATB Date: DEC 0 4 2021 WO#:

Time Received: 10:30 Received by: PG BO#: 81503

Matrices: Solid/Sludge Water Oil Wipes Hydrocarbon Liquid Other

Kit ID/Cooler ID	Trip Blank ID	Cooler Temp (C) Observed/Corrected	IR #	Temp BLK Present?
46511	—	0.3 / 0.3	#31	Y N
		/		Y N
		/		Y N
		/		Y N
		/		Y N

Delivery Method: FedEx UPS Greyhound ALS Client Other

Date/Time of Unpacking: DEC 0 4 2021 10:35 Unpacked by: SM

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
Chain of Custody present?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of Custody – Sampler's name present?	Yes	No	
Chain of Custody agrees with sample labels?	Yes	No	
Samples in proper container/bottle?	Yes	No	
VOA/TX1005/1006 Solids in hermetically Sealed Vials:	Yes	No	No VOA/TX1005/1006 Solid
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	
Water - VOA vials have zero headspace?	Yes	No	N/A No VOA submitted
Non-VOA waters preserved with HCl, H2SO4, HNO3 are pH <2?			Yes No N/A
Waters preserved with NaOH/Ascorbic acid are pH>12?	Yes	No	N/A
pH adjusted?	Yes*	No	N/A *See Preservation Logbook

pH adjusted by: _____ **pH Paper Lot:** _____

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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

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Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 392351 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/7/21 10:21

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101246-001	2111473-01 (MW-14)	.01	6850/ClO4 DOD			Water	10mL	
2	E2101253-001	LH18/24-SP650_120321_AIX	.01	6850/ClO4 DOD			Water	10mL	
3	EQ2100677-01	MB		6850/ClO4 DOD			Liquid	10mL	
4	EQ2100677-02	LCS		6850/ClO4 DOD			Liquid	10mL	
5	EQ2100677-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101246-001 100.00µL E2101253-001 100.00µL EQ2100677-01 100.00µL EQ2100677-02 100.00µL EQ2100677-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100677-02 1.00µL EQ2100677-03 1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/7/21 10:21
Finished: 12/7/21 11:00
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 12/7/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101253
Project:	GW Treatment Plant Special Samples/NWO1312.0150.016.0001	**Date Collected:**	12/ 3/21 1100
Sample Matrix:	Water	**Date Received:**	12/ 4/21
Sample Name:	LH18/24-SP650_120321_AIX	**Units:**	µg/L
Lab Code:	E2101253-001	**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	12/ 7/21	12/7/21 12:18	392351	748350	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101253
Project:	GW Treatment Plant Special Samples/NWO1312.0150.016.0001	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100677-01	**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	12/ 7/21	12/7/21 11:38	392351	748350	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101253
Project:	GW Treatment Plant Special Samples/NWO1312.0150.016.0001	**Date Analyzed:**	12/ 7/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	392351

	Lab Control Sample EQ2100677-02			Duplicate Lab Control Sample EQ2100677-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.119	0.100	119	0.118	0.100	118	84 - 119	<1	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:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101253
Project:	GW Treatment Plant Special Samples/NWO1312.0150.016.0001	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100677-02	**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	**0.119**		0.100	0.0500	0.0250	1	12/ 7/21	12/7/21 11:46	392351	748350	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101253
Project:	GW Treatment Plant Special Samples/NWO1312.0150.016.0001	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100677-03	**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	**0.118**		0.100	0.0500	0.0250	1	12/ 7/21	12/7/21 12:46	392351	748350	

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December 20, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120849**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Dec 15, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21120849

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120849-01	LH18/24-SP650_121421	Water		14-Dec-2021 14:00	15-Dec-2021 10:40	☐
HS21120849-02	LH18/24-SP650_121421_AIX	Water		14-Dec-2021 14:00	15-Dec-2021 10:40	☐

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21120849

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

WetChemistry by Method E350.3

Batch ID: R397803

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E365.3

Batch ID: R397745

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E415.1

Batch ID: R397739

Sample ID: HS21120103-05MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: Longhorn GW Treatment Plant Weekly Samples

WorkOrder:HS21120849

Sample ID: LH18/24-SP650_121421

Lab ID:HS21120849-01

Collection Date: 14-Dec-2021 14:00

Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**120**	a	**1.0**	**2.0**	**2.0**	**mg/L**	10	16-Dec-2021 15:30
ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**9.65**	a	**0.250**	**0.625**	**0.625**	**mg/L**	25	16-Dec-2021 11:16
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**12.6**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	15-Dec-2021 20:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Dec-21

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn GW Treatment Plant Weekly Samples	WorkOrder:HS21120849
Sample ID:	LH18/24-SP650_121421_AIX	Lab ID:HS21120849-02
Collection Date:	14-Dec-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Dec-2021 16:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21120849

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R397739 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Water	
HS21120849-01	LH18/24-SP650_121421	14 Dec 2021 14:00			15 Dec 2021 20:35	1
Batch ID: R397745 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978				**Matrix:** Water	
HS21120849-01	LH18/24-SP650_121421	14 Dec 2021 14:00			16 Dec 2021 11:16	25
Batch ID: R397803 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS21120849-01	LH18/24-SP650_121421	14 Dec 2021 14:00			16 Dec 2021 15:30	10
Batch ID: R398026 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21120849-02	LH18/24-SP650_121421_AIX	14 Dec 2021 14:00			20 Dec 2021 16:53	1

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21120849

QC BATCH REPORT

Batch ID: R397739 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON BY E415.1

MBLK Sample ID: **MBLK-12152021** Units: **mg/L** Analysis Date: **15-Dec-2021 18:58**
Client ID: Run ID: **TOC_04_397739** SeqNo: **6424180** 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-12152021** Units: **mg/L** Analysis Date: **15-Dec-2021 19:14**
Client ID: Run ID: **TOC_04_397739** SeqNo: **6424181** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.77	1.00	10	0	108	85 - 115				

LCSD Sample ID: **LCSD-12152021** Units: **mg/L** Analysis Date: **15-Dec-2021 19:30**
Client ID: Run ID: **TOC_04_397739** SeqNo: **6424182** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.8	1.00	10	0	108	85 - 115	10.77	0.278	20	

MS Sample ID: **HS21120103-05MS** Units: **mg/L** Analysis Date: **15-Dec-2021 20:03**
Client ID: Run ID: **TOC_04_397739** SeqNo: **6424184** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	33.77	1.00	10	19.31	145	80 - 120				S

The following samples were analyzed in this batch: HS21120849-01

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21120849

QC BATCH REPORT

Batch ID: R397745 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3-1978

MBLK Sample ID: **MBLK-R397745** Units: **mg/L** Analysis Date: **16-Dec-2021 11:16**
Client ID: Run ID: **UV-2450_397745** SeqNo: **6424319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-R397745** Units: **mg/L** Analysis Date: **16-Dec-2021 11:16**
Client ID: Run ID: **UV-2450_397745** SeqNo: **6424318** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.223	0.0250	0.25	0	89.2	85 - 115				

LCSD Sample ID: **LCSD-R397745** Units: **mg/L** Analysis Date: **16-Dec-2021 11:16**
Client ID: Run ID: **UV-2450_397745** SeqNo: **6425517** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.262	0.0250	0.25	0	105	85 - 115	0.223	16.1	20	

MS Sample ID: **HS21120849-01MS** Units: **mg/L** Analysis Date: **16-Dec-2021 11:16**
Client ID: **LH18/24-SP650_121421** Run ID: **UV-2450_397745** SeqNo: **6424321** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	16.45	0.625	6.25	9.65	109	80 - 120				

MSD Sample ID: **HS21120849-01MSD** Units: **mg/L** Analysis Date: **16-Dec-2021 11:16**
Client ID: **LH18/24-SP650_121421** Run ID: **UV-2450_397745** SeqNo: **6424320** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	16.48	0.625	6.25	9.65	109	80 - 120	16.45	0.152	20	

The following samples were analyzed in this batch: HS21120849-01

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS21120849

QC BATCH REPORT

Batch ID: R397803 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-R397803** Units: **mg/L** Analysis Date: **16-Dec-2021 15:30**
Client ID: Run ID: **WetChem_HS_397803** SeqNo: **6425665** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-R397803** Units: **mg/L** Analysis Date: **16-Dec-2021 15:30**
Client ID: Run ID: **WetChem_HS_397803** SeqNo: **6425664** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	11.24	0.20	10	0	112	80 - 120				

MS Sample ID: **HS21120645-01MS** Units: **mg/L** Analysis Date: **16-Dec-2021 15:30**
Client ID: Run ID: **WetChem_HS_397803** SeqNo: **6425667** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.945	0.20	10	0.101	98.4	80 - 120				

MSD Sample ID: **HS21120645-01MSD** Units: **mg/L** Analysis Date: **16-Dec-2021 15:30**
Client ID: Run ID: **WetChem_HS_397803** SeqNo: **6425666** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	9.951	0.20	10	0.101	98.5	80 - 120	9.945	0.0603	20	

The following samples were analyzed in this batch: HS21120849-01

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS21120849**

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
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 20-Dec-21

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS21120849

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21120849-01	LH18/24-SP650_121421	Login	12/15/2021 11:46:17 AM	PMG	WET319
HS21120849-01	LH18/24-SP650_121421	Login	12/15/2021 11:46:17 AM	PMG	WET319
HS21120849-01	LH18/24-SP650_121421	Login	12/15/2021 11:46:17 AM	PMG	WET319
HS21120849-02	LH18/24-SP650_121421_AIX	Login	12/15/2021 11:46:17 AM	PMG	Sub

ALS Houston, US Date: 20-Dec-21

Sample Receipt Checklist

Work Order ID: HS21120849 **Date/Time Received:** **15-Dec-2021 10:40**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Paresh M. Giga (eSignature) 15-Dec-2021 11:48 (Date/Time) **Reviewed by:** /S/ Corey Grandits (eSignature) 16-Dec-2021 16:41 (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 ☐	1 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):	1.2C U/C	IR31
Cooler(s)/Kit(s):	47525	
Date/Time sample(s) sent to storage:	12/15/2021 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) 530-5656 ATTN: Ragen Gigi

Page 1 of 1

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O. Number

HS21120849

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE							Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_121421	Water	12/14/21 / 14:00		3	X	X									H2SO4	
LH18/24-SP650_121421	Water	12/14/21 / 14:00		1			X								NONE	
LH18/24–SP650_121421_AIX	Water	12/14/21 / 14:00		1				X							NONE	

Additional Remarks: **24 Hour TAT on Perchlorate. Standard TAT on other parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	12/14/21	14:30	12/15/2021	10:40							

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
JK 1-20									

Remarks: 17525 431 CIFOO

(Word) S:\1-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

47525

CUSTODY SEAL

Date: 12/14/21 Time: 1430
Name: Scott Beesiner
Company: Bhate

Seal Broken By: SM
Date: 12/15/21

47525 DEC 15 2021

Part # 159496 - 94 MTW EXP 07/22

47525

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 23NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5666
REF: GWTP-BO 81976-RG

570C2/9875/6F4D

FedEx Express

PRIORITY OVERNIGHT

TRK# 0221 5300 5225 3790

77099
TX-US
IAH

AB SGRA

3923207 14Dec2021 GGGA 56DG3/E934/1B23

December 20, 2021

Service Request No:E2101274

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120849

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 15, 2021
For your reference, these analyses have been assigned our service request number **E2101274.**

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.:**	E2101274
Project:	HS21120849	**Date Received:**	12/15/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 12/15/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100690: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

Lowest practical dilution (5x) performed on sample E2101274-001.

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:**E2101274
Project: HS21120849

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101274-001	LH18/24-SP650_121421_AIX	12/14/2021	1400

Service Request Summary

Folder #: **E2101274**
Client Name: ALS Environmental - US
Project Name: HS21120849
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/15/21
Internal Due Date: 12/17/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120849
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101274-001	LH18/24-SP650_121421_AIX	Water	12/14/21 1400	**IV**

Service Request Summary

Folder #: **E2101274**
Client Name: ALS Environmental - US
Project Name: HS21120849
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/15/21
Internal Due Date: 12/17/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120849
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:
Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	Level IV due 1/6

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: 17688**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084 **Phone:** +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21120849
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120849-02**	**LH18/24-SP650_121421_AIX**	**Water**	**14 Dec 2021 14:00**
	6850-Perch. DOD Level II & Level IV in separate pdf			16 Dec 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
RUSH 24Hr.TAT

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 12/15/2021 11:52.

Received By: _____ Date/Time: 12/14/21 1152

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-H1

Thermometer ID: IR41

Date/Time Received: 12-15-21 Initials: DA

Date/Time Logged in: 12-15-21 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		12-15-21	1152	CG	5.0	☑
						☐
						☐
						☐

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

10450 Stancliff Rd., Suite 210
Houston, TX 77099
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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#: 392837 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/16/21 13:43

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101270-001	MW-2_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101270-002	MW-2_120921_a	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101270-003	18CPTMW01SW_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101270-004	MW3_120921	.02	6850/ClO4 DOD			Ground Water	10mL	
5	E2101270-005	18WW10_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101270-006	MW17_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101270-007	18CPTMW14_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101270-008	AWDI_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101274-001	LH18/24-SP650_121421_AIX	.01	6850/ClO4 DOD			Water	10mL	
10	E2101275-001	LH18/24-SP650_121421_AIX	.01	6850/ClO4 DOD			Water	10mL	
11	E2101276-001	LH18/24-SP140_121421	.01	6850/ClO4 DOD			Water	10mL	
12	EQ2100690-01	MB		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100690-02	LCS		6850/ClO4 DOD			Liquid	10mL	
14	EQ2100690-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
15	EQ2100690-04	MW3_120921 MS	.02	6850/ClO4 DOD			Liquid	10mL	
16	EQ2100690-05	MW3_120921 DMS	.02	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101270-001	100.00µL	E2101270-002	100.00µL	E2101270-003	100.00µL	E2101270-004	100.00µL	E2101270-005	100.00µL	E2101270-006	100.00µL
E2101270-007	100.00µL	E2101270-008	100.00µL	E2101274-001	100.00µL	E2101275-001	100.00µL	E2101276-001	100.00µL	EQ2100690-01	100.00µL
EQ2100690-02	100.00µL	EQ2100690-03	100.00µL	EQ2100690-04	100.00µL	EQ2100690-05	100.00µL				

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100690-02	1.00µL	EQ2100690-03	1.00µL	EQ2100690-04	1.00µL	EQ2100690-05	1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/16/21 13:43
Finished: 12/16/21 14:15
By: GRIVERA
Comments

Preparation Information Benchsheet

Prep Run#: 392837
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 12/16/21 13:43

Comments:

Reviewed By: GR Date: 12/16/21

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
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101274
Project:	HS21120849	**Date Collected:**	12/14/21 1400
Sample Matrix:	Water	**Date Received:**	12/15/21
Sample Name:	LH18/24-SP650_121421_AIX	**Units:**	µg/L
Lab Code:	E2101274-001	**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	0.500	0.250	0.125	5	12/16/21	12/20/21 12:57	392837	749660	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101274
Project:	HS21120849	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100690-01	**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	12/16/21	12/17/21 12:13	392837	749485	

Accuracy & Precision

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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	**Service Request:**	E2101274
Project:	HS21120849	**Date Analyzed:**	12/17/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	392837

	Lab Control Sample EQ2100690-02			Duplicate Lab Control Sample EQ2100690-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.119	0.100	119	0.107	0.100	107	84 - 119	11	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:**	E2101274
Project:	HS21120849	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100690-02	**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	**0.119**		0.100	0.0500	0.0250	1	12/16/21	12/17/21 13:29	392837	749485	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101274
Project:	HS21120849	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100690-03	**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	**0.107**		0.100	0.0500	0.0250	1	12/16/21	12/17/21 12:28	392837	749485	

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January 14, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120888**

Laboratory Results for: **Groundwater Treatment Plant Quarterly Effluent Samples**

Dear Marcia Olive,

ALS Environmental received 3 sample(s) on Dec 15, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
Work Order: HS21120888

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120888-01	LH18/24-SP650_121421	Water		14-Dec-2021 14:00	15-Dec-2021 10:40	☐
HS21120888-02	LH18/24-SP650_121421_AIX	Water		14-Dec-2021 14:00	15-Dec-2021 10:40	☐
HS21120888-03	Trip Blank	Water	CG-101321-99	14-Dec-2021 00:00	15-Dec-2021 10:40	☐

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
Work Order: HS21120888

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173723

Sample ID: LCSD-173723

- The RPD between the LCS and LCSD was outside of the control limit.

GCMS Volatiles by Method SW8260

Batch ID: R398551

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 174048

Sample ID: HS21121014-04MS

- MS/MSD and DUPs are for an unrelated sample

Metals by Method SW7470A

Batch ID: 173861

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Wet Chemistry by Method SW9056

Batch ID: R398440

Sample ID: HS21120895-01MS

- MS is for an unrelated sample

WetChemistry by Method E1664A

Batch ID: R398664

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E410.4

Batch ID: R398389

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Quarterly Effluent Samples WorkOrder:HS21120888
Sample ID: LH18/24-SP650_121421 Lab ID:HS21120888-01
Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 19:17
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 19:17
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 19:17
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 19:17
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 19:17
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Quarterly Effluent Samples WorkOrder:HS21120888
Sample ID: LH18/24-SP650_121421 Lab ID:HS21120888-01
Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
cis-1,2-Dichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	28-Dec-2021 19:17
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 19:17
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 19:17
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 19:17
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 19:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 19:17
Surr: 1,2-Dichloroethane-d4	*99.4*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 19:17*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 19:17*
Surr: Dibromofluoromethane	*98.6*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 19:17*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 19:17*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**3.6**		**0.10**	**0.10**	**0.10**	**ug/L**	10	14-Jan-2022 14:24
Surr: 2-Fluorobiphenyl	*84.7*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 14:24*
Surr: 4-Terphenyl-d14	*54.2*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 14:24*
Surr: Nitrobenzene-d5	*126*			**0**	*40-140*	*%REC*	*10*	*14-Jan-2022 14:24*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
Sample ID: LH18/24-SP650_121421
Collection Date: 14-Dec-2021 14:00

ANALYTICAL REPORT
WorkOrder:HS21120888
Lab ID:HS21120888-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.00892**	J	**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:39
Antimony	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	30-Dec-2021 12:39
Arsenic	**0.000608**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Barium	**0.425**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:39
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:39
Calcium	**43.1**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:39
Chromium	**0.000596**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Cobalt	**0.000178**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Iron	**0.0167**	J	**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:39
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:39
Magnesium	**17.8**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:39
Manganese	**0.0648**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Nickel	**0.000987**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Potassium	**1.97**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:39
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:39
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:39
Sodium	**523**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 15:36
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:39
Vanadium	**0.00183**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
Zinc	**0.00641**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:39
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.0000100	U	0.0000300	0.0000100	0.000200	mg/L	1	23-Dec-2021 11:13
OIL & GREASE (HEM) BY E1664A		**Method:E1664A**						Analyst: KAH
Oil and Grease	**0.900**	J	**0.610**	**1.00**	**2.00**	**mg/L**	1	30-Dec-2021 14:20
CHEMICAL OXYGEN DEMAND BY E410.4, REV 2.0, 1993		**Method:E410.4**						Analyst: TH
Chemical Oxygen Demand	**35.0**		**5.00**	**15.0**	**15.0**	**mg/L**	1	27-Dec-2021 13:31
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**939**		**4.00**	**10.0**	**10.0**	**mg/L**	20	28-Dec-2021 03:24
Sulfate	**27.0**		**0.200**	**0.500**	**0.500**	**mg/L**	1	28-Dec-2021 03:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 14-Jan-22

Client:	Bhate Environmental Associates, Inc.	**ANALYTICAL REPORT**
Project:	Groundwater Treatment Plant Quarterly Effluent Samples	WorkOrder:HS21120888
Sample ID:	LH18/24-SP650_121421_AIX	Lab ID:HS21120888-02
Collection Date:	14-Dec-2021 14:00	Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Quarterly Effluent Samples WorkOrder:HS21120888
Sample ID: Trip Blank Lab ID:HS21120888-03
Collection Date: 14-Dec-2021 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 18:32
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 18:32
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 18:32
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 18:32
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 18:32
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Quarterly Effluent Samples WorkOrder:HS21120888
Sample ID: Trip Blank Lab ID:HS21120888-03
Collection Date: 14-Dec-2021 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 18:32
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 18:32
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:32
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:32
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 18:32*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 18:32*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 18:32*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 18:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

Batch ID: 173723 **Start Date:** 20 Dec 2021 06:30 **End Date:** 20 Dec 2021 11:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120888-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173861 **Start Date:** 23 Dec 2021 07:00 **End Date:** 23 Dec 2021 10:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120888-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 174048 **Start Date:** 29 Dec 2021 11:30 **End Date:** 29 Dec 2021 15:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120888-01		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173723 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00		20 Dec 2021 07:04	14 Jan 2022 14:24	10
Batch ID: 173861 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00		23 Dec 2021 10:00	23 Dec 2021 11:13	1
Batch ID: 174048 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00		29 Dec 2021 15:30	30 Dec 2021 15:36	20
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00		29 Dec 2021 15:30	30 Dec 2021 12:39	1
Batch ID: R398284 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21120888-02	LH18/24-SP650_121421_AIX	14 Dec 2021 14:00			23 Dec 2021 11:42	1
Batch ID: R398389 (0)	**Test Name :** CHEMICAL OXYGEN DEMAND BY E410.4, REV 2.0, 1993				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00			27 Dec 2021 13:31	1
Batch ID: R398440 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00			28 Dec 2021 03:24	20
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00			28 Dec 2021 03:17	1
Batch ID: R398551 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00			28 Dec 2021 19:17	1
HS21120888-03	Trip Blank	14 Dec 2021 00:00			28 Dec 2021 18:32	1
Batch ID: R398664 (0)	**Test Name :** OIL & GREASE (HEM) BY E1664A				**Matrix:** Water	
HS21120888-01	LH18/24-SP650_121421	14 Dec 2021 14:00			30 Dec 2021 14:20	1

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 173861 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:42**
Client ID: Run ID: **HG03_398265** SeqNo: **6437934** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:44**
Client ID: Run ID: **HG03_398265** SeqNo: **6437935** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	0	106	82 - 119				

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 11:01**
Client ID: Run ID: **HG03_398265** SeqNo: **6437942** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119				

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 10:48**
Client ID: Run ID: **HG03_398265** SeqNo: **6437937** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00477	0.000200	0.005	0.00005400	94.3	82 - 119				

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 11:03**
Client ID: Run ID: **HG03_398265** SeqNo: **6437943** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119	0.004830	0	20	

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 10:49**
Client ID: Run ID: **HG03_398265** SeqNo: **6437938** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.000200	0.005	0.00005400	98.5	82 - 119	0.004770	4.31	20	

The following samples were analyzed in this batch: HS21120888-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:09**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447014** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004266	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.01745	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:11**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447015** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1102	0.0100	0.1	0	110	84 - 117				
Antimony	0.05207	0.00500	0.05	0	104	85 - 117				
Arsenic	0.05387	0.00500	0.05	0	108	84 - 116				
Barium	0.05264	0.00500	0.05	0	105	86 - 114				
Beryllium	0.04924	0.00200	0.05	0	98.5	83 - 121				
Cadmium	0.05407	0.00200	0.05	0	108	87 - 115				
Calcium	4.915	0.500	5	0	98.3	87 - 118				
Chromium	0.05158	0.00500	0.05	0	103	85 - 116				
Cobalt	0.05173	0.00500	0.05	0	103	86 - 115				
Iron	5.168	0.200	5	0	103	87 - 118				
Lead	0.05144	0.00500	0.05	0	103	88 - 115				
Magnesium	5.264	0.200	5	0	105	83 - 118				
Manganese	0.05196	0.00500	0.05	0	104	87 - 115				
Nickel	0.05337	0.00500	0.05	0	107	85 - 117				
Potassium	5.158	0.200	5	0	103	87 - 115				
Selenium	0.05446	0.00500	0.05	0	109	80 - 120				
Silver	0.05149	0.00500	0.05	0	103	85 - 116				
Sodium	5.076	0.200	5	0	102	85 - 117				
Thallium	0.05401	0.00200	0.05	0	108	82 - 116				
Vanadium	0.05114	0.00500	0.05	0	102	86 - 115				
Zinc	0.0554	0.00500	0.05	0	111	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:19**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447019** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5876	0.0100	0.1	0.4336	154	84 - 117				SO
Antimony	0.04901	0.00500	0.05	0.000194	97.6	85 - 117				
Arsenic	0.05446	0.00500	0.05	0.000899	107	84 - 116				
Barium	0.09409	0.00500	0.05	0.0464	95.4	86 - 114				
Beryllium	0.04721	0.00200	0.05	0.000886	92.6	83 - 121				
Cadmium	0.05113	0.00200	0.05	0.000369	102	87 - 115				
Calcium	53.63	0.500	5	53.22	8.27	87 - 118				SO
Chromium	0.05071	0.00500	0.05	0.001646	98.1	85 - 116				
Cobalt	0.06739	0.00500	0.05	0.0211	92.6	86 - 115				
Iron	5.248	0.200	5	0.3641	97.7	87 - 118				
Lead	0.05152	0.00500	0.05	0.00012	103	88 - 115				
Magnesium	46.74	0.200	5	45.53	24.3	83 - 118				SO
Manganese	6.955	0.00500	0.05	7.514	-1120	87 - 115				SEO
Nickel	0.2128	0.00500	0.05	0.1779	69.7	85 - 117				S
Potassium	5.675	0.200	5	0.7382	98.7	87 - 115				
Selenium	0.05339	0.00500	0.05	0.000331	106	80 - 120				
Silver	0.04777	0.00500	0.05	0.000008	95.5	85 - 116				
Sodium	708.6	0.200	5	776.3	-1350	85 - 117				SEO
Thallium	0.05356	0.00200	0.05	0.000019	107	82 - 116				
Vanadium	0.05246	0.00500	0.05	0.00152	102	86 - 115				
Zinc	0.1072	0.00500	0.05	0.06222	89.9	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:23**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447021** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6094	0.0100	0.1	0.4336	176	84 - 117	0.5876	3.65	20	SO
Antimony	0.04888	0.00500	0.05	0.000194	97.4	85 - 117	0.04901	0.247	20	
Arsenic	0.05356	0.00500	0.05	0.000899	105	84 - 116	0.05446	1.66	20	
Barium	0.09265	0.00500	0.05	0.0464	92.5	86 - 114	0.09409	1.54	20	
Beryllium	0.04769	0.00200	0.05	0.000886	93.6	83 - 121	0.04721	1.01	20	
Cadmium	0.05108	0.00200	0.05	0.000369	101	87 - 115	0.05113	0.102	20	
Calcium	52.81	0.500	5	53.22	-8.08	87 - 118	53.63	1.54	20	SO
Chromium	0.05068	0.00500	0.05	0.001646	98.1	85 - 116	0.05071	0.0572	20	
Cobalt	0.06798	0.00500	0.05	0.0211	93.8	86 - 115	0.06739	0.873	20	
Iron	5.262	0.200	5	0.3641	98.0	87 - 118	5.248	0.259	20	
Lead	0.05078	0.00500	0.05	0.00012	101	88 - 115	0.05152	1.46	20	
Magnesium	46.19	0.200	5	45.53	13.3	83 - 118	46.74	1.18	20	SO
Manganese	6.92	0.00500	0.05	7.514	-1190	87 - 115	6.955	0.508	20	SEO
Nickel	0.2117	0.00500	0.05	0.1779	67.6	85 - 117	0.2128	0.499	20	S
Potassium	5.625	0.200	5	0.7382	97.7	87 - 115	5.675	0.875	20	
Selenium	0.05191	0.00500	0.05	0.000331	103	80 - 120	0.05339	2.8	20	
Silver	0.04761	0.00500	0.05	0.000008	95.2	85 - 116	0.04777	0.327	20	
Sodium	720.5	0.200	5	776.3	-1120	85 - 117	708.6	1.66	20	SEO
Thallium	0.05298	0.00200	0.05	0.000019	106	82 - 116	0.05356	1.08	20	
Vanadium	0.05157	0.00500	0.05	0.00152	100	86 - 115	0.05246	1.71	20	
Zinc	0.1073	0.00500	0.05	0.06222	90.2	83 - 119	0.1072	0.163	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:25**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447022** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6193	0.0100	0.1	0.4336	186	80 - 120				SO
Antimony	0.1097	0.00500	0.1	0.000194	110	80 - 120				
Arsenic	0.119	0.00500	0.1	0.000899	118	80 - 120				
Barium	0.1541	0.00500	0.1	0.0464	108	80 - 120				
Beryllium	0.102	0.00200	0.1	0.000886	101	80 - 120				
Cadmium	0.1134	0.00200	0.1	0.000369	113	80 - 120				
Calcium	59.07	0.500	10	53.22	58.6	80 - 120				SO
Chromium	0.112	0.00500	0.1	0.001646	110	80 - 120				
Cobalt	0.1346	0.00500	0.1	0.0211	114	80 - 120				
Iron	11.4	0.200	10	0.3641	110	80 - 120				
Lead	0.1159	0.00500	0.1	0.00012	116	80 - 120				
Magnesium	53.58	0.200	10	45.53	80.5	80 - 120				O
Nickel	0.2727	0.00500	0.1	0.1779	94.7	80 - 120				
Potassium	11.91	0.200	10	0.7382	112	80 - 120				
Selenium	0.116	0.00500	0.1	0.000331	116	80 - 120				
Silver	0.09187	0.00500	0.1	0.000008	91.9	80 - 120				
Thallium	0.1186	0.00200	0.1	0.000019	119	80 - 120				
Vanadium	0.1136	0.00500	0.1	0.00152	112	80 - 120				
Zinc	0.1714	0.00500	0.1	0.06222	109	80 - 120				

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 17:29**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447469** PrepDate: **29-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	13.09	0.250	5	7.163	118	80 - 120				
Sodium	1264	10.0	500	732.3	106	80 - 120				

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 15:54**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447296** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.4746	0.0500					0.4336	9.47	10	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:17**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447018** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0	0	10	U
Arsenic	0.00500	0.0250					0.000899	0	10	U
Barium	0.04538	0.0250					0.0464	2.19	10	
Beryllium	0.00250	0.0100					0.000886	0	10	U
Cadmium	0.00250	0.0100					0.000369	0	10	U
Calcium	51.65	2.50					53.22	2.95	10	
Chromium	0.00500	0.0250					0.001646	0	10	U
Cobalt	0.0216	0.0250					0.0211	0	10	J
Iron	0.3466	1.00					0.3641	0	10	J
Lead	0.00500	0.0250					0	0	10	U
Magnesium	45.13	1.00					45.53	0.873	10	
Nickel	0.1856	0.0250					0.1779	4.3	10	
Potassium	0.6991	1.00					0.7382	0	10	J
Selenium	0.0125	0.0250					0	0	10	U
Silver	0.00250	0.0250					0	0	10	U
Thallium	0.00250	0.0100					0	0	10	U
Vanadium	0.00701	0.0250					0.00152	0	10	J
Zinc	0.06506	0.0250					0.06222	4.57	10	

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 17:13**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447464** PrepDate: **29-Dec-2021** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	7.305	1.25					7.163	1.99	10	
Sodium	746.3	50.0					732.3	1.92	10	

The following samples were analyzed in this batch: HS21120888-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: 173723 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:16**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464306** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.08043*	*0*	*0.08*	*0*	*101*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.04743*	*0*	*0.08*	*0*	*59.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07872*	*0*	*0.08*	*0*	*98.4*	*40 - 140*				

LCS Sample ID: **LCS-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:34**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464307** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08871	0.010	0.08	0	111	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07835*	*0*	*0.08*	*0*	*97.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.06655*	*0*	*0.08*	*0*	*83.2*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06155*	*0*	*0.08*	*0*	*76.9*	*40 - 140*				

LCSD Sample ID: **LCSD-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:52**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464308** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08406	0.010	0.08	0	105	40 - 140	0.08871	5.38	20	
Surr: 2-Fluorobiphenyl	*0.07614*	*0*	*0.08*	*0*	*95.2*	*40 - 140*	*0.07835*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.0555*	*0*	*0.08*	*0*	*69.4*	*40 - 140*	*0.06655*	*18.1*	*20*	
Surr: Nitrobenzene-d5	*0.08313*	*0*	*0.08*	*0*	*104*	*40 - 140*	*0.06155*	*29.8*	*20*	R

The following samples were analyzed in this batch: HS21120888-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: **R398551 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*48.53*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.05*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: **R398551 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.31	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	19.49	1.0	20	0	97.4	74 - 131				
1,1,2,2-Tetrachloroethane	19.43	1.0	20	0	97.2	71 - 121				
1,1,2-Trichloroethane	19.33	1.0	20	0	96.7	80 - 119				
1,1-Dichloroethane	17.67	1.0	20	0	88.4	77 - 125				
1,1-Dichloroethene	17.38	1.0	20	0	86.9	71 - 131				
1,1-Dichloropropene	19.55	1.0	20	0	97.8	78 - 125				
1,2,3-Trichlorobenzene	21.82	1.0	20	0	109	69 - 129				
1,2,3-Trichloropropane	18.81	1.0	20	0	94.0	73 - 122				
1,2,4-Trichlorobenzene	22.34	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	20.85	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	17.51	1.0	20	0	87.5	62 - 128				
1,2-Dibromoethane	20.45	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	20.03	1.0	20	0	100	80 - 119				
1,2-Dichloroethane	19.13	1.0	20	0	95.6	73 - 128				
1,2-Dichloropropane	19.64	1.0	20	0	98.2	78 - 122				
1,3,5-Trimethylbenzene	20.82	1.0	20	0	104	75 - 124				
1,3-Dichlorobenzene	20.53	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	19.53	1.0	20	0	97.7	80 - 119				
1,4-Dichlorobenzene	20.06	1.0	20	0	100	79 - 118				
2,2-Dichloropropane	20.05	1.0	20	0	100	60 - 139				
2-Butanone	37.15	2.0	40	0	92.9	56 - 143				
2-Chlorotoluene	20.51	1.0	20	0	103	79 - 122				
2-Hexanone	38.98	2.0	40	0	97.4	57 - 139				
4-Chlorotoluene	21.77	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	20.7	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	39.06	2.0	40	0	97.7	67 - 130				
Acetone	33.6	2.0	40	0	84.0	39 - 160				
Benzene	19.99	1.0	20	0	100.0	79 - 120				
Bromobenzene	20.29	1.0	20	0	101	80 - 120				
Bromochloromethane	19.71	1.0	20	0	98.5	78 - 123				
Bromodichloromethane	19.33	1.0	20	0	96.6	79 - 125				
Bromoform	16.69	1.0	20	0	83.4	66 - 130				
Bromomethane	19.64	1.0	20	0	98.2	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.83	2.0	40	0	94.6	64 - 133				
Carbon tetrachloride	18.61	1.0	20	0	93.0	72 - 136				
Chlorobenzene	19.77	1.0	20	0	98.9	82 - 118				
Chloroethane	17.19	1.0	20	0	85.9	60 - 138				
Chloroform	19.29	1.0	20	0	96.4	79 - 124				
Chloromethane	18.75	1.0	20	0	93.8	50 - 139				
cis-1,2-Dichloroethene	19.09	1.0	20	0	95.4	78 - 123				
cis-1,3-Dichloropropene	18.29	1.0	20	0	91.4	75 - 124				
Dibromochloromethane	18.18	1.0	20	0	90.9	74 - 126				
Dibromomethane	18.88	1.0	20	0	94.4	79 - 123				
Dichlorodifluoromethane	17.68	1.0	20	0	88.4	32 - 152				
Ethylbenzene	19.77	1.0	20	0	98.8	79 - 121				
Hexachlorobutadiene	21.72	1.0	20	0	109	66 - 134				
Isopropylbenzene	21.1	1.0	20	0	106	72 - 131				
m,p-Xylene	42.59	2.0	40	0	106	80 - 121				
Methylene chloride	18.09	2.0	20	0	90.5	74 - 124				
Naphthalene	18.55	1.0	20	0	92.7	61 - 128				
n-Butylbenzene	23.3	1.0	20	0	116	75 - 128				
n-Propylbenzene	21.86	1.0	20	0	109	76 - 126				
o-Xylene	20.93	1.0	20	0	105	78 - 122				
sec-Butylbenzene	22.43	1.0	20	0	112	77 - 126				
Styrene	21.91	1.0	20	0	110	78 - 123				
tert-Butylbenzene	21.26	1.0	20	0	106	78 - 124				
Tetrachloroethene	18.99	1.0	20	0	94.9	74 - 129				
Toluene	20.97	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	17.38	1.0	20	0	86.9	75 - 124				
trans-1,3-Dichloropropene	17.43	1.0	20	0	87.1	73 - 127				
Trichloroethene	18.29	1.0	20	0	91.5	79 - 123				
Trichlorofluoromethane	17.4	1.0	20	0	87.0	65 - 141				
Vinyl chloride	17.1	1.0	20	0	85.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.14*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.35*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*52.31*	*1.0*	*50*	*0*	*105*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.5	1.0	20	0	107	78 - 124				
1,1,1-Trichloroethane	21.73	1.0	20	0	109	74 - 131				
1,1,2,2-Tetrachloroethane	20.93	1.0	20	0	105	71 - 121				
1,1,2-Trichloroethane	21.03	1.0	20	0	105	80 - 119				
1,1-Dichloroethane	18.87	1.0	20	0	94.4	77 - 125				
1,1-Dichloroethene	19.76	1.0	20	0	98.8	71 - 131				
1,1-Dichloropropene	22.89	1.0	20	0	114	78 - 125				
1,2,3-Trichlorobenzene	20.1	1.0	20	0	101	69 - 129				
1,2,3-Trichloropropane	20.72	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	20.74	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	21.57	1.0	20	0	108	76 - 124				
1,2-Dibromo-3-chloropropane	18.48	1.0	20	0	92.4	62 - 128				
1,2-Dibromoethane	21.67	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	21.12	1.0	20	0	106	80 - 119				
1,2-Dichloroethane	21.29	1.0	20	0	106	73 - 128				
1,2-Dichloropropane	21.75	1.0	20	0	109	78 - 122				
1,3,5-Trimethylbenzene	22.46	1.0	20	0	112	75 - 124				
1,3-Dichlorobenzene	21.79	1.0	20	0	109	80 - 119				
1,3-Dichloropropane	21.62	1.0	20	0	108	80 - 119				
1,4-Dichlorobenzene	21.14	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	20.45	1.0	20	0	102	60 - 139				
2-Butanone	36.97	2.0	40	0	92.4	56 - 143				
2-Chlorotoluene	22.92	1.0	20	0	115	79 - 122				
2-Hexanone	43.94	2.0	40	0	110	57 - 139				
4-Chlorotoluene	23.5	1.0	20	0	118	78 - 122				
4-Isopropyltoluene	21.94	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	44.1	2.0	40	0	110	67 - 130				
Acetone	34.8	2.0	40	0	87.0	39 - 160				
Benzene	21.98	1.0	20	0	110	79 - 120				
Bromobenzene	21.87	1.0	20	0	109	80 - 120				
Bromochloromethane	19.48	1.0	20	0	97.4	78 - 123				
Bromodichloromethane	20.72	1.0	20	0	104	79 - 125				
Bromoform	18.44	1.0	20	0	92.2	66 - 130				
Bromomethane	20.18	1.0	20	0	101	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.24	2.0	40	0	95.6	64 - 133				
Carbon tetrachloride	22.49	1.0	20	0	112	72 - 136				
Chlorobenzene	21.9	1.0	20	0	110	82 - 118				
Chloroethane	20.56	1.0	20	0	103	60 - 138				
Chloroform	20.05	1.0	20	0	100	79 - 124				
Chloromethane	20.41	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	19.62	1.0	20	0	98.1	78 - 123				
cis-1,3-Dichloropropene	19.02	1.0	20	0	95.1	75 - 124				
Dibromochloromethane	19.48	1.0	20	0	97.4	74 - 126				
Dibromomethane	20.91	1.0	20	0	105	79 - 123				
Dichlorodifluoromethane	19.06	1.0	20	0	95.3	32 - 152				
Ethylbenzene	23.03	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	21.35	1.0	20	0	107	66 - 134				
Isopropylbenzene	23.62	1.0	20	0	118	72 - 131				
m,p-Xylene	47.92	2.0	40	0	120	80 - 121				
Methylene chloride	18.98	2.0	20	0	94.9	74 - 124				
Naphthalene	18.81	1.0	20	0	94.1	61 - 128				
n-Butylbenzene	24.04	1.0	20	0	120	75 - 128				
n-Propylbenzene	24.33	1.0	20	0	122	76 - 126				
o-Xylene	23.97	1.0	20	0	120	78 - 122				
sec-Butylbenzene	24.26	1.0	20	0	121	77 - 126				
Styrene	23.3	1.0	20	0	116	78 - 123				
tert-Butylbenzene	23.06	1.0	20	0	115	78 - 124				
Tetrachloroethene	23	1.0	20	0	115	74 - 129				
Toluene	23.19	1.0	20	0	116	80 - 121				
trans-1,2-Dichloroethene	19.24	1.0	20	0	96.2	75 - 124				
trans-1,3-Dichloropropene	18.15	1.0	20	0	90.7	73 - 127				
Trichloroethene	21.23	1.0	20	0	106	79 - 123				
Trichlorofluoromethane	20.57	1.0	20	0	103	65 - 141				
Vinyl chloride	19.46	1.0	20	0	97.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.94*	*1.0*	*50*	*0*	*95.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.67*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*52.73*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.38	1.0	20	0	107	78 - 124	21.5	0.565	20	
1,1,1-Trichloroethane	20.88	1.0	20	0	104	74 - 131	21.73	4.01	20	
1,1,2,2-Tetrachloroethane	20.13	1.0	20	0	101	71 - 121	20.93	3.9	20	
1,1,2-Trichloroethane	20.34	1.0	20	0	102	80 - 119	21.03	3.33	20	
1,1-Dichloroethane	18.28	1.0	20	0	91.4	77 - 125	18.87	3.16	20	
1,1-Dichloroethene	18.73	1.0	20	0	93.6	71 - 131	19.76	5.34	20	
1,1-Dichloropropene	22.31	1.0	20	0	112	78 - 125	22.89	2.59	20	
1,2,3-Trichlorobenzene	20.03	1.0	20	0	100	69 - 129	20.1	0.369	20	
1,2,3-Trichloropropane	20.45	1.0	20	0	102	73 - 122	20.72	1.31	20	
1,2,4-Trichlorobenzene	20.71	1.0	20	0	104	69 - 130	20.74	0.159	20	
1,2,4-Trimethylbenzene	21.46	1.0	20	0	107	76 - 124	21.57	0.534	20	
1,2-Dibromo-3-chloropropane	17.59	1.0	20	0	88.0	62 - 128	18.48	4.91	20	
1,2-Dibromoethane	21.47	1.0	20	0	107	77 - 121	21.67	0.899	20	
1,2-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119	21.12	2.48	20	
1,2-Dichloroethane	19.96	1.0	20	0	99.8	73 - 128	21.29	6.44	20	
1,2-Dichloropropane	20.78	1.0	20	0	104	78 - 122	21.75	4.53	20	
1,3,5-Trimethylbenzene	21.92	1.0	20	0	110	75 - 124	22.46	2.43	20	
1,3-Dichlorobenzene	21.62	1.0	20	0	108	80 - 119	21.79	0.767	20	
1,3-Dichloropropane	20.74	1.0	20	0	104	80 - 119	21.62	4.15	20	
1,4-Dichlorobenzene	21.07	1.0	20	0	105	79 - 118	21.14	0.344	20	
2,2-Dichloropropane	19.84	1.0	20	0	99.2	60 - 139	20.45	3	20	
2-Butanone	35.9	2.0	40	0	89.7	56 - 143	36.97	2.95	20	
2-Chlorotoluene	21.8	1.0	20	0	109	79 - 122	22.92	5	20	
2-Hexanone	43.92	2.0	40	0	110	57 - 139	43.94	0.0476	20	
4-Chlorotoluene	22.88	1.0	20	0	114	78 - 122	23.5	2.68	20	
4-Isopropyltoluene	21.27	1.0	20	0	106	77 - 127	21.94	3.14	20	
4-Methyl-2-pentanone	42.94	2.0	40	0	107	67 - 130	44.1	2.66	20	
Acetone	33.69	2.0	40	0	84.2	39 - 160	34.8	3.26	20	
Benzene	20.77	1.0	20	0	104	79 - 120	21.98	5.66	20	
Bromobenzene	21.34	1.0	20	0	107	80 - 120	21.87	2.43	20	
Bromochloromethane	19.15	1.0	20	0	95.8	78 - 123	19.48	1.7	20	
Bromodichloromethane	20.53	1.0	20	0	103	79 - 125	20.72	0.909	20	
Bromoform	17.71	1.0	20	0	88.6	66 - 130	18.44	4.04	20	
Bromomethane	19.28	1.0	20	0	96.4	53 - 141	20.18	4.56	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.22	2.0	40	0	93.1	64 - 133	38.24	2.68	20	
Carbon tetrachloride	21.36	1.0	20	0	107	72 - 136	22.49	5.15	20	
Chlorobenzene	21.08	1.0	20	0	105	82 - 118	21.9	3.81	20	
Chloroethane	19.84	1.0	20	0	99.2	60 - 138	20.56	3.59	20	
Chloroform	18.51	1.0	20	0	92.6	79 - 124	20.05	7.98	20	
Chloromethane	19.19	1.0	20	0	96.0	50 - 139	20.41	6.13	20	
cis-1,2-Dichloroethene	19.11	1.0	20	0	95.6	78 - 123	19.62	2.63	20	
cis-1,3-Dichloropropene	18.18	1.0	20	0	90.9	75 - 124	19.02	4.49	20	
Dibromochloromethane	19.02	1.0	20	0	95.1	74 - 126	19.48	2.37	20	
Dibromomethane	19.88	1.0	20	0	99.4	79 - 123	20.91	5.03	20	
Dichlorodifluoromethane	18.09	1.0	20	0	90.5	32 - 152	19.06	5.23	20	
Ethylbenzene	22.39	1.0	20	0	112	79 - 121	23.03	2.82	20	
Hexachlorobutadiene	19.3	1.0	20	0	96.5	66 - 134	21.35	10.1	20	
Isopropylbenzene	23.36	1.0	20	0	117	72 - 131	23.62	1.09	20	
m,p-Xylene	45.96	2.0	40	0	115	80 - 121	47.92	4.18	20	
Methylene chloride	17.89	2.0	20	0	89.4	74 - 124	18.98	5.95	20	
Naphthalene	19.04	1.0	20	0	95.2	61 - 128	18.81	1.23	20	
n-Butylbenzene	22.9	1.0	20	0	114	75 - 128	24.04	4.88	20	
n-Propylbenzene	23.35	1.0	20	0	117	76 - 126	24.33	4.1	20	
o-Xylene	23.41	1.0	20	0	117	78 - 122	23.97	2.34	20	
sec-Butylbenzene	23.25	1.0	20	0	116	77 - 126	24.26	4.25	20	
Styrene	22.75	1.0	20	0	114	78 - 123	23.3	2.37	20	
tert-Butylbenzene	22.59	1.0	20	0	113	78 - 124	23.06	2.05	20	
Tetrachloroethene	21.96	1.0	20	0	110	74 - 129	23	4.62	20	
Toluene	22.62	1.0	20	0	113	80 - 121	23.19	2.5	20	
trans-1,2-Dichloroethene	17.8	1.0	20	0	89.0	75 - 124	19.24	7.75	20	
trans-1,3-Dichloropropene	18.12	1.0	20	0	90.6	73 - 127	18.15	0.159	20	
Trichloroethene	19.94	1.0	20	0	99.7	79 - 123	21.23	6.29	20	
Trichlorofluoromethane	19.8	1.0	20	0	99.0	65 - 141	20.57	3.8	20	
Vinyl chloride	18.44	1.0	20	0	92.2	58 - 137	19.46	5.4	20	
Surr: 1,2-Dichloroethane-d4	*48.48*	*1.0*	*50*	*0*	*97.0*	*81 - 118*	*47.94*	*1.13*	*20*	
Surr: 4-Bromofluorobenzene	*52.14*	*1.0*	*50*	*0*	*104*	*85 - 114*	*52.67*	*1.02*	*20*	
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*	*47.81*	*0.00255*	*20*	
Surr: Toluene-d8	*53.24*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.73*	*0.956*	*20*	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID:	R398551 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21120888-01 HS21120888-03

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398389 (0) **Instrument: WetChem_HS** **Method: CHEMICAL OXYGEN DEMAND BY E410.4, REV 2.0, 1993**

MBLK Sample ID: **MBLK-R398389** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440252** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	15.0	15.0								U

LCS Sample ID: **LCS-R398389** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440251** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	100	15.0	100	0	100	85 - 115				

MS Sample ID: **HS21121291-01MS** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440254** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	70	15.0	50	22	96.0	80 - 120				

MSD Sample ID: **HS21121291-01MSD** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440253** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	70	15.0	50	22	96.0	80 - 120	70	0	20	

The following samples were analyzed in this batch: HS21120888-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398440 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **27-Dec-2021 12:34**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441866** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **27-Dec-2021 12:42**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.73	0.500	20	0	98.7	80 - 120				
Sulfate	19.73	0.500	20	0	98.7	80 - 120				

MS Sample ID: **HS21121011-10MS** Units: **mg/L** Analysis Date: **27-Dec-2021 15:20**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441876** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	786.7	10.0	200	562.5	112	80 - 120				
Sulfate	271.8	10.0	200	60.19	106	80 - 120				

MS Sample ID: **HS21120895-01MS** Units: **mg/L** Analysis Date: **28-Dec-2021 03:39**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441897** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	321.5	0.500	10	319.9	16.7	80 - 120				SEO
Sulfate	44.82	0.500	10	35.27	95.6	80 - 120				

MSD Sample ID: **HS21121011-10MSD** Units: **mg/L** Analysis Date: **27-Dec-2021 15:28**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441877** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	759.2	10.0	200	562.5	98.3	80 - 120	786.7	3.55	20	
Sulfate	262.6	10.0	200	60.19	101	80 - 120	271.8	3.45	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: **R398440 (0)** **Instrument:** **ICS-Integrion** **Method:** **ANIONS BY SW9056A**

MSD Sample ID: **HS21120895-01MSD** Units: **mg/L** Analysis Date: **28-Dec-2021 03:47**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441898** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	319.4	0.500	10	319.9	-4.61	80 - 120	321.5	0.664	20	SEO
Sulfate	44.59	0.500	10	35.27	93.2	80 - 120	44.82	0.527	20	

The following samples were analyzed in this batch: HS21120888-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: HS21120888

QC BATCH REPORT

Batch ID: R398664 (0) **Instrument: Balance1** **Method: OIL & GREASE (HEM) BY E1664A**

MBLK Sample ID: **WBLKW-1223021** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447350** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	1.00	2.00								U

LCS Sample ID: **WLCSW-123021** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447352** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	37.6	2.00	40	0	94.0	78 - 114				

LCSD Sample ID: **WLCSDW-123021** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447351** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	37.7	2.00	40	0	94.2	78 - 114	37.6	0.266	18	

MS Sample ID: **HS21121294-02MS** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447340** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	39.6	2.00	40	2.991	91.5	78 - 114				

The following samples were analyzed in this batch: HS21120888-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
WorkOrder: **HS21120888**

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

ALS Houston, US Date: 14-Jan-22

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Effluent Samples
Work Order: HS21120888

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21120888-01	LH18/24-SP650_121421	Login	12/15/2021 3:03:41 PM	PMG	MET012
HS21120888-01	LH18/24-SP650_121421	Login	12/15/2021 3:03:41 PM	PMG	WET393
HS21120888-01	LH18/24-SP650_121421	Login	12/15/2021 3:03:41 PM	PMG	EXT163
HS21120888-01	LH18/24-SP650_121421	Login	12/15/2021 3:03:41 PM	PMG	WET393
HS21120888-01	LH18/24-SP650_121421	Login	12/15/2021 3:03:41 PM	PMG	WET393
HS21120888-01	LH18/24-SP650_121421	Login	12/15/2021 3:03:41 PM	PMG	B048
HS21120888-02	LH18/24-SP650_121421_AIX	Login	12/15/2021 3:03:41 PM	PMG	Sub
HS21120888-03	Trip Blank	Login	12/15/2021 3:03:41 PM	PMG	B048

ALS Houston, US Date: 14-Jan-22

Sample Receipt Checklist

Work Order ID: HS21120888 **Date/Time Received:** **15-Dec-2021 10:40**

Client Name: Bhate Environmental **Received by:** **Paresh M. Giga**

Completed By: /S/ Paresh M. Giga (eSignature) 15-Dec-2021 15:07 (Date/Time) **Reviewed by:** /S/ Corey Grandits (eSignature) 16-Dec-2021 18:04 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	1 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:none
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	1.2C U/C	IR31
Cooler(s)/Kit(s):	47525	
Date/Time sample(s) sent to storage:	12/15/2021 15L15	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐
pH adjusted?	☐	☑	N/A ☐

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01116645

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd., Suite 210 Houston, Tx. 77099 ATTN: RJ Modashia
1

Page 1 of

Project: BHATE
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT QUARTERLY EFFLUENT SAMPLES

Prepared By: Scott Beesinger

P. O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	ROD Volatiles	Total Metals	Oil & Grease	Chemical Oxygen Demand	Chloride & Sulfate	1, 4 - DIOXANE	PERCHLORATE				Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_121421	Water	12/14/21 / 14:00		4	3		1								HCL	
LH18/24-SP650_121421	Water	12/14/21 / 14:00		1		1									HNO3	
LH18/24-SP650_121421	Water	12/14/21 / 14:00		2					1	1					NONE	
LH18/24-SP650_121421	Water	12/14/21 / 14:00		1				1							H2SO4	
LH18/24-SP650_121421_AIX	Water	12/14/21 / 14:00		1							1				NONE	
Trip Blank	Water	12/14/21		2	2										HCL	

Analyses

Additional Remarks: **Standard TAT**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	12/14/21	14:30	12/15/2021	10:40							

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time

Remarks: UC 11 7525 1-2° ASI Office

HS21120888

Bhate Environmental Associates, Inc.
Groundwater Treatment Plant Quarterly Effluent Sar

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

01116646

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

47525

CUSTODY SEAL

Date: 12/14/21 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 12/15/21

47525 DEC 15 2021

ALS

47525

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 23NOV21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3507
DIMS: 26x14x14 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: GWTP-BO 81976-RG

FedEx Express

TRK# 0221 5300 5225 3790

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

3923207 14Dec2021 GGGA 560G3/E934/1023

December 23, 2021

Service Request No:E2101275

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21120888

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory December 15, 2021
For your reference, these analyses have been assigned our service request number **E2101275.**

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.:**	E2101275
Project:	HS21120888	**Date Received:**	12/15/21
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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 12/15/21.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100690: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits. MS/MSD was performed on an unrelated sample.

Lowest practical dilution (5x) performed on sample E2101275-001.

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:**E2101275
Project: HS21120888

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101275-001	LH18/24-SP650_121421_AIX	12/14/2021	1400

Service Request Summary

Folder #: **E2101275**
Client Name: ALS Environmental - US
Project Name: HS21120888
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/15/21
Internal Due Date: 12/30/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21120888
EDD: No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON CIO4 DOD/6850
E2101275-001	LH18/24-SP650_121421_AIX	Water	12/14/21 1400	**IV**

Folder Comments:

Send DWELR confirmation to Middletown PM for PADEP samples.

Service Request Summary

Folder #:	**E2101275**
Client Name:	ALS Environmental - US
Project Name:	HS21120888
Project Number:	
Report To:	Ragen Giga ALS Environmental - US 10450 Stancliff Rd Suite 210 Houston, TX 77099 USA
Phone Number:	
Cell Number:	
Fax Number:	
E-mail:	ragenp.giga@alsglobal.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	12/15/21
Internal Due Date:	12/30/2021
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	Y
P.O. Number:	HS21120888
EDD:	No EDD Specified

1 120 mL-Plastic Bottle Natural WM Unpreserved

Location: EHRMS-AirArch 1

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	Level IV due 1/6

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	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.
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.

Data Qualifiers

Lab Standard

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
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
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 Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

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: **Colorado**

COC ID: **17697**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	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:	HS21120888
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21120888-02**	**LH18/24-SP650_121421_AIX**	**Water**	**14 Dec 2021 14:00**
	SUB_Perch-6850			30 Dec 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: NR

Date/Time:

Received By: [illegible]

Date/Time: 12-17-21 1817

Cooler ID(s):

Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: ALS-H

Thermometer ID: IR31

Date/Time Received: 12-15-21 Initials: CG

Date/Time Logged in: 12-15-21 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ ALS Courier ○ 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		12-15-21		CG	4.1	☒
						☐
						☐
						☐

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

10450 Stancliff Rd., Suite 210
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
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 392837 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/16/21 13:43

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101270-001	MW-2_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2101270-002	MW-2_120921_a	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2101270-003	18CPTMW01SW_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2101270-004	MW3_120921	.02	6850/ClO4 DOD			Ground Water	10mL	
5	E2101270-005	18WW10_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2101270-006	MW17_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2101270-007	18CPTMW14_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2101270-008	AWDI_120921	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2101274-001	LH18/24-SP650_121421_AIX	.01	6850/ClO4 DOD			Water	10mL	
10	E2101275-001	LH18/24-SP650_121421_AIX	.01	6850/ClO4 DOD			Water	10mL	
11	E2101276-001	LH18/24-SP140_121421	.01	6850/ClO4 DOD			Water	10mL	
12	EQ2100690-01	MB		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100690-02	LCS		6850/ClO4 DOD			Liquid	10mL	
14	EQ2100690-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
15	EQ2100690-04	MW3_120921 MS	.02	6850/ClO4 DOD			Liquid	10mL	
16	EQ2100690-05	MW3_120921 DMS	.02	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101270-001	100.00µL	E2101270-002	100.00µL	E2101270-003	100.00µL	E2101270-004	100.00µL	E2101270-005	100.00µL	E2101270-006	100.00µL
E2101270-007	100.00µL	E2101270-008	100.00µL	E2101274-001	100.00µL	E2101275-001	100.00µL	E2101276-001	100.00µL	EQ2100690-01	100.00µL
EQ2100690-02	100.00µL	EQ2100690-03	100.00µL	EQ2100690-04	100.00µL	EQ2100690-05	100.00µL				

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100690-02	1.00µL	EQ2100690-03	1.00µL	EQ2100690-04	1.00µL	EQ2100690-05	1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/16/21 13:43
Finished: 12/16/21 14:15
By: GRIVERA
Comments

Preparation Information Benchsheet

Prep Run#: 392837
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 12/16/21 13:43

Comments:

Reviewed By: GR Date: 12/16/21

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:**	E2101275
Project:	HS21120888	**Date Collected:**	12/14/21 1400
Sample Matrix:	Water	**Date Received:**	12/15/21
Sample Name:	LH18/24-SP650_121421_AIX	**Units:**	µg/L
Lab Code:	E2101275-001	**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	0.500	0.250	0.125	5	12/16/21	12/21/21 14:54	392837	749910	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101275
Project:	HS21120888	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100690-01	**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	12/16/21	12/17/21 12:13	392837	749485	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2101275
Project:	HS21120888	**Date Analyzed:**	12/17/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	392837

	Lab Control Sample EQ2100690-02			Duplicate Lab Control Sample EQ2100690-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.119	0.100	119	0.107	0.100	107	84 - 119	11	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:**	E2101275
Project:	HS21120888	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100690-02	**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	**0.119**		0.100	0.0500	0.0250	1	12/16/21	12/17/21 13:29	392837	749485	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2101275
Project:	HS21120888	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100690-03	**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	**0.107**		0.100	0.0500	0.0250	1	12/16/21	12/17/21 12:28	392837	749485	

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January 14, 2022

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21120895**

Laboratory Results for: **Groundwater Treatment Plant Quarterly Influent Samples**

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Dec 15, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER

Ragen Giga
Project Manager

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
Work Order: HS21120895

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21120895-01	LH18/24-SP140_121421	Water		14-Dec-2021 14:00	15-Dec-2021 10:40	☐
HS21120895-02	Trip Blank	Water	CG-101321-152	14-Dec-2021 14:00	15-Dec-2021 10:40	☐

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
Work Order: HS21120895

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 173723

Sample ID: LCSD-173723

- The RPD between the LCS and LCSD was outside of the control limit.

Sample ID: LH18/24-SP140_121421 (HS21120895-01)

- The surrogate recoveries could not be determined due to dilution below the calibration range.

GCMS Volatiles by Method SW8260

Batch ID: R398551

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 174048

Sample ID: HS21121014-04MS

- MS/MSD and DUPs are for an unrelated sample

Metals by Method SW7470A

Batch ID: 173861

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E1664A

Batch ID: R398664

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R398440

Sample ID: LH18/24-SP140_121421 (HS21120895-01MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride)

WetChemistry by Method E410.4

Batch ID: R398389

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Groundwater Treatment Plant Quarterly Influent Samples WorkOrder:HS21120895
Sample ID: LH18/24-SP140_121421 Lab ID:HS21120895-01
Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
1,1,2,2-Tetrachloroethane	5.0	U	2.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,1-Dichloroethane	**3.8**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	28-Dec-2021 19:39
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
1,1-Dichloropropene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2,3-Trichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2,3-Trichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2,4-Trichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2,4-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2-Dibromo-3-chloropropane	5.0	U	1.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
1,2-Dichlorobenzene	5.0	U	2.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,2-Dichloroethane	**24**		**1.0**	**2.5**	**5.0**	**ug/L**	5	28-Dec-2021 19:39
1,2-Dichloropropane	5.0	U	2.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,3,5-Trimethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,3-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,3-Dichloropropane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
1,4-Dichlorobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
2-Butanone	5.0	U	2.5	5.0	10	ug/L	5	28-Dec-2021 19:39
2-Chlorotoluene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
2-Hexanone	10	U	5.0	10	10	ug/L	5	28-Dec-2021 19:39
4-Chlorotoluene	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
4-Isopropyltoluene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
4-Methyl-2-pentanone	10	U	3.5	10	10	ug/L	5	28-Dec-2021 19:39
Acetone	10	U	2.0	10	10	ug/L	5	28-Dec-2021 19:39
Benzene	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
Bromobenzene	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Bromochloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
Bromodichloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
Bromoform	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Bromomethane	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Carbon disulfide	10	U	3.0	10	10	ug/L	5	28-Dec-2021 19:39
Carbon tetrachloride	**4.0**	J	**2.5**	**5.0**	**5.0**	**ug/L**	5	28-Dec-2021 19:39
Chlorobenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Chloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Chloroform	**7.5**		**1.0**	**2.5**	**5.0**	**ug/L**	5	28-Dec-2021 19:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: Groundwater Treatment Plant Quarterly Influent Samples WorkOrder:HS21120895

Sample ID: LH18/24-SP140_121421 Lab ID:HS21120895-01

Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
cis-1,2-Dichloroethene	**810**		**1.0**	**2.5**	**5.0**	**ug/L**	5	28-Dec-2021 19:39
cis-1,3-Dichloropropene	2.5	U	0.50	2.5	5.0	ug/L	5	28-Dec-2021 19:39
Dibromochloromethane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Dibromomethane	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
Dichlorodifluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Ethylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Isopropylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
m,p-Xylene	5.0	U	2.5	5.0	10	ug/L	5	28-Dec-2021 19:39
Methylene chloride	**610**		**2.0**	**5.0**	**10**	**ug/L**	5	28-Dec-2021 19:39
n-Butylbenzene	5.0	U	2.0	5.0	5.0	ug/L	5	28-Dec-2021 19:39
n-Propylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Naphthalene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
o-Xylene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
sec-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Styrene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
tert-Butylbenzene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Toluene	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
trans-1,2-Dichloroethene	**3.2**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	28-Dec-2021 19:39
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	ug/L	5	28-Dec-2021 19:39
Trichloroethene	**3,100**		**10**	**25**	**50**	**ug/L**	50	28-Dec-2021 20:01
Trichlorofluoromethane	5.0	U	1.5	5.0	5.0	ug/L	5	28-Dec-2021 19:39
Vinyl chloride	**9.4**		**1.0**	**2.5**	**5.0**	**ug/L**	5	28-Dec-2021 19:39
Surr: 1,2-Dichloroethane-d4	*98.2*			**0**	*81-118*	*%REC*	*5*	*28-Dec-2021 19:39*
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*50*	*28-Dec-2021 20:01*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*5*	*28-Dec-2021 19:39*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*50*	*28-Dec-2021 20:01*
Surr: Dibromofluoromethane	*98.6*			**0**	*80-119*	*%REC*	*50*	*28-Dec-2021 20:01*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*5*	*28-Dec-2021 19:39*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*28-Dec-2021 19:39*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*50*	*28-Dec-2021 20:01*
SEMIVOLATILES SIM		**Method:SW8270SIM**				Prep:SW3510 / 20-Dec-2021		Analyst: JLJ
1,4-Dioxane	**13**		**1.0**	**1.0**	**1.0**	**ug/L**	100	14-Jan-2022 14:42
Surr: 2-Fluorobiphenyl	*0*	*S*		0	*40-140*	*%REC*	*100*	*14-Jan-2022 14:42*
Surr: 4-Terphenyl-d14	*0*	*S*		0	*40-140*	*%REC*	*100*	*14-Jan-2022 14:42*
Surr: Nitrobenzene-d5	*0*	*S*		0	*40-140*	*%REC*	*100*	*14-Jan-2022 14:42*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: Groundwater Treatment Plant Quarterly Influent Samples WorkOrder:HS21120895

Sample ID: LH18/24-SP140_121421 Lab ID:HS21120895-01

Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 29-Dec-2021		Analyst: JHD
Aluminum	**0.0776**		**0.00180**	**0.00500**	**0.0100**	**mg/L**	1	30-Dec-2021 12:41
Antimony	**0.000624**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Arsenic	**0.00143**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Barium	**0.383**		**0.00190**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Beryllium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:41
Cadmium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:41
Calcium	**28.0**		**0.0340**	**0.0500**	**0.500**	**mg/L**	1	30-Dec-2021 12:41
Chromium	**0.00153**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Cobalt	**0.00117**	J	**0.000100**	**0.000500**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Iron	**0.197**	J	**0.0120**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:41
Lead	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	30-Dec-2021 12:41
Magnesium	**19.1**		**0.0100**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:41
Manganese	**0.0614**		**0.000700**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Nickel	**0.00884**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Potassium	**1.49**		**0.0180**	**0.0500**	**0.200**	**mg/L**	1	30-Dec-2021 12:41
Selenium	0.00250	U	0.00110	0.00250	0.00500	mg/L	1	30-Dec-2021 12:41
Silver	0.000500	U	0.000200	0.000500	0.00500	mg/L	1	30-Dec-2021 12:41
Sodium	**237**		**0.280**	**1.00**	**4.00**	**mg/L**	20	30-Dec-2021 15:38
Thallium	0.000500	U	0.000200	0.000500	0.00200	mg/L	1	30-Dec-2021 12:41
Vanadium	**0.00245**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
Zinc	**0.0225**		**0.00200**	**0.00250**	**0.00500**	**mg/L**	1	30-Dec-2021 12:41
MERCURY BY SW7470A		**Method:SW7470A**				Prep:SW7470A / 23-Dec-2021		Analyst: MSC
Mercury	0.000100	U	0.0000300	0.00010	0.000200	mg/L	1	23-Dec-2021 11:14
				0				
OIL & GREASE (HEM) BY E1664A		**Method:E1664A**						Analyst: KAH
Oil and Grease	1.00	U	0.610	1.00	2.00	mg/L	1	30-Dec-2021 14:20
CHEMICAL OXYGEN DEMAND BY E410.4, REV 2.0, 1993		**Method:E410.4**						Analyst: TH
Chemical Oxygen Demand	**7.00**	J	**5.00**	**15.0**	**15.0**	**mg/L**	1	27-Dec-2021 13:31
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**320**		**4.00**	**10.0**	**10.0**	**mg/L**	20	28-Dec-2021 03:54
Sulfate	**35.3**		**0.200**	**0.500**	**0.500**	**mg/L**	1	28-Dec-2021 03:32
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2021 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: Groundwater Treatment Plant Quarterly Influent Samples WorkOrder:HS21120895

Sample ID: Trip Blank Lab ID:HS21120895-02

Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 18:54
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	28-Dec-2021 18:54
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	28-Dec-2021 18:54
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 18:54
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	28-Dec-2021 18:54
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: Groundwater Treatment Plant Quarterly Influent Samples WorkOrder:HS21120895

Sample ID: Trip Blank Lab ID:HS21120895-02

Collection Date: 14-Dec-2021 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	28-Dec-2021 18:54
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	28-Dec-2021 18:54
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	28-Dec-2021 18:54
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	28-Dec-2021 18:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	28-Dec-2021 18:54
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*28-Dec-2021 18:54*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*28-Dec-2021 18:54*
Surr: Dibromofluoromethane	*97.9*			**0**	*80-119*	*%REC*	*1*	*28-Dec-2021 18:54*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-Dec-2021 18:54*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

Batch ID: 173723 **Start Date:** 20 Dec 2021 06:30 **End Date:** 20 Dec 2021 11:30
Method: SV AQ SEP FUN EXTRACT-LOWLEV - 3510C **Prep Code:** 3510_B_SIM

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120895-01	1	1000 (mL)	1 (mL)	0.001	1-liter amber glass, Neat

Batch ID: 173861 **Start Date:** 23 Dec 2021 07:00 **End Date:** 23 Dec 2021 10:00
Method: MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120895-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 174048 **Start Date:** 29 Dec 2021 11:30 **End Date:** 29 Dec 2021 15:30
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21120895-01		10 (mL)	10 (mL)	1	120 plastic HNO3

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 173723 (0)	**Test Name :** SEMIVOLATILES SIM				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00		20 Dec 2021 07:04	14 Jan 2022 14:42	100
Batch ID: 173861 (0)	**Test Name :** MERCURY BY SW7470A				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00		23 Dec 2021 10:00	23 Dec 2021 11:14	1
Batch ID: 174048 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00		29 Dec 2021 15:30	30 Dec 2021 15:38	20
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00		29 Dec 2021 15:30	30 Dec 2021 12:41	1
Batch ID: R398284 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			23 Dec 2021 11:42	1
Batch ID: R398389 (0)	**Test Name :** CHEMICAL OXYGEN DEMAND BY E410.4, REV 2.0, 1993				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			27 Dec 2021 13:31	1
Batch ID: R398440 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			28 Dec 2021 03:54	20
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			28 Dec 2021 03:32	1
Batch ID: R398551 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			28 Dec 2021 20:01	50
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			28 Dec 2021 19:39	5
HS21120895-02	Trip Blank	14 Dec 2021 14:00			28 Dec 2021 18:54	1
Batch ID: R398664 (0)	**Test Name :** OIL & GREASE (HEM) BY E1664A				**Matrix:** Water	
HS21120895-01	LH18/24-SP140_121421	14 Dec 2021 14:00			30 Dec 2021 14:20	1

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 173861 (0) **Instrument: HG03** **Method: MERCURY BY SW7470A**

MBLK Sample ID: **MBLK-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:42**
Client ID: Run ID: **HG03_398265** SeqNo: **6437934** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000000100	0.000200								U

LCS Sample ID: **LCS-173861** Units: **mg/L** Analysis Date: **23-Dec-2021 10:44**
Client ID: Run ID: **HG03_398265** SeqNo: **6437935** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00530	0.000200	0.005	0	106	82 - 119				

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 11:01**
Client ID: Run ID: **HG03_398265** SeqNo: **6437942** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119				

MS Sample ID: **HS21120658-04MS** Units: **mg/L** Analysis Date: **23-Dec-2021 10:48**
Client ID: Run ID: **HG03_398265** SeqNo: **6437937** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00477	0.000200	0.005	0.00005400	94.3	82 - 119				

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 11:03**
Client ID: Run ID: **HG03_398265** SeqNo: **6437943** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.000200	0.005	0.00005700	95.5	82 - 119	0.004830	0	20	

MSD Sample ID: **HS21120658-04MSD** Units: **mg/L** Analysis Date: **23-Dec-2021 10:49**
Client ID: Run ID: **HG03_398265** SeqNo: **6437938** PrepDate: **23-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00498	0.000200	0.005	0.00005400	98.5	82 - 119	0.004770	4.31	20	

The following samples were analyzed in this batch: HS21120895-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:09**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447014** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004266	0.0100								J
Antimony	0.00100	0.00500								U
Arsenic	0.00100	0.00500								U
Barium	0.00250	0.00500								U
Beryllium	0.000500	0.00200								U
Cadmium	0.000500	0.00200								U
Calcium	0.0500	0.500								U
Chromium	0.00100	0.00500								U
Cobalt	0.000500	0.00500								U
Iron	0.0500	0.200								U
Lead	0.00100	0.00500								U
Magnesium	0.0500	0.200								U
Manganese	0.00250	0.00500								U
Nickel	0.00100	0.00500								U
Potassium	0.0500	0.200								U
Selenium	0.00250	0.00500								U
Silver	0.000500	0.00500								U
Sodium	0.01745	0.200								J
Thallium	0.000500	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00500								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

LCS Sample ID: **LCS-174048** Units: **mg/L** Analysis Date: **30-Dec-2021 12:11**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447015** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1102	0.0100	0.1	0	110	84 - 117				
Antimony	0.05207	0.00500	0.05	0	104	85 - 117				
Arsenic	0.05387	0.00500	0.05	0	108	84 - 116				
Barium	0.05264	0.00500	0.05	0	105	86 - 114				
Beryllium	0.04924	0.00200	0.05	0	98.5	83 - 121				
Cadmium	0.05407	0.00200	0.05	0	108	87 - 115				
Calcium	4.915	0.500	5	0	98.3	87 - 118				
Chromium	0.05158	0.00500	0.05	0	103	85 - 116				
Cobalt	0.05173	0.00500	0.05	0	103	86 - 115				
Iron	5.168	0.200	5	0	103	87 - 118				
Lead	0.05144	0.00500	0.05	0	103	88 - 115				
Magnesium	5.264	0.200	5	0	105	83 - 118				
Manganese	0.05196	0.00500	0.05	0	104	87 - 115				
Nickel	0.05337	0.00500	0.05	0	107	85 - 117				
Potassium	5.158	0.200	5	0	103	87 - 115				
Selenium	0.05446	0.00500	0.05	0	109	80 - 120				
Silver	0.05149	0.00500	0.05	0	103	85 - 116				
Sodium	5.076	0.200	5	0	102	85 - 117				
Thallium	0.05401	0.00200	0.05	0	108	82 - 116				
Vanadium	0.05114	0.00500	0.05	0	102	86 - 115				
Zinc	0.0554	0.00500	0.05	0	111	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MS Sample ID: **HS21121014-04MS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:19**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447019** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5876	0.0100	0.1	0.4336	154	84 - 117				SO
Antimony	0.04901	0.00500	0.05	0.000194	97.6	85 - 117				
Arsenic	0.05446	0.00500	0.05	0.000899	107	84 - 116				
Barium	0.09409	0.00500	0.05	0.0464	95.4	86 - 114				
Beryllium	0.04721	0.00200	0.05	0.000886	92.6	83 - 121				
Cadmium	0.05113	0.00200	0.05	0.000369	102	87 - 115				
Calcium	53.63	0.500	5	53.22	8.27	87 - 118				SO
Chromium	0.05071	0.00500	0.05	0.001646	98.1	85 - 116				
Cobalt	0.06739	0.00500	0.05	0.0211	92.6	86 - 115				
Iron	5.248	0.200	5	0.3641	97.7	87 - 118				
Lead	0.05152	0.00500	0.05	0.00012	103	88 - 115				
Magnesium	46.74	0.200	5	45.53	24.3	83 - 118				SO
Manganese	6.955	0.00500	0.05	7.514	-1120	87 - 115				SEO
Nickel	0.2128	0.00500	0.05	0.1779	69.7	85 - 117				S
Potassium	5.675	0.200	5	0.7382	98.7	87 - 115				
Selenium	0.05339	0.00500	0.05	0.000331	106	80 - 120				
Silver	0.04777	0.00500	0.05	0.000008	95.5	85 - 116				
Sodium	708.6	0.200	5	776.3	-1350	85 - 117				SEO
Thallium	0.05356	0.00200	0.05	0.000019	107	82 - 116				
Vanadium	0.05246	0.00500	0.05	0.00152	102	86 - 115				
Zinc	0.1072	0.00500	0.05	0.06222	89.9	83 - 119				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MSD Sample ID: **HS21121014-04MSD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:23**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447021** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6094	0.0100	0.1	0.4336	176	84 - 117	0.5876	3.65	20	SO
Antimony	0.04888	0.00500	0.05	0.000194	97.4	85 - 117	0.04901	0.247	20	
Arsenic	0.05356	0.00500	0.05	0.000899	105	84 - 116	0.05446	1.66	20	
Barium	0.09265	0.00500	0.05	0.0464	92.5	86 - 114	0.09409	1.54	20	
Beryllium	0.04769	0.00200	0.05	0.000886	93.6	83 - 121	0.04721	1.01	20	
Cadmium	0.05108	0.00200	0.05	0.000369	101	87 - 115	0.05113	0.102	20	
Calcium	52.81	0.500	5	53.22	-8.08	87 - 118	53.63	1.54	20	SO
Chromium	0.05068	0.00500	0.05	0.001646	98.1	85 - 116	0.05071	0.0572	20	
Cobalt	0.06798	0.00500	0.05	0.0211	93.8	86 - 115	0.06739	0.873	20	
Iron	5.262	0.200	5	0.3641	98.0	87 - 118	5.248	0.259	20	
Lead	0.05078	0.00500	0.05	0.00012	101	88 - 115	0.05152	1.46	20	
Magnesium	46.19	0.200	5	45.53	13.3	83 - 118	46.74	1.18	20	SO
Manganese	6.92	0.00500	0.05	7.514	-1190	87 - 115	6.955	0.508	20	SEO
Nickel	0.2117	0.00500	0.05	0.1779	67.6	85 - 117	0.2128	0.499	20	S
Potassium	5.625	0.200	5	0.7382	97.7	87 - 115	5.675	0.875	20	
Selenium	0.05191	0.00500	0.05	0.000331	103	80 - 120	0.05339	2.8	20	
Silver	0.04761	0.00500	0.05	0.000008	95.2	85 - 116	0.04777	0.327	20	
Sodium	720.5	0.200	5	776.3	-1120	85 - 117	708.6	1.66	20	SEO
Thallium	0.05298	0.00200	0.05	0.000019	106	82 - 116	0.05356	1.08	20	
Vanadium	0.05157	0.00500	0.05	0.00152	100	86 - 115	0.05246	1.71	20	
Zinc	0.1073	0.00500	0.05	0.06222	90.2	83 - 119	0.1072	0.163	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 12:25**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447022** PrepDate: **29-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6193	0.0100	0.1	0.4336	186	80 - 120				SO
Antimony	0.1097	0.00500	0.1	0.000194	110	80 - 120				
Arsenic	0.119	0.00500	0.1	0.000899	118	80 - 120				
Barium	0.1541	0.00500	0.1	0.0464	108	80 - 120				
Beryllium	0.102	0.00200	0.1	0.000886	101	80 - 120				
Cadmium	0.1134	0.00200	0.1	0.000369	113	80 - 120				
Calcium	59.07	0.500	10	53.22	58.6	80 - 120				SO
Chromium	0.112	0.00500	0.1	0.001646	110	80 - 120				
Cobalt	0.1346	0.00500	0.1	0.0211	114	80 - 120				
Iron	11.4	0.200	10	0.3641	110	80 - 120				
Lead	0.1159	0.00500	0.1	0.00012	116	80 - 120				
Magnesium	53.58	0.200	10	45.53	80.5	80 - 120				O
Nickel	0.2727	0.00500	0.1	0.1779	94.7	80 - 120				
Potassium	11.91	0.200	10	0.7382	112	80 - 120				
Selenium	0.116	0.00500	0.1	0.000331	116	80 - 120				
Silver	0.09187	0.00500	0.1	0.000008	91.9	80 - 120				
Thallium	0.1186	0.00200	0.1	0.000019	119	80 - 120				
Vanadium	0.1136	0.00500	0.1	0.00152	112	80 - 120				
Zinc	0.1714	0.00500	0.1	0.06222	109	80 - 120				

PDS Sample ID: **HS21121014-04PDS** Units: **mg/L** Analysis Date: **30-Dec-2021 17:29**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447469** PrepDate: **29-Dec-2021** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	13.09	0.250	5	7.163	118	80 - 120				
Sodium	1264	10.0	500	732.3	106	80 - 120				

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 15:54**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447296** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.4746	0.0500					0.4336	9.47	10	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 174048 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 12:17**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447018** PrepDate: **29-Dec-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Antimony	0.00500	0.0250					0	0	10	U
Arsenic	0.00500	0.0250					0.000899	0	10	U
Barium	0.04538	0.0250					0.0464	2.19	10	
Beryllium	0.00250	0.0100					0.000886	0	10	U
Cadmium	0.00250	0.0100					0.000369	0	10	U
Calcium	51.65	2.50					53.22	2.95	10	
Chromium	0.00500	0.0250					0.001646	0	10	U
Cobalt	0.0216	0.0250					0.0211	0	10	J
Iron	0.3466	1.00					0.3641	0	10	J
Lead	0.00500	0.0250					0	0	10	U
Magnesium	45.13	1.00					45.53	0.873	10	
Nickel	0.1856	0.0250					0.1779	4.3	10	
Potassium	0.6991	1.00					0.7382	0	10	J
Selenium	0.0125	0.0250					0	0	10	U
Silver	0.00250	0.0250					0	0	10	U
Thallium	0.00250	0.0100					0	0	10	U
Vanadium	0.00701	0.0250					0.00152	0	10	J
Zinc	0.06506	0.0250					0.06222	4.57	10	

SD Sample ID: **HS21121014-04SD** Units: **mg/L** Analysis Date: **30-Dec-2021 17:13**
Client ID: Run ID: **ICPMS06_398647** SeqNo: **6447464** PrepDate: **29-Dec-2021** DF: **250**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Manganese	7.305	1.25					7.163	1.99	10	
Sodium	746.3	50.0					732.3	1.92	10	

The following samples were analyzed in this batch: HS21120895-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: 173723 (0) **Instrument: SV-6** **Method: SEMIVOLATILES SIM**

MBLK Sample ID: **MBLK-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:16**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464306** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.08043*	*0*	*0.08*	*0*	*101*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.04743*	*0*	*0.08*	*0*	*59.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07872*	*0*	*0.08*	*0*	*98.4*	*40 - 140*				

LCS Sample ID: **LCS-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:34**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464307** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08871	0.010	0.08	0	111	40 - 140				
Surr: 2-Fluorobiphenyl	*0.07835*	*0*	*0.08*	*0*	*97.9*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.06655*	*0*	*0.08*	*0*	*83.2*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.06155*	*0*	*0.08*	*0*	*76.9*	*40 - 140*				

LCSD Sample ID: **LCSD-173723** Units: **ug/L** Analysis Date: **13-Jan-2022 13:52**
Client ID: Run ID: **SV-6_400332** SeqNo: **6464308** PrepDate: **20-Dec-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08406	0.010	0.08	0	105	40 - 140	0.08871	5.38	20	
Surr: 2-Fluorobiphenyl	*0.07614*	*0*	*0.08*	*0*	*95.2*	*40 - 140*	*0.07835*	*2.86*	*20*	
Surr: 4-Terphenyl-d14	*0.0555*	*0*	*0.08*	*0*	*69.4*	*40 - 140*	*0.06655*	*18.1*	*20*	
Surr: Nitrobenzene-d5	*0.08313*	*0*	*0.08*	*0*	*104*	*40 - 140*	*0.06155*	*29.8*	*20*	R

The following samples were analyzed in this batch: HS21120895-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: **R398551 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 12:35**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*48.53*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.05*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: **R398551 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.31	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	19.49	1.0	20	0	97.4	74 - 131				
1,1,2,2-Tetrachloroethane	19.43	1.0	20	0	97.2	71 - 121				
1,1,2-Trichloroethane	19.33	1.0	20	0	96.7	80 - 119				
1,1-Dichloroethane	17.67	1.0	20	0	88.4	77 - 125				
1,1-Dichloroethene	17.38	1.0	20	0	86.9	71 - 131				
1,1-Dichloropropene	19.55	1.0	20	0	97.8	78 - 125				
1,2,3-Trichlorobenzene	21.82	1.0	20	0	109	69 - 129				
1,2,3-Trichloropropane	18.81	1.0	20	0	94.0	73 - 122				
1,2,4-Trichlorobenzene	22.34	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	20.85	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	17.51	1.0	20	0	87.5	62 - 128				
1,2-Dibromoethane	20.45	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	20.03	1.0	20	0	100	80 - 119				
1,2-Dichloroethane	19.13	1.0	20	0	95.6	73 - 128				
1,2-Dichloropropane	19.64	1.0	20	0	98.2	78 - 122				
1,3,5-Trimethylbenzene	20.82	1.0	20	0	104	75 - 124				
1,3-Dichlorobenzene	20.53	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	19.53	1.0	20	0	97.7	80 - 119				
1,4-Dichlorobenzene	20.06	1.0	20	0	100	79 - 118				
2,2-Dichloropropane	20.05	1.0	20	0	100	60 - 139				
2-Butanone	37.15	2.0	40	0	92.9	56 - 143				
2-Chlorotoluene	20.51	1.0	20	0	103	79 - 122				
2-Hexanone	38.98	2.0	40	0	97.4	57 - 139				
4-Chlorotoluene	21.77	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	20.7	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	39.06	2.0	40	0	97.7	67 - 130				
Acetone	33.6	2.0	40	0	84.0	39 - 160				
Benzene	19.99	1.0	20	0	100.0	79 - 120				
Bromobenzene	20.29	1.0	20	0	101	80 - 120				
Bromochloromethane	19.71	1.0	20	0	98.5	78 - 123				
Bromodichloromethane	19.33	1.0	20	0	96.6	79 - 125				
Bromoform	16.69	1.0	20	0	83.4	66 - 130				
Bromomethane	19.64	1.0	20	0	98.2	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211228** Units: **ug/L** Analysis Date: **28-Dec-2021 11:50**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.83	2.0	40	0	94.6	64 - 133				
Carbon tetrachloride	18.61	1.0	20	0	93.0	72 - 136				
Chlorobenzene	19.77	1.0	20	0	98.9	82 - 118				
Chloroethane	17.19	1.0	20	0	85.9	60 - 138				
Chloroform	19.29	1.0	20	0	96.4	79 - 124				
Chloromethane	18.75	1.0	20	0	93.8	50 - 139				
cis-1,2-Dichloroethene	19.09	1.0	20	0	95.4	78 - 123				
cis-1,3-Dichloropropene	18.29	1.0	20	0	91.4	75 - 124				
Dibromochloromethane	18.18	1.0	20	0	90.9	74 - 126				
Dibromomethane	18.88	1.0	20	0	94.4	79 - 123				
Dichlorodifluoromethane	17.68	1.0	20	0	88.4	32 - 152				
Ethylbenzene	19.77	1.0	20	0	98.8	79 - 121				
Hexachlorobutadiene	21.72	1.0	20	0	109	66 - 134				
Isopropylbenzene	21.1	1.0	20	0	106	72 - 131				
m,p-Xylene	42.59	2.0	40	0	106	80 - 121				
Methylene chloride	18.09	2.0	20	0	90.5	74 - 124				
Naphthalene	18.55	1.0	20	0	92.7	61 - 128				
n-Butylbenzene	23.3	1.0	20	0	116	75 - 128				
n-Propylbenzene	21.86	1.0	20	0	109	76 - 126				
o-Xylene	20.93	1.0	20	0	105	78 - 122				
sec-Butylbenzene	22.43	1.0	20	0	112	77 - 126				
Styrene	21.91	1.0	20	0	110	78 - 123				
tert-Butylbenzene	21.26	1.0	20	0	106	78 - 124				
Tetrachloroethene	18.99	1.0	20	0	94.9	74 - 129				
Toluene	20.97	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	17.38	1.0	20	0	86.9	75 - 124				
trans-1,3-Dichloropropene	17.43	1.0	20	0	87.1	73 - 127				
Trichloroethene	18.29	1.0	20	0	91.5	79 - 123				
Trichlorofluoromethane	17.4	1.0	20	0	87.0	65 - 141				
Vinyl chloride	17.1	1.0	20	0	85.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.14*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.35*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*52.31*	*1.0*	*50*	*0*	*105*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.5	1.0	20	0	107	78 - 124				
1,1,1-Trichloroethane	21.73	1.0	20	0	109	74 - 131				
1,1,2,2-Tetrachloroethane	20.93	1.0	20	0	105	71 - 121				
1,1,2-Trichloroethane	21.03	1.0	20	0	105	80 - 119				
1,1-Dichloroethane	18.87	1.0	20	0	94.4	77 - 125				
1,1-Dichloroethene	19.76	1.0	20	0	98.8	71 - 131				
1,1-Dichloropropene	22.89	1.0	20	0	114	78 - 125				
1,2,3-Trichlorobenzene	20.1	1.0	20	0	101	69 - 129				
1,2,3-Trichloropropane	20.72	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	20.74	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	21.57	1.0	20	0	108	76 - 124				
1,2-Dibromo-3-chloropropane	18.48	1.0	20	0	92.4	62 - 128				
1,2-Dibromoethane	21.67	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	21.12	1.0	20	0	106	80 - 119				
1,2-Dichloroethane	21.29	1.0	20	0	106	73 - 128				
1,2-Dichloropropane	21.75	1.0	20	0	109	78 - 122				
1,3,5-Trimethylbenzene	22.46	1.0	20	0	112	75 - 124				
1,3-Dichlorobenzene	21.79	1.0	20	0	109	80 - 119				
1,3-Dichloropropane	21.62	1.0	20	0	108	80 - 119				
1,4-Dichlorobenzene	21.14	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	20.45	1.0	20	0	102	60 - 139				
2-Butanone	36.97	2.0	40	0	92.4	56 - 143				
2-Chlorotoluene	22.92	1.0	20	0	115	79 - 122				
2-Hexanone	43.94	2.0	40	0	110	57 - 139				
4-Chlorotoluene	23.5	1.0	20	0	118	78 - 122				
4-Isopropyltoluene	21.94	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	44.1	2.0	40	0	110	67 - 130				
Acetone	34.8	2.0	40	0	87.0	39 - 160				
Benzene	21.98	1.0	20	0	110	79 - 120				
Bromobenzene	21.87	1.0	20	0	109	80 - 120				
Bromochloromethane	19.48	1.0	20	0	97.4	78 - 123				
Bromodichloromethane	20.72	1.0	20	0	104	79 - 125				
Bromoform	18.44	1.0	20	0	92.2	66 - 130				
Bromomethane	20.18	1.0	20	0	101	53 - 141				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21120921-01MS** Units: **ug/L** Analysis Date: **28-Dec-2021 15:11**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444605** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.24	2.0	40	0	95.6	64 - 133				
Carbon tetrachloride	22.49	1.0	20	0	112	72 - 136				
Chlorobenzene	21.9	1.0	20	0	110	82 - 118				
Chloroethane	20.56	1.0	20	0	103	60 - 138				
Chloroform	20.05	1.0	20	0	100	79 - 124				
Chloromethane	20.41	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	19.62	1.0	20	0	98.1	78 - 123				
cis-1,3-Dichloropropene	19.02	1.0	20	0	95.1	75 - 124				
Dibromochloromethane	19.48	1.0	20	0	97.4	74 - 126				
Dibromomethane	20.91	1.0	20	0	105	79 - 123				
Dichlorodifluoromethane	19.06	1.0	20	0	95.3	32 - 152				
Ethylbenzene	23.03	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	21.35	1.0	20	0	107	66 - 134				
Isopropylbenzene	23.62	1.0	20	0	118	72 - 131				
m,p-Xylene	47.92	2.0	40	0	120	80 - 121				
Methylene chloride	18.98	2.0	20	0	94.9	74 - 124				
Naphthalene	18.81	1.0	20	0	94.1	61 - 128				
n-Butylbenzene	24.04	1.0	20	0	120	75 - 128				
n-Propylbenzene	24.33	1.0	20	0	122	76 - 126				
o-Xylene	23.97	1.0	20	0	120	78 - 122				
sec-Butylbenzene	24.26	1.0	20	0	121	77 - 126				
Styrene	23.3	1.0	20	0	116	78 - 123				
tert-Butylbenzene	23.06	1.0	20	0	115	78 - 124				
Tetrachloroethene	23	1.0	20	0	115	74 - 129				
Toluene	23.19	1.0	20	0	116	80 - 121				
trans-1,2-Dichloroethene	19.24	1.0	20	0	96.2	75 - 124				
trans-1,3-Dichloropropene	18.15	1.0	20	0	90.7	73 - 127				
Trichloroethene	21.23	1.0	20	0	106	79 - 123				
Trichlorofluoromethane	20.57	1.0	20	0	103	65 - 141				
Vinyl chloride	19.46	1.0	20	0	97.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.94*	*1.0*	*50*	*0*	*95.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.67*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*52.73*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.38	1.0	20	0	107	78 - 124	21.5	0.565	20	
1,1,1-Trichloroethane	20.88	1.0	20	0	104	74 - 131	21.73	4.01	20	
1,1,2,2-Tetrachloroethane	20.13	1.0	20	0	101	71 - 121	20.93	3.9	20	
1,1,2-Trichloroethane	20.34	1.0	20	0	102	80 - 119	21.03	3.33	20	
1,1-Dichloroethane	18.28	1.0	20	0	91.4	77 - 125	18.87	3.16	20	
1,1-Dichloroethene	18.73	1.0	20	0	93.6	71 - 131	19.76	5.34	20	
1,1-Dichloropropene	22.31	1.0	20	0	112	78 - 125	22.89	2.59	20	
1,2,3-Trichlorobenzene	20.03	1.0	20	0	100	69 - 129	20.1	0.369	20	
1,2,3-Trichloropropane	20.45	1.0	20	0	102	73 - 122	20.72	1.31	20	
1,2,4-Trichlorobenzene	20.71	1.0	20	0	104	69 - 130	20.74	0.159	20	
1,2,4-Trimethylbenzene	21.46	1.0	20	0	107	76 - 124	21.57	0.534	20	
1,2-Dibromo-3-chloropropane	17.59	1.0	20	0	88.0	62 - 128	18.48	4.91	20	
1,2-Dibromoethane	21.47	1.0	20	0	107	77 - 121	21.67	0.899	20	
1,2-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119	21.12	2.48	20	
1,2-Dichloroethane	19.96	1.0	20	0	99.8	73 - 128	21.29	6.44	20	
1,2-Dichloropropane	20.78	1.0	20	0	104	78 - 122	21.75	4.53	20	
1,3,5-Trimethylbenzene	21.92	1.0	20	0	110	75 - 124	22.46	2.43	20	
1,3-Dichlorobenzene	21.62	1.0	20	0	108	80 - 119	21.79	0.767	20	
1,3-Dichloropropane	20.74	1.0	20	0	104	80 - 119	21.62	4.15	20	
1,4-Dichlorobenzene	21.07	1.0	20	0	105	79 - 118	21.14	0.344	20	
2,2-Dichloropropane	19.84	1.0	20	0	99.2	60 - 139	20.45	3	20	
2-Butanone	35.9	2.0	40	0	89.7	56 - 143	36.97	2.95	20	
2-Chlorotoluene	21.8	1.0	20	0	109	79 - 122	22.92	5	20	
2-Hexanone	43.92	2.0	40	0	110	57 - 139	43.94	0.0476	20	
4-Chlorotoluene	22.88	1.0	20	0	114	78 - 122	23.5	2.68	20	
4-Isopropyltoluene	21.27	1.0	20	0	106	77 - 127	21.94	3.14	20	
4-Methyl-2-pentanone	42.94	2.0	40	0	107	67 - 130	44.1	2.66	20	
Acetone	33.69	2.0	40	0	84.2	39 - 160	34.8	3.26	20	
Benzene	20.77	1.0	20	0	104	79 - 120	21.98	5.66	20	
Bromobenzene	21.34	1.0	20	0	107	80 - 120	21.87	2.43	20	
Bromochloromethane	19.15	1.0	20	0	95.8	78 - 123	19.48	1.7	20	
Bromodichloromethane	20.53	1.0	20	0	103	79 - 125	20.72	0.909	20	
Bromoform	17.71	1.0	20	0	88.6	66 - 130	18.44	4.04	20	
Bromomethane	19.28	1.0	20	0	96.4	53 - 141	20.18	4.56	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398551 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21120921-01MSD** Units: **ug/L** Analysis Date: **28-Dec-2021 15:33**
Client ID: Run ID: **VOA9_398551** SeqNo: **6444606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.22	2.0	40	0	93.1	64 - 133	38.24	2.68	20	
Carbon tetrachloride	21.36	1.0	20	0	107	72 - 136	22.49	5.15	20	
Chlorobenzene	21.08	1.0	20	0	105	82 - 118	21.9	3.81	20	
Chloroethane	19.84	1.0	20	0	99.2	60 - 138	20.56	3.59	20	
Chloroform	18.51	1.0	20	0	92.6	79 - 124	20.05	7.98	20	
Chloromethane	19.19	1.0	20	0	96.0	50 - 139	20.41	6.13	20	
cis-1,2-Dichloroethene	19.11	1.0	20	0	95.6	78 - 123	19.62	2.63	20	
cis-1,3-Dichloropropene	18.18	1.0	20	0	90.9	75 - 124	19.02	4.49	20	
Dibromochloromethane	19.02	1.0	20	0	95.1	74 - 126	19.48	2.37	20	
Dibromomethane	19.88	1.0	20	0	99.4	79 - 123	20.91	5.03	20	
Dichlorodifluoromethane	18.09	1.0	20	0	90.5	32 - 152	19.06	5.23	20	
Ethylbenzene	22.39	1.0	20	0	112	79 - 121	23.03	2.82	20	
Hexachlorobutadiene	19.3	1.0	20	0	96.5	66 - 134	21.35	10.1	20	
Isopropylbenzene	23.36	1.0	20	0	117	72 - 131	23.62	1.09	20	
m,p-Xylene	45.96	2.0	40	0	115	80 - 121	47.92	4.18	20	
Methylene chloride	17.89	2.0	20	0	89.4	74 - 124	18.98	5.95	20	
Naphthalene	19.04	1.0	20	0	95.2	61 - 128	18.81	1.23	20	
n-Butylbenzene	22.9	1.0	20	0	114	75 - 128	24.04	4.88	20	
n-Propylbenzene	23.35	1.0	20	0	117	76 - 126	24.33	4.1	20	
o-Xylene	23.41	1.0	20	0	117	78 - 122	23.97	2.34	20	
sec-Butylbenzene	23.25	1.0	20	0	116	77 - 126	24.26	4.25	20	
Styrene	22.75	1.0	20	0	114	78 - 123	23.3	2.37	20	
tert-Butylbenzene	22.59	1.0	20	0	113	78 - 124	23.06	2.05	20	
Tetrachloroethene	21.96	1.0	20	0	110	74 - 129	23	4.62	20	
Toluene	22.62	1.0	20	0	113	80 - 121	23.19	2.5	20	
trans-1,2-Dichloroethene	17.8	1.0	20	0	89.0	75 - 124	19.24	7.75	20	
trans-1,3-Dichloropropene	18.12	1.0	20	0	90.6	73 - 127	18.15	0.159	20	
Trichloroethene	19.94	1.0	20	0	99.7	79 - 123	21.23	6.29	20	
Trichlorofluoromethane	19.8	1.0	20	0	99.0	65 - 141	20.57	3.8	20	
Vinyl chloride	18.44	1.0	20	0	92.2	58 - 137	19.46	5.4	20	
Surr: 1,2-Dichloroethane-d4	*48.48*	*1.0*	*50*	*0*	*97.0*	*81 - 118*	*47.94*	*1.13*	*20*	
Surr: 4-Bromofluorobenzene	*52.14*	*1.0*	*50*	*0*	*104*	*85 - 114*	*52.67*	*1.02*	*20*	
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*	*47.81*	*0.00255*	*20*	
Surr: Toluene-d8	*53.24*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.73*	*0.956*	*20*	

ALS Houston, US

Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID:	R398551 (0)	Instrument:	VOA9	Method:	VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21120895-01 HS21120895-02

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398389 (0) **Instrument:** WetChem_HS **Method:** CHEMICAL OXYGEN DEMAND BY E410.4, REV 2.0, 1993

MBLK Sample ID: **MBLK-R398389** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440252** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	15.0	15.0								U

LCS Sample ID: **LCS-R398389** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440251** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	100	15.0	100	0	100	85 - 115				

MS Sample ID: **HS21121291-01MS** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440254** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	70	15.0	50	22	96.0	80 - 120				

MSD Sample ID: **HS21121291-01MSD** Units: **mg/L** Analysis Date: **27-Dec-2021 13:31**
Client ID: Run ID: **WetChem_HS_398389** SeqNo: **6440253** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	70	15.0	50	22	96.0	80 - 120	70	0	20	

The following samples were analyzed in this batch: HS21120895-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398440 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **27-Dec-2021 12:34**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441866** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **27-Dec-2021 12:42**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.73	0.500	20	0	98.7	80 - 120				
Sulfate	19.73	0.500	20	0	98.7	80 - 120				

MS Sample ID: **HS21121011-10MS** Units: **mg/L** Analysis Date: **27-Dec-2021 15:20**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441876** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	786.7	10.0	200	562.5	112	80 - 120				
Sulfate	271.8	10.0	200	60.19	106	80 - 120				

MS Sample ID: **HS21120895-01MS** Units: **mg/L** Analysis Date: **28-Dec-2021 03:39**
Client ID: **LH18/24-SP140_121421** Run ID: **ICS-Integrion_398440** SeqNo: **6441897** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	321.5	0.500	10	319.9	16.7	80 - 120				SEO
Sulfate	44.82	0.500	10	35.27	95.6	80 - 120				

MSD Sample ID: **HS21121011-10MSD** Units: **mg/L** Analysis Date: **27-Dec-2021 15:28**
Client ID: Run ID: **ICS-Integrion_398440** SeqNo: **6441877** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	759.2	10.0	200	562.5	98.3	80 - 120	786.7	3.55	20	
Sulfate	262.6	10.0	200	60.19	101	80 - 120	271.8	3.45	20	

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: **R398440 (0)** **Instrument:** **ICS-Integrion** **Method:** **ANIONS BY SW9056A**

MSD Sample ID: **HS21120895-01MSD** Units: **mg/L** Analysis Date: **28-Dec-2021 03:47**
Client ID: **LH18/24-SP140_121421** Run ID: **ICS-Integrion_398440** SeqNo: **6441898** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	319.4	0.500	10	319.9	-4.61	80 - 120	321.5	0.664	20	SEO
Sulfate	44.59	0.500	10	35.27	93.2	80 - 120	44.82	0.527	20	

The following samples were analyzed in this batch: HS21120895-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: HS21120895

QC BATCH REPORT

Batch ID: R398664 (0) **Instrument: Balance1** **Method: OIL & GREASE (HEM) BY E1664A**

MBLK Sample ID: **WBLKW-1223021** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447350** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	1.00	2.00								U

LCS Sample ID: **WLCSW-123021** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447352** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	37.6	2.00	40	0	94.0	78 - 114				

LCSD Sample ID: **WLCSDW-123021** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447351** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	37.7	2.00	40	0	94.2	78 - 114	37.6	0.266	18	

MS Sample ID: **HS21121294-02MS** Units: **mg/L** Analysis Date: **30-Dec-2021 14:20**
Client ID: Run ID: **Balance1_398664** SeqNo: **6447340** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	39.6	2.00	40	2.991	91.5	78 - 114				

The following samples were analyzed in this batch: HS21120895-01

ALS Houston, US Date: 14-Jan-22

Client: Bhate Environmental Associates, Inc.
Project: Groundwater Treatment Plant Quarterly Influent Samples
WorkOrder: **HS21120895**

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